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Ministry of Earth Sciences

National Centre for Coastal Research

National Shoreline Assessment System (N-SAS)

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National Assessment of Shoreline Changes along Indian Coast

Volume 1 - East Coast

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Team Members

Dr. M. V. Ramana Murthy, Director & Scientist-G, NCCR
Dr. R. S. Kankara, Group Head & Scientist G, CP&SM Group, NCCR
Mr. Satya Kiran Raju Alluri, Scientist D
Dr. Rabindra Kumar Sahoo, Scientist D

Remote Sensing & Shoreline Mapping

Dr. S. Chenthamil Selvan, Project Scientist C
Mr. K. Prabhu, Project Scientist C
Mr. B. Rajan, Project Scientist B
Dr. P. Thanabalan, Project Scientist B
Mrs. S. Dhanalakshmi, Project Scientist B
Mrs. G. Padmini, Project Scientist B

Coastal Processes

Mr. S. Sathish, Project Scientist C
Dr. V. Noujas, Project Scientist C
Dr. Ateeth Shetty, Project Scientist B
Mr. S. Subburaj, Project Scientist B
Mrs. M. Umamaheswari, Project Scientist B

Advisory Committee

Dr. Shailesh Nayak, Former Secretary, MoES, New Delhi.	Chairman
Dr. Ashok Kumar Saxena, Project Director, ICZMP, Gujarat	Member
Dr. Ajit Pattnaik, Project Director (Retd), ICZMP, Odisha	Member
Sh. Arvind Kumar Nautiyal, Director, MoEF & CC, New Delhi	Member
Sh. Sanjay Kumar Singh, Director, CWC, MoWR, RD&GR, New Delhi	Member

Concept and Design : Dr. Sisir Kumar Dash, Scientist E, NCCR

Disclaimer:

This report is part of a series of reports that includes text summarizing methods, results, in addition to maps illustrating zones of shoreline change. Zones of shoreline change are being published for the purpose of coastline characterization. The report/maps are not intended to be equated to either as revenue maps of the respective State/ UT/ Government agencies or as the topographic maps of the Survey of India and are not meant for any legal purposes.

Contact:

National Centre for Coastal Research (NCCR)
NIOT Campus, Velachery-Tambaram Main Road, Pallikaranai, Chennai - 600100, India
Tel: +91 44 66783599 Fax: +91 44 66783487
E-mail: nccr@nccr.gov.in

सत्यमेव जयते

डॉ. एम. रविचंद्रन
Dr. M. Ravichandran

सचिव
भारत सरकार
पृथ्वी विज्ञान मंत्रालय
पृथ्वी भवन, लोदी रोड, नई दिल्ली–110003

SECRETARY
GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
PRITHVI BHAWAN, LODHI ROAD, NEW DELHI-110003

PREFACE

The coastal zones of the world are constantly changing due to natural and anthropogenic activities. Natural processes such as waves, tides, littoral currents, sea-level rise, severe storm events etc. have an impact on shoreline changes at both local and regional levels. Human activities, on the other hand, further aggravate these changes, as they interrupt the natural coastal processes and alter the sediment transport, which leads to rapid changes in the coastline.

Considering the need for resolute coastal processes and shoreline management the National Centre for Coastal Research (NCCR), Chennai an attached office of the Ministry of Earth Sciences, is engaged in mapping the shoreline changes along the Indian coast to enhance the country's preparedness to face coastal hazards like storm surges, tsunami, etc. and to guide towards sustainable coastal development. NCCR has prepared a status report on shoreline changes for the period 1990 to 2018 (28 years), using 11 shoreline data sets, i.e. the years 1990, 2000, 2006, 2008, 2012, 2013, 2014, 2015, 2016,2017 and 2018. It provides details of shoreline changes, 3 types of map, shoreline vulnerability for erosion /accretion, land loss/land gain, etc. for the entire mainland coast of India. These maps will be available online for each of the coastal states/ UT on the NCCR's website.

The National Assessment on Shoreline Changes along the Indian Coast was committed in 1998 by NCCR to provide the clearly defined Indian coast shoreline conditions and its decadal changes. National Shoreline Assessment System (N-SAS), an in-house web-based shoreline information system, was developed by NCCR to integrate the shoreline decadal changes information system to the coastal community.

I congratulate Dr M. V. Ramana Murthy, Director, NCCR, Dr R S. Kankara, Head, Coastal Processes and Shoreline Management Group, NCCR, the Project Team and expert committee, for bringing out the status report on Shoreline changes along the Indian coast for the period 1990-2018. I also thank Dr Shailesh Nayak, Former Secretary, MoES for conceptualising this important activity and reviewing the mapping work.

I hope this information will be very useful to coastal managers and other stakeholders in identifying critical areas for coastal management to protect the property and population living in coastal areas.

(M. Ravichandran)

Tel. : +91-11-24629771, 24629772 ❑ Fax : +91-11-24629777 ❑ E-mail : secretary@moes.gov.in

NATIONAL INSTITUTE OF ADVANCED STUDIES
Indian Institute of Science Campus, Bangalore - 560 012, INDIA

Dr. Shailesh Nayak
Director

Tele: +91-80-2360 1969 (O) Fax: +91-80-2218 5028
Email: director@nias.res.in ; shailesh@nias.res.in

FOREWORD

The coastal zone is a region where land, ocean and atmosphere interact and hence it is dynamic in nature. In view of dynamic nature of the coast, the coastal areas have become more vulnerable to natural hazards and human activities which leads to coastal erosion. Considering coastal erosion, it is global problem affecting almost every country around the world having a coastline. Indian coasts are not adequately monitored until the advent of satellite remote sensing era in the 70s. India has a robust remote sensing program that the Indian Remote Sensing satellite (IRS) series were effectively used to monitor the coastal landforms. The coastal landform and shoreline are the results of geomorphological processes which needs an attention. In this outline, National Centre for Coastal Research (NCCR) initiated the Shoreline Change Assessment studies along the Indian coastlines to provide timely and accurate information through advanced remote sensing technologies, validated with field information. The shoreline change maps are generated with multidate satellite data in a time frame to understand the status of coastal protection measures. The entire digitized database are placed under GIS platform.

Now, the extended research has developed the National Shoreline Assessment System (N-SAS) an in-house developed web-based shoreline information system was prepared by NCCR. The focuses on improving the new emerging technologies and products of research will enhance effective early warning information and transfer to build decision support system.

This report provides a baseline information for initiating appropriate action for protecting the Indian coast, besides use by the scientific community as a well decision makers of the country.

As a Chairman, Research Advisory Committee of this program, I compliment Dr M. V. Ramana Murthy Director, Dr R S. Kankara, Group Head, Coastal Processes and Shoreline Management Group, NCCR for their sustained research and outstanding contributions in application of remote sensing for studying coastal processes. I am confident that, the present report will be useful and go a long way in conserving the coastal environment in the country. On this Occasion, I appreciate the efforts put by all those who have made the contributions to this significant task.

SR Nayak

Shailesh Nayak

भारत सरकार
Government of India
पृथ्वी विज्ञान मंत्रालय
Ministry of Earth Sciences
राष्ट्रीय तटीय अनुसंधान केन्द्र (एन सी सी आर)
NATIONAL CENTRE FOR COASTAL RESEARCH (N C C R)

सत्यमेव जयते

सुचना का अधिकार

Dr. M.V.Ramana Murthy
Director & Scientist - G
mvr@nccr.gov.in

Date: 23.03.2022

FOREWORD

Indian mainland coastlines of about 6907 km have been exposed to rapid development over the past three decades, resulting in an urgent need for a shoreline management plan to optimize the use of coastal resources and prevent or minimize the impact of various anthropogenic activities. Population explosion along the coastal area has added to an increased demand for coastal resources. Precise information on shoreline changes is essential to address the various coastal problems such as coastal erosion, closure of river/lagoons/creeks mouths, etc. A thorough understanding of Long-term shoreline change, its behaviour, extent, etc are required before implementing any coastal protection scheme. It is also important to understand the causes of erosion to undertake proper safeguards in building structures, and infrastructure in eroding coastal areas. Coastal managers and policy makers need accurate information on long-term shoreline changes before implementing any structure on the coast. The systematic long-term shoreline change study can provide information on shoreline re-orientation due to structures, changes in beach width, land loss, land gain and historical rate of changes.

On this note, timely or advanced information on the coastal condition can effectively help in planning and better preparedness to mitigate coastal changes, the National Shoreline Assessment System (N-SAS) an in-house developed web-based shoreline information system was prepared by NCCR aimed at twin benefits of (i) accelerating the continuous shoreline change time series program and (ii) to identify the erosion and accretion hotspots for coastal monitoring and management. Furthermore, to provide much more reliable information, using a web-based system will be much helpful for the user departments and coastal communities to take necessary action plans and preventive measures in a real-time environment. This report represents the overall shoreline change assessment for the entire Indian coast.

Altogether, the combined shoreline mapping and web-based shoreline information system give a real-time shoreline status for coastal monitoring and management. I appreciate Dr. R. S. Kankara, Group Head, Coastal Processes and Shoreline Management Group, NCCR, Project Team for their efforts to present in this limelight period. Co-operation extended by all the colleagues of NCCR, and colleagues in other areas of NCCR for the successful completion of the project is acknowledged.

28/03/2022

[M.V.Ramana Murthy]

रा.स.प्रौ.सं. परिसर, वेलच्चेरी तांबरम मेन रोड, पल्लिकरणै, चेन्नै-600 100.
NIOT Campus ,Velachery-Tambaram Main Road, Pallikaranai, Chennai-600 100.
दूरभाष/Tel : 91-44-66783599 Fax: 66783487

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Executive Summary

Coastal erosion is considered as one of the significant threatening hazards faced by the global countries, especially to the coastal populations for their livelihood. With the increasing trend of coastal population and rapid developmental activities along the shore, there is a need for prominent and precise information about the rate and trend of coastal erosion in the past and the present states. Therefore, a comprehensive analysis of shoreline change, which varies from one coastal region to another, is necessary for the appropriate coastal protection and management measures needed in the near future.

The National Centre for Coastal Research (NCCR) has carried out a study on shoreline changes along the mainland of Indian coast under the project entitled "Coastal Processes and Shoreline Management Group (CPSM)". One of the significant purposes of this work is to develop a standard, dependable methods for mapping and analysing shoreline changes with frequent periodic updates on shoreline conditions, coastal erosion hotspots, etc., can be prepared for the Indian coast. Morphology of the coast varies from place to place, hence different proxies (wet/dry line in sandy shore, seaward facing vegetative line, seashore-facing direction of seawall, cliff-base or seaward facing edge of rocky coast) were used to estimate the shoreline change analysis along the Indian coast. A summary of Atlas on shoreline change entitled "National Assessment of Shoreline changes along Indian Coast - A status report for 26 years 1990-2016" was published on MoES foundation day on 27th July 2018. This report is an accompaniment to the summary of Atlas on shoreline change. This report interprets the results, provides information on shoreline changes for the 28 years (1990 to 2018), short-term (1990-2000, 2000-2006, 2006-2012 & 2012-2018. The Indian mainland coastal states were analysed separately in a state-wise manner and documented into different volumes to report the regional trends in shoreline change for different periods. About 6907.18 km long shoreline (in 1:25000 scale) distributed among nine coastal states and two union territories was analysed for the period 1990-2018 to estimate the shoreline change i.e., erosion, accretion and stable. Coastal erosion has become one of the most alarming threats in varying pockets along the Indian coast. Shoreline length used in the analysis is the shore face length (excluding the interior parts of river / creeks) obtained from Resources at-2, LISS-IV satellite data (by zooming in 1: 15000 scales). The shoreline analysis suggests that 33.6% of coast is eroding, 26.9% is accreting and 39.5% is in stable state.

The state wise analysis suggests that the more than 40% of erosion is noticed in 3 states/UT i.e. West Bengal (60.5%), Tamil Nadu (42.2%), Kerala (46%) and Pondicherry (56.2%) coast. While accretion is exceeding to 40% along Odisha (51%) and Andhra Pradesh (49.6%) coast. About 526 maps are prepared for entire Indian coast for identifying the vulnerable coastal areas in 1:25000 scale along with 66 district maps, 9 states / 2 UT maps. These maps shall be updated regularly as a part of N-SAS in coastal processes and shoreline management program. The project is aimed to generate the systematic information on coastal changes at various temporal scales, its nature, and extent, needed to evolve better management solutions.

1. Introduction

The shoreline is constantly influenced by sea-level variations, climate and ecosystems that occur over a wide range of time scales. The combination of natural and artificial activities often exacerbates the shoreline change and increases the risk factors to the coastal community. Shoreline change is one of the three identified environmental concerns for developmental activities such as ports, harbours, fishing jetties and embankment. The changing position of shoreline over time is of fundamental concern to coastal scientists, engineers, and managers for coastal management and development. Precise information of shoreline position is necessary for the design of coastal protective measures, calibration/verification of numerical models, assessment of sea-level rise, preparation of hazard zones, formulation of policies, the regulation of coastal developmental activities, etc. A systematic long-term shoreline change study can provide information on shoreline re-orientation due to structures, changes in beach width, land loss, land gain and historical rate of changes.

1.1 Major causes for shoreline change

Shoreline is subject to change due to natural and manmade activities (P. Bruun and B. U. Nayak, 1980). Some of the changes are summarized below:

a) Natural Causes

i. Action of Waves: Waves are generated by offshore and nearshore winds, which blow over the sea surface and transfer their energy to the water surface. As waves move towards the shore, waves break, and the turbulent energy is released to the water column. This energy stirs up and moves the sediments deposited on the seabed.

ii. Tides: Tides are rise and fall in water elevation due to the attraction of water masses by the moon and the sun. During high tides, the energy of the breaking waves is released higher on the foreshore.

iii. Winds: Wind act not just as a generator of waves, but also aids in the landward movement of dunes (Aeolian erosion).

iv. Nearshore currents: Sediments scoured from the seabed are transported away from their original location by currents. The transport of (coarse) sediments defines the boundary of coastal sediment cells, i.e. relatively self-contained system within which (coarse) sediments stay. Currents are generated by winds, tides (ebb and flood currents), wave breaking at an oblique angle with the shore (longshore currents), and the backwash of waves on the foreshore (rip currents). All these currents contribute for shoreline changes.

v. Storms (Episodic events): Storms generate storm surges and high energy waves. Combined with high tides, storms may result in catastrophic damages. Besides damages to coastal infrastructure, storms cause beaches and dunes to retreat tens of meters in a few hours.

vi. Sea Level Rise: Sea level has risen about 40 cm in the past century and is projected to rise another 60 cm in the next century. Sea level has risen nearly 110 meters since the last ice age. Due to global warming, average rise of sea level is of the order of 1.5 to 10 mm per year. It has been observed that

sea level rise of 1 mm per year could cause an inundation of the order of about 0.5 m per year (IPCC report, 2012).

b) Anthropogenic Causes

Human intervention, particularly urbanization and economic activities, in the coastal zone has turned coastal erosion into a problem of growing intensity. Anthropological effects that trigger shoreline changes are construction of coastal structures, mining of beach sand, offshore dredging and damming of rivers. Human intervention can alter the natural processes through the following actions:

- Dredging of tidal entrances and navigational channels
- Construction of harbours and coastal structures such as groins and jetties
- River water regulation works such as damming
- Hardening of shorelines with seawalls
- Beach nourishment
- Destruction of mangroves and other natural buffers
- Beach sand mining

1.2 Shoreline and its definitions

Coastal researchers and other coastal agencies have been quantifying the shoreline change rates for several decades. There are various definition of shoreline demarcation of which and some of them are summarized as follows;

The line of contact between land and water is defined as shoreline. In other term, shoreline is defined as the intersection of a specified plane of water with the shore or beach (e.g., the high water shoreline would be the intersection of the plane of mean high water with the shore or beach). However, the shoreline approximates the mean high-water line on coast and Geodetic Survey nautical charts and surveys. In Coastal surveying usage, the term shoreline is considered synonymous with coastline (Shalowitz, 1962).The line delineating the shoreline on National Ocean Service nautical charts and surveys approximates the mean high water line (CERC, 1984).

Apparent shoreline is the line drawn on a map or chart in lieu of a mean high-water line or the mean water level line in areas where either may be obscured by marsh, mangrove, cypress, or other type of marine vegetation. This line represents the intersection of the appropriate datum on the outer limits of vegetation and appears to the navigator as the shoreline (Ellis, 1978).

High-Water Line Mark: A line or mark left upon tide flats, beach, or alongshore objects indicating the elevation of the intrusion of high water. The mark may be a line of oil or scum along shore objects, or a more or less continuous deposit of fine shell or debris on the foreshore or berm. This mark is physical evidence of the general height reached by wave run-up at recent high waters. It should not be confused with the mean high water line or mean higher high water line (Hicks, 1984).

High water line - Visible in the field and can be identified by the change in grey or colour tone on aerial photographs or satellite imagery (Zhang et al., 2002). This definition makes it more practical when satellite imagery is concerned.

Different proxies are used for shoreline position to analyse the coastal changes. Some of the proxies of shoreline position are High Water Line (HWL), wet-dry line, vegetation line, dune toe or crest, toe of the beach, cliff base or top and Mean High Water Line (MHWL) etc. In earlier days, High Water Line in Topo sheets was also used as one of the shoreline positions.

1.3 Past studies on shoreline mapping in India

Globally, the coastal researcher worldwide implies several shoreline proxies to define shoreline position. In India, ISRO-Space Application Centre (SAC) has prepared shoreline change maps for Central Water Commission (CWC) in the form of Atlas (1; 25000 scale). The major objective of this activity is to prepare a digital shoreline change atlas using remote sensing satellite datasets for the time period (1989-91 and 2004-06). This report gives an overview of erosion/accretion spots by plotting two high water line and the coastal land use classification was obtained from land use /land cover mapping work carried out at SAC earlier for these two different periods of datasets i.e. (1989-91 and 2004-06). However, these maps doesn't depict the temporal behaviour and non-linear changes of shoreline, which is very essential for coastal management. Further, NCSCM has prepared shoreline change maps for few coastal states. The shoreline changes maps were prepared by considering the latest shoreline for year 2010 as a one time exercise in 1:50,000 scale.

The National Centre for Coastal Research (NCCR) has carried out a study on shoreline changes along the mainland of India for the period of 1990-2016 using satellite datasets. This report, summarizes the methods of analysis, interpretation of results, provides an information on shoreline changes for the period of 1990 to 2016. Based one the rate of change results using 9 datasets, 526 maps are prepared for entire Indian coast in 1:25000 scale. The state-wise maps, 9 states / 2 UT maps and 66 district level maps were prepared to represent detailed information. The Hotspot maps were prepared for identifying the vulnerable coastal areas. In near future, the study can extended to map the temporal behaviour of shoreline conditions, which is very essential for coastal management.

To improvise further, this report is an accompaniment to the summary of Atlas on shoreline change assessment. This study aim is to provide a detailed interpretation of shoreline change results for a period of 28 years. The results depicts long-term (1990 to 2018)and short-term (1990-2000, 2000-2006, 2006-2012 & 2012-2018) shoreline change rated with different classes. The entire coast is mapped in 1:25000 scale for 9 states/2 UT which is accounted 526 maps. In near future, for reliable and accurate coastal management, beach morphology changes under extreme weather conditions, an active microwave Synthetic Aperture Radar (SAR) remote sensing datasets can be a best complement over optical remote sensing due to persistent cloud cover. Since SAR signal response has been proven to be capable of imaging day/night weather even under extreme climatic conditions with respect to land-sea interactions. This integration of optical and SAR remote sensing provides continuous shoreline monitoring and mapping with different time-steps which could be useful for coastal planners.

1.4 Shoreline proxies adopted for shoreline mapping at NCCR

• In 2013, ICMAM has conducted a R&D study on shoreline changes using different proxies and varying datasets and prepared a report on methodology for shoreline change mapping. In this report,

ICMAM proposed high water line (HWL) mark as shoreline position considering the varying coastal features, other variability and limitations of remote sensing data along Indian coast. In August 2014, a committee of experts from ICMAM (presently NCCR), INCOIS and NCESS evaluated the results and recommended that,

- In sandy shore, "wet/dry line" which is clearly identifiable from all images was considered as shoreline proxy. This wet/dry line is equivalent to high water line (HWL) mark from all satellite images. The identification of the feature "wet/dry line" from the images is as follows: on a rising tide, it is equal to maximum run up line, and on falling tide, it is equal to part of beach which is still wet, but it may be beyond the instantaneous run up limit.

- Vegetative line is considered as shoreline proxy, where there is no sandy beach. The waves directly interact with the vegetation's along the coast. Seashore facing direction of vegetative limits is demarcated as shoreline proxy and it can be clearly interpreted with the satellite images.

- In case of artificial structures (seawalls), the seashore facing direction of seawall is considered as shoreline position.

- In rocky coast, cliff base or seashore edge is considered as shoreline position.

- The bund area are considered for demarcating the shoreline in few locations(Gujarat), based on the local authority report, as these region are tidal flat, dominant with sediment deposition which is well known as intertidal zone. These are our proxy measures taken care to define the shoreline conditions. The ground truth verification is done for typical hotpsot locations for validation. The state level coastal management plan gives the conformity for the same.

1.5 Scope of long-term shoreline change mapping

The knowledge on shoreline changes, its behaviour, erosion in historical perspective and related morphological characteristics are primary requirements for coastal development and shore protection projects. Though some attempts are made, systematic information of Indian coast based on widely accepted, standardized method of shoreline change is not available. Therefore, in XII plan (October 2012), MoES, ICMAM-PD (presently NCCR) was entrusted the task of studying shoreline changes along the Indian coast using remote sensing, field investigation, Numerical modelling and GIS. The main objectives of this work are:

- To assess the consistency and generate reliable information of complex systems of the Indian coast using a standard method.
- To prepare shoreline change maps using standard protocol (1:25000 scale) for the entire Indian coast.
- To carry out the temporal shoreline change for entire Indian mainland coast.
- To carry out shoreline change analysis at state and district levels.
- To develop a web based National - Shoreline Assessment System (N-SAS) along the Indian coast.

2. Data Used

Satellite data sets are used as the primary data source. The multi-temporal satellite data such as Landsat TM, ETM+, IRS-P5 (Cartosat-1), IRS-P6 (LISS-III) and (LISS-IV) were used to calculate the shoreline change for different years (Table 1). The Landsat data was downloaded from United State Geological Survey (USGS) maintaining sources. The IRS P6-Resourcesat satellite data is procured from ISRO - National Remote Sensing Centre (NRSC), India.

Table 1: Details of satellite data used

List of Image	Pixel Size(m)	Date	Source
Landsat 5 TM	30.0	1989-1992	USGS
Landsat 7 ETM+	30.0	1999-2001	USGS
IRS P5 (Cartosat-1) PAN	2.5	2005-2006	NRSC
IRS P6 (Resourcesat-1) - (LISS-III)	23.5	2008	NRSC
Resourcesat 2 - (LISS-IV)	5.8	2012	NRSC
Resourcesat 2 - (LISS-IV)	5.8	2013	NRSC
Resourcesat 2 - (LISS-IV)	5.8	2014	NRSC
Resourcesat 2 - (LISS-IV)	5.8	2015	NRSC
Resourcesat 2 - (LISS-IV)	5.8	2016	NRSC
Resourcesat 2 - (LISS-IV)	5.8	2017	NRSC
Resourcesat 2 - (LISS-IV)	5.8	2018	NRSC

3. Methodology

Shoreline evolution is one of the most significant factors in analysing the change rate. There are several approaches to calculate the rates of shoreline change, such as numerical models and remote sensing technique. Remote sensing technique and GIS technology are considered as dominant tools for quantifying the shoreline change on temporal scale (Nayak. S., 2002). By integrating the modern techniques of remote sensing and GIS, rates of shoreline change would be easily and quickly determined for any given area. The methodology adopted for shoreline change calculation is shown in the flow chart (Figure 1).

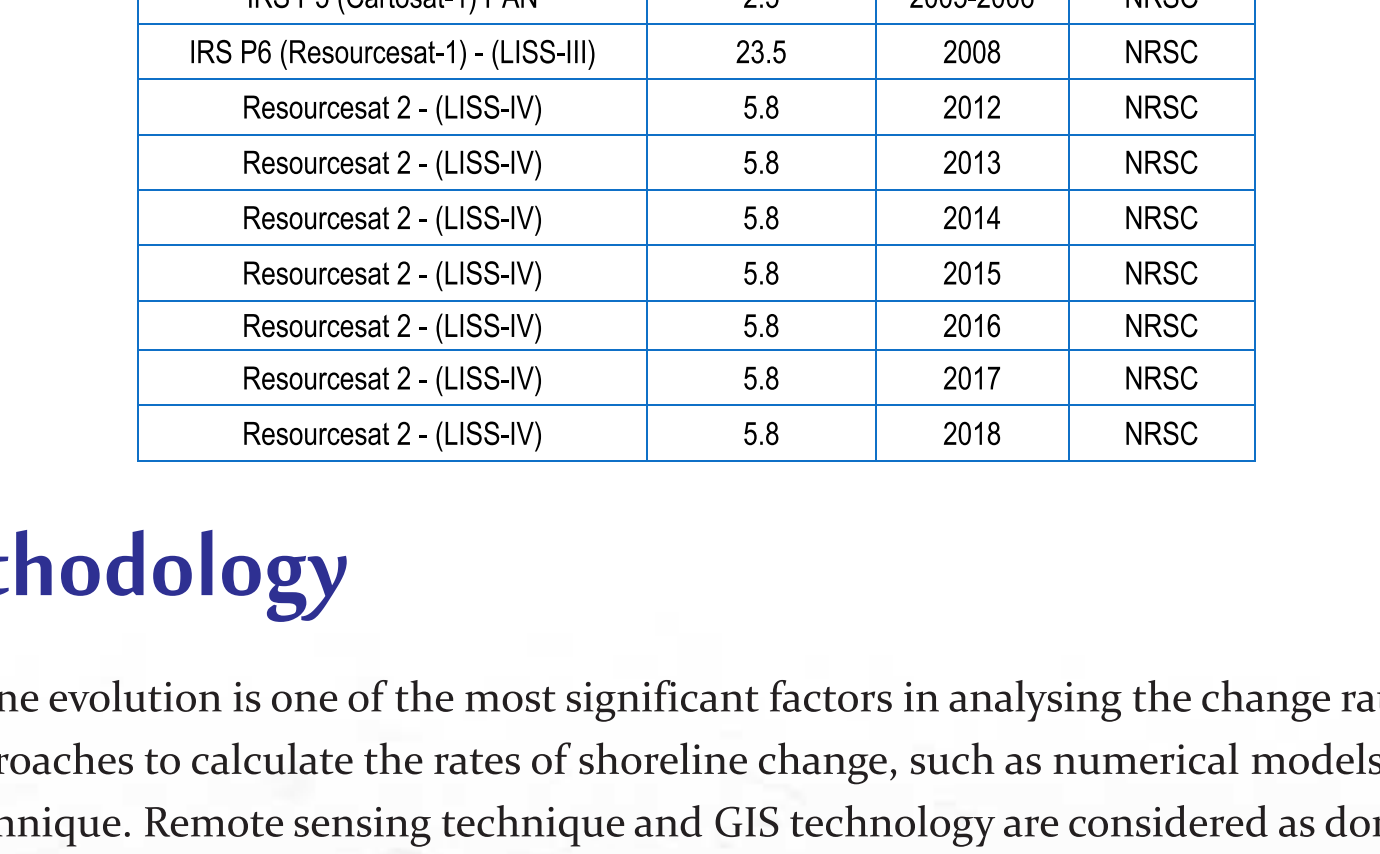


Figure 1: Flowchart of Methodology

3.1 Determination of shoreline from Remote Sensing and field data

Determination of shoreline position from satellite data is very subjective due to limiting factors such as, different ranges of tide induced variability, variations in meteorological conditions, inequalities in data resolution, seasonal setup and scaling of remote sensing data during different periods of data acquisition. In the past, the researchers had used various proxies such as high tide line (HTL) (Fisher and Overton, 1994; Stockdon et al., 2002), high water line (HWL) (Fenster and Dolan, 1999), wet-dry line (Overton et al., 1999), vegetation line (Hoeke et al., 2001), dune toe or crest (Stafford and Langfelder, 1971), toe or Berm of the beach (Norcross et al., 2002), cliff base or top (Moore et al., 1998) and mean high water (MHW) line (Galgano and Leatherman, 1991). However, it becomes subjective to extract these proxies in practical sense due to varying geomorphology of coastal environment. Some of the shoreline proxies which are commonly used in shoreline extraction are shown in Figure 2.

Figure 2: Shoreline proxies used for shoreline extraction. A-Sand dunes with vegetative cover. B- Vegetative line. C-Riprap Seawall structures in case there is no sandy shore.

3.2 Shoreline change calculation

There are many statistical methods used by DSAS version 4.0 (Thieler et al., 2009) to calculate the shoreline change rate. These methods are End Point Rate (EPR), Linear Regression Rate (LRR) and Weighted Linear Regression (WLR). Of these methods, EPR and WLR are used for the analysis. Net Shoreline Movement (NSM) method was also adopted on shoreline position to determine the short-term temporal change. DSAS is purely a statistical approach, which gives output based on input parameters such as date and year.

3.3 Cumulative changes

3.3.1 Weighted Linear Regression Rate (WLR)

The cumulative shoreline changes are computed considering the nine series of data sets. These rates are calculated by determining a linear regression rate-of-change (fitting a least-square regression lines) for point/transect along the coast. Further, a weightage was attached to shoreline data considering the measurement and positional uncertainties involved in obtaining the data. Fine resolution/quality data sets are given greater emphasis or weightage towards determining a best-fit line in comparison with unreliable or poor data sets, i.e. the regression line can be placed in such a way that the sum of the squared residuals is minimized. The weight (w) is defined as a function of the

variance in the uncertainty of the measurement (e): $w = 1/(e^2)$, where, e = shoreline uncertainty value. The uncertainty and shoreline position at these transects are used to calculate the rate-of-change statistics. Figure 3 shows the shoreline positions of a particular transect plotted with respect to time. The error bar in shoreline measurement point is obtained after adding the weighted values to each shoreline position.

3.3.2 Periodic Changes

End Point Rate (EPR)

The minimum requirement is 2 data sets of shoreline over a time to compute shoreline movement. This is a simple and popular approach adopted to calculate the shoreline change rates bydividing the distance of shoreline movement by time elapsed as given in Figure 3.

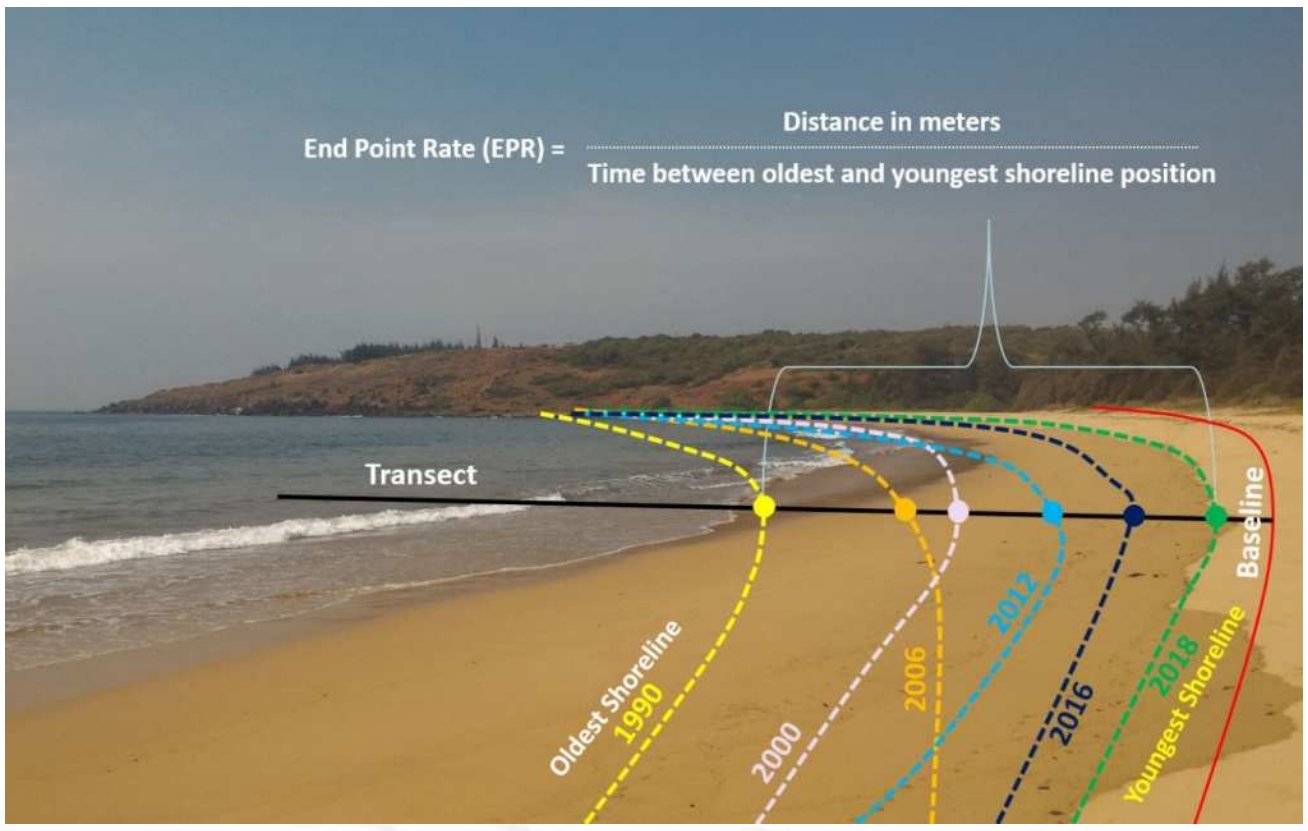


Figure 3: Shoreline change:
End point rate method (distance between the 1990 and 2018 shorelines divided by the span of time elapsed between the two shoreline positions; all other shoreline data are ignored in this computation).

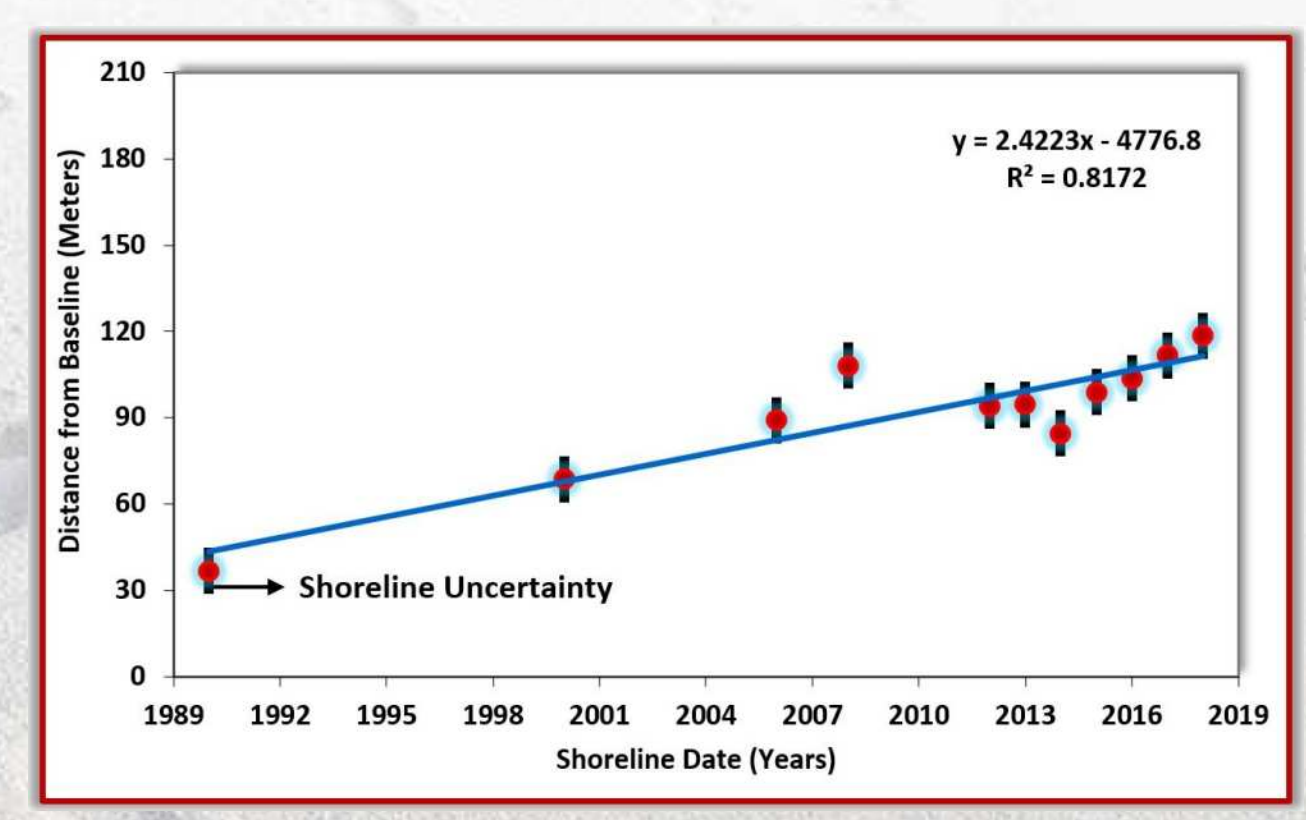


Figure 4: Shoreline change by the weighted linear regression rate method (determined by plotting the shoreline positions with respect to time and calculating the linear regression equation of y. The slope of the regression line is the rate).

3.3.3 Uncertainty in shoreline measurement

Further, the accuracy of shoreline positions extracted from remote sensing data is influenced by several factors such as positional uncertainties (Seasonal error, & Tidal fluctuation) and measurement uncertainties (Digitizing, Pixel, & Rectification).

There are issues in shoreline mapping in wider intertidal zones. The extraction of "HWL" or "wet/dry line" from various images has potential uncertainties and errors with reference to tide and resolution. Therefore, the same may be accounted while considering these positional and measurement uncertainties, which may be within in the limitations of the data itself.

Positional Uncertainties: related to the features and phenomena that reduce the precision and accuracy of defining a shoreline position from a given data set such as Seasonal error (E_s), and Tidal fluctuation (E_{td}).

Measurement Uncertainties: related to the skill and approach such as Digitizing error (E_d,) Rectification error (E_r) and Pixel error (E_p).

Finally, overall total uncertainty value has been estimated for each shoreline by accounting for both positional and measurement uncertainties as:

$$E_t = \pm\sqrt{E_s^2 + E_{td}^2 + E_d^2 + E_P^2 + E_r^2}.$$

This approach considers varying rate of changes between each dataset by fitting a least-square regression line for all datasets. In this approach, high-resolution data sets are given greater emphasis or weightage towards determining a best-fit line in comparison with unreliable or poor data sets.

The total uncertainties considered in the analysis are given in Table 2.

Table 2: List of uncertainties used in the analysis

Errors	Consideration	Uncertainty Value
Tidal error	Tidal values are taken from the tide table and tidal stations along the coast. The tidal value differs from place to place based on the station.	Tide range from the nearest station.
Seasonal error	Seasonal error is the horizontal distance along the coast. This error mainly depends on the coastal slope. The coasts are either steep or gentle. Taking this factor in to account the seasonal error to be considered.	based on the slope. (availability of slope data is a question; or 5 -10 m based on the regions).
Digitizing error	Digitizing the shoreline is a difficult task. Digitizing the shoreline position by the same analyst may change when he does it again. After considering all the factors, the error is fixed.	Half of the pixel size is considered.
Rectification error	Rectification error is the error obtained from the ortho-rectification process. The RMSE error thus obtained during rectification is considered as error value.	RMSE value (the rectification accuracy should be maintained with in a pixel).

3.4 Mapping of Shoreline Change

The results obtained from the analysis of shoreline changes are in the form of numbers i.e., ±m/yr, where +ve is for accretion, and - ve is for erosion.

Table 3: Shoreline classification schemes used in the analysis

Classification	Rate (m/year)	Colour Schemes
High Erosion	>-5.0	
Moderate Erosion	-5.0 to -3	
Low Erosion	-3.0 to -0.5	
Stable Coast	-0.5 to 0.5	
Low Accretion	0.5 to 3.0	
Moderate Accretion	3.0 to 5.0	
High Accretion	> 5.0	

These quantitative results are plotted in GIS environment using standard mapping format in 1:25000 scale. However, mapping requires classifications of accretion/erosion rates in sub-classes considering the magnitude of changes. The classification of shoreline changes is further a subjective aspect. We have classified the shoreline change rates into seven classes (Table 3) (Kankara et al., 2014; Kankara et al., 2015 and Selvan et al., 2020). The marginal change of ±0.5m/yr is considered as no change or stable coast, in view of uncertainties in the data.

The shoreline towards seaward are referred as “accretion” and shoreline towards landward are referred as “erosion”. These classification is categorised based on the rate of change results considering the shift in shoreline position. This phenomenal changes defines the shoreline classification from high to low based on rate (m/yr). The rate of change whichever less than 1 m is considered as stable coast, other than rocky coast, cliff are define the same stable condition, The intermitted distance between 1 to 3m difference are considered as low accretion / erosion which means which means the coast is mere effect on coastal erosion. Subsequently, the area between 3 to 5m is considered as moderate accretion / erosion which means the coastal areas need more attention to take precautious measures. All along the rate of change in results greater than 5m is considered as coastal hotspot regions required immediate action plan for coastal protection. This regions needs a periodical monitoring to ascertain the coastal landforms. The above classification schemes are formalised based on previous studies (Kankara et al., 2014). The seasonal field observations were carried out for ground truth verifications and validations. Overall, the significant changes all along the entire Indian coast is mapped with 1:25,000 scale which are depicted in the following sections.

3.4.1 Field Database

Field work was undertaken for entire coastal region of India, mainly focusing to collection of GCPs, shoreline tracking during satellite pass time, sediment data collection, validation/verification of landuse/landcover and geomorphology.

Collection of Ground Control Points (GCP's)

GCP's were collected to rectify the satellite imagery which is used for shoreline extraction. 15km width from the coast is considered as the boundary for GCP collection. All the GCP's were evenly collected all along the image for minimising the error while extracting the shoreline positions. All the satellite images should be brought into a common projection system (WGS 84) so that the error or shift in the images can be reduced. GCP collection at various coastal hotspots are depicted in the following Figure 5.

Figure 5.a) shows the GCPs point collected rail/road intersection, Andhra Pradesh. and b) shows the shoreline tracking near paradip sea beach, Odisha.

3.5 Quality Check

There are several geospatial standards, viz. Natural Resources Information System (NRIS), National Natural Resources Management System (NNRMS), National Spatial Data Infrastructure (NSDI) and National Urban Information System (NUIS), are being used in India. These standards were used for quality check at NCCR in integrated manner to suite our requirement. The broad points are given below:

- NCCR has prepared a Standard Operating Protocol (SOP) to generate shoreline change map at 1:25000 scale.
- Image rectification, shoreline digitization, and map accuracy were followed as per NNRMS standard. The rectification accuracy is maintained within a pixel using 2nd order polynomial method.
- The planimetric shoreline map accuracy was maintained within 1mm in scale at 90% confidence interval and classification accuracy of 90% at 90% confidence interval.
- Considering the uncertainties, shoreline change rate was analysed using weighted linear regression rate method along with 85% confidence interval (DSAS manual).

4. Status of Coastal Erosion along the Indian Mainland

In the previous Atlas published in August 2018 "National Assessment of Shoreline changes along Indian Coast - A status report for 26 years 1990-2016", about 6031 km of coast was mapped and analysed. However, in this report, about 6907.18 km coastal length was analysed.

About 6907.18 km long shoreline (in 1:25000 scale) distributed among nine coastal states and two union territories was analysed for the period 1990-2018 to estimate the shoreline change i.e., erosion, accretion and stable. Coastal erosion has become one of the most alarming threats in varying pockets along the Indian coast. Shoreline length used in the analysis is the shore face length (excluding the interior parts of river / creeks) obtained from Resourcesat-2, LISS-IV satellite data (by zooming in 1: 15000 scales). The shoreline analysis suggests that 33.6% of coast is eroding, 26.9% is accreting and 38% is in stable state (Table 4).

Table 4: Summary of shoreline changes along the Indian coast

Sl No	State		Coast Length (in km) *	Coast length (in Km)					
				Erosion		Stable		Accretion	
				Km	%	Km	%	Km	%
1	West Coast	Gujarat	1945.6	537.5	27.6	1030.9	53.0	377.2	19.4
2		Daman & Diu	31.83	11.02	34.6	17.09	53.7	3.72	11.7
3		Maharashtra	739.57	188.26	25.5	477.69	64.6	73.62	10.0
4		Goa	139.64	26.82	19.2	93.72	67.1	19.1	13.7
5		Karnataka	313.02	74.34	23.7	156.78	50.1	81.9	26.2
6		Kerala	592.96	275.33	46.4	182.64	30.8	134.99	22.8
7	East Coast	Tamil Nadu	991.47	422.94	42.7	332.69	33.6	235.85	23.8
8		Puducherry	41.66	23.42	56.2	13.82	33.2	4.42	10.6
9		Andhra Pradesh	1027.58	294.89	28.7	223.36	21.7	509.33	49.6
10		Odisha	549.5	140.72	25.6	128.77	23.4	280.02	51.0
11		West Bengal	534.35	323.07	60.5	76.4	14.3	134.88	25.2
Total			**6907.18**	**2318.31**		**2733.86**		**1855.03**	
%				**33.6**		**39.6**		**26.9**	

* Length of shoreline estimated from imageries (1:25000 scale) excluding river /creek mouths etc.

The state-wise analysis suggests that in the West Bengal (60.5%) and Pondicherry (56.2%) coasts, erosion exceeds more than 50%, followed by Kerala (46.4%) and Tamil Nadu (42.7%). Odisha (51%) is the only coastal state, which is having more than 50% of accretion, followed by Andhra Pradesh with 49.6%. Apart from Kerala coast, the remaining west coast of India fall in stable condition. The state-wise details of shoreline change status are given in Tables 4.

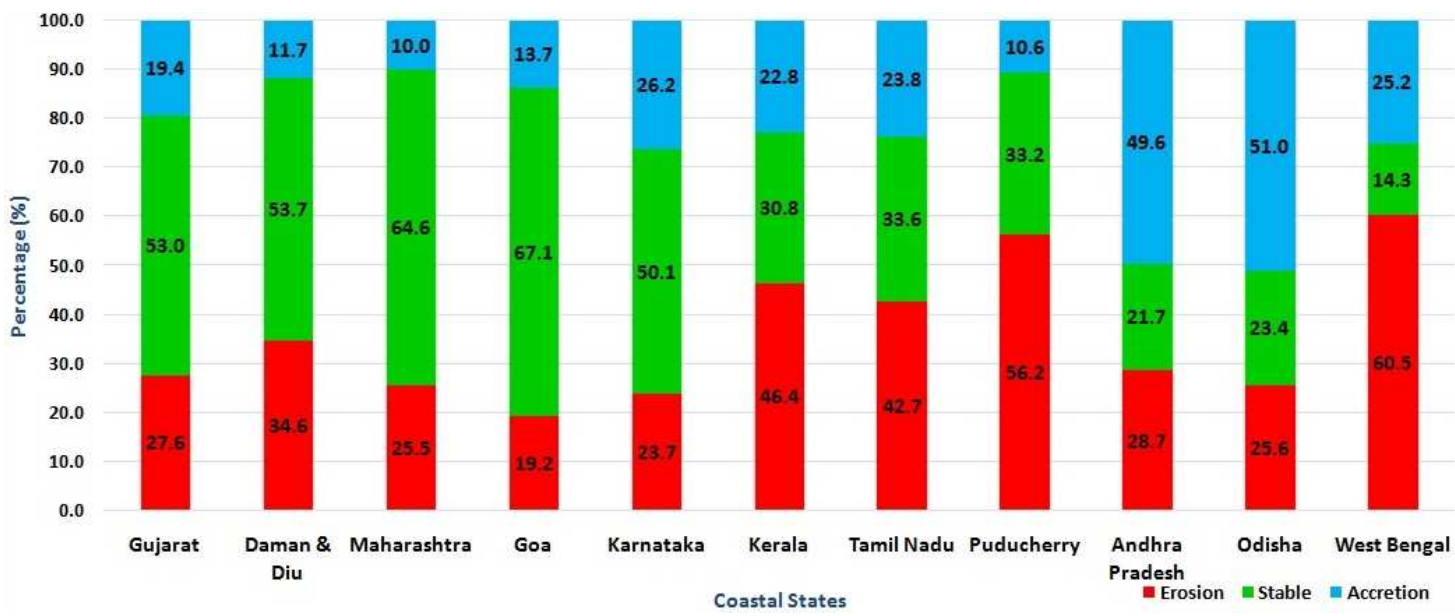


Figure 6: Shoreline change status of Indian coastal states in percentage

This report is an accompaniment to the summary of Atlas on shoreline change (1990-2016). In the present report,the long-term shoreline change analysis was carried out for 1990-2018. Figure.6 shows the overall status of erosion (red color), accretion (blue color) and stable (green color) percentage for past 28 years (1990-2018). It can be inferred that the accretion percentage of east coast (Tamil Nadu, Puducherry, Andhra Pradesh, Odisha and West Bengal) shows increasing trend when compared to shoreline change study of 1990-2016 period. The erosion percentage of Tamil Nadu and Andhra Pradesh shows an increasing trend. Whereas, the remaining east coast of India shows decreasing trend. Similarly, the erosion percentage of west coast (Kerala, Karnataka, Goa, Maharashtra and Gujarat) shows increasing trend when compared to shoreline change study of 1990-2016 period.This change in shoreline trend indicates the importance of cumulative analysis of shoreline change for subsequent years.

List of shoreline change maps in 1:25000 scale

The shoreline change maps for both long and short-term were prepared in 1:25,000 scale and the same will be hosted on NCCR N-SAS web portal. There maps are being updated every subsequent year. The detailed 1:25,000 scale maps of each state-wise are listed in Table with Topo number and NCCR Grid number as shown in Annexure.

Table 5: Total number of 1:25,000 scale maps along the Indian coast

West Coast of India		
Sl.No	**State**	**Number of Maps (1:25,000)**
1	Gujarat & Diu-Daman	150
2	Maharastra	45
3	Goa & Karnataka	32
4	Kerala	55
East Coast of India		
Sl.No	**State**	**Number of Maps (1:25,000)**
1	Tamil Nadu & Puducherry	80
2	Andhra Pradesh	88
3	Odisha	47
4	West Bengal	29
	Total No. of. Maps	**526**

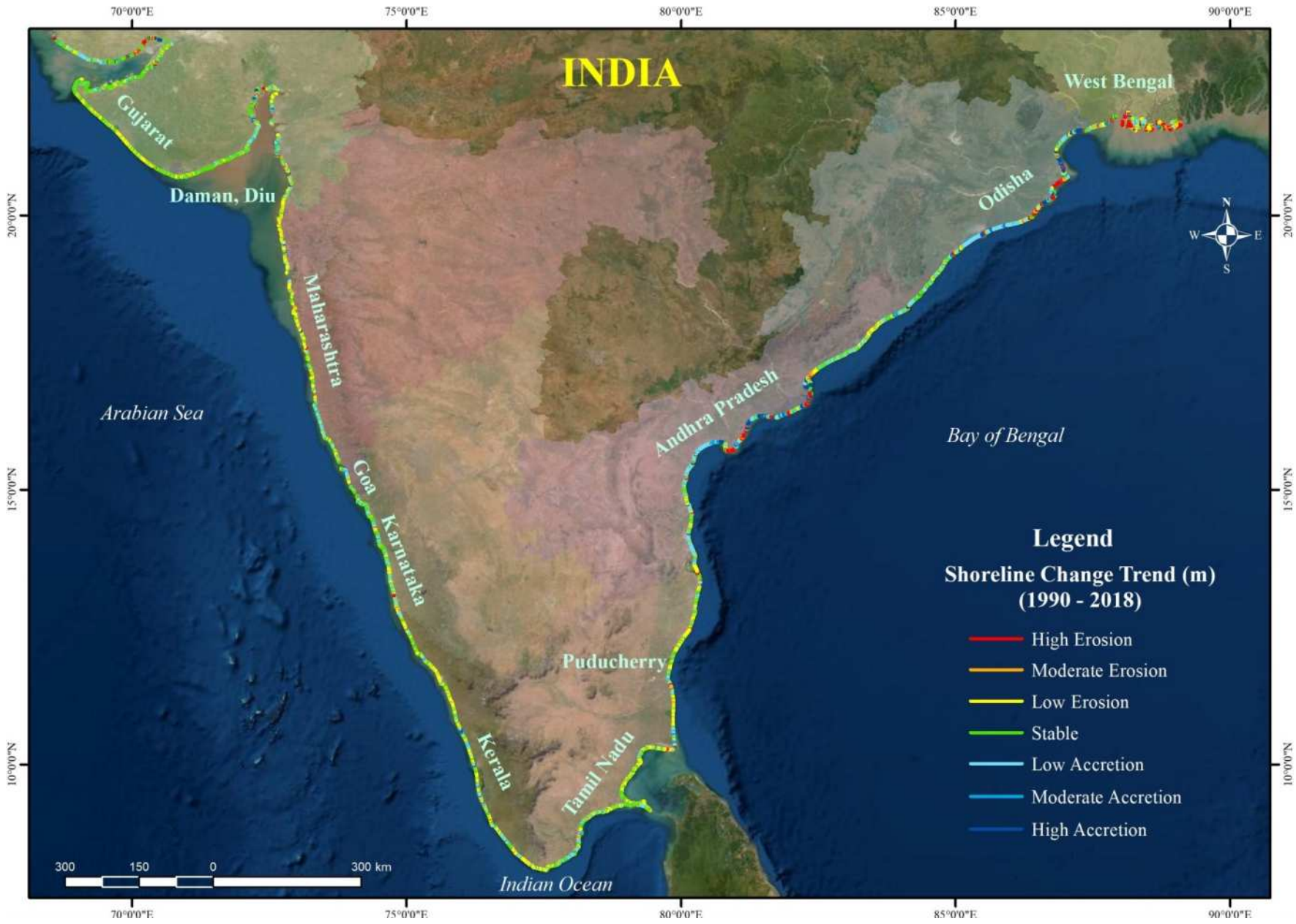


Figure 7: Shoreline change map along Indian coast (1990-2018)

Considering the maximum and minimum values of the shoreline change rate, the shoreline is divided into seven categories as low erosion, moderate erosion, high erosion, stable, low accretion, moderate accretion and high accretion (Table.5). The status of the shoreline change maps along with shoreline change rate (erosion/accretion) and other information such as ports, industries, and other anthropogenic activities are mapped. The map will be updated every year. The overall distribution of shoreline change rate along the Indian coast for 1990-2018 is shown in Figure 7.

5. Data Products

The shoreline change analysis was carried out using different satellite datasets. Different data products (1:25,000 scale, state-wise maps, district maps and hotspot maps) were prepared for entire Indian mainland coasts. These maps will be updated for every subsequent year. The derived cumulative shoreline change results are shown below;

a) Shoreline Change Assessment (1990-2018) in 1:25,000 scale Atlas

The Indian mainland surrounded by coastal landforms are divided as per Survey of India (SOI) topo grids which accounted about 526 numbers are mapped in 1:25,000 scale for the entire Indian coast. This map composed of detailed information about cumulative shoreline change results. The results are classified into 7 classes namely High Erosion, Moderate Erosion, Low Erosion, Stable, High Accretion, Moderate Accretion and Low Accretion. In addition, the baseline information such as satellite data acquisition, grid details, geographical coordinate system datum details, administrative

boundaries with annotation and other infrastructure details namingly major ports, major fishing harbours and industries are represented in the map.

b) Hotspot Regions

The Hotspot locations are identified based on the cumulative shoreline change results for the time period of (1990-2018) all along the coast. The results are achieved by considering past historical records and its natural and anthropogenic causes. The shoreline change rate above 3 m/yr (east coast) and 2.5 m/yr (west coast) are considered as vulnerable area, and the corresponding regions are mapped in 1:25000 scale. The map depicts with coastal stretches with hotspot locations. These results may varies with respect to time, hence these hotspot locations are limited with satellite date and its time-domain. The hotpsot maps reports the coastal impact on shoreline condition and its importance for coastal protection and management.

The East coast of India are exposed to high erosion hotspot comparatively to west coast of India. The states such West Bengal and Odisha are exposed to high impact on coastal erosion. Indian Sundarban Islands in West Bengal region with swamps and marshes are declared as Bio-diversity hotspot locations. The Gahirmata marine sanctuary extends from Dhamra river to Brahmani river considered as ecological significance with diverse floral and faunal resources. The West coast of India covering rocky cliff are considered as stable coast expect the states Kerala and Gujarat which are exposed to coastal erosion due to coastal morphological changes and seasonal monsoon impacts.

c) In-House Web Based Shoreline Information System

The systematic shoreline mapping was prepared for different time-frames (1990-2018) using remote sensing techniques. The coastal protection measures require the spatial visualization on the status of shoreline undergoing erosion and accretion spots in timely manner. To expedite the shoreline status in a digital platform, the in-house developed open source web based shoreline information system was developed by NCCR named “National-Shoreline Assessment System (N-SAS)”. This system is capable to view, estimate, manage and to evaluate different years of shoreline condition, long-term and short-term shoreline change rates. It provides seamless coastal information as shoreline status with different scales. The systematic generated shoreline status maps will be updated every subsequent year. This web-portal allows the users to visualize the shoreline status in a geographical framework. This associated processes involves with shoreline mapping, can gives the effectiveness of coastal monitoring and management program, which can helps to disseminate the coastal issues to the user departments at national and state level for periodical monitoring the coastal condition along the entire Indian coasts.

This real-time web based tool can provide the overall status of shoreline positions, accretion and erosion pattern all along the Indian coast, which is useful for coastal managers, administrators, decision-makers, NGOs, fishermen and the coastal communities for the better preparedness on coastal protection measures.

National-Shoreline Assessment System (N-SAS)

An in-house developed open source web based shoreline information system launched by NCCR

HOTSPOTS REGIONS IN EAST COAST

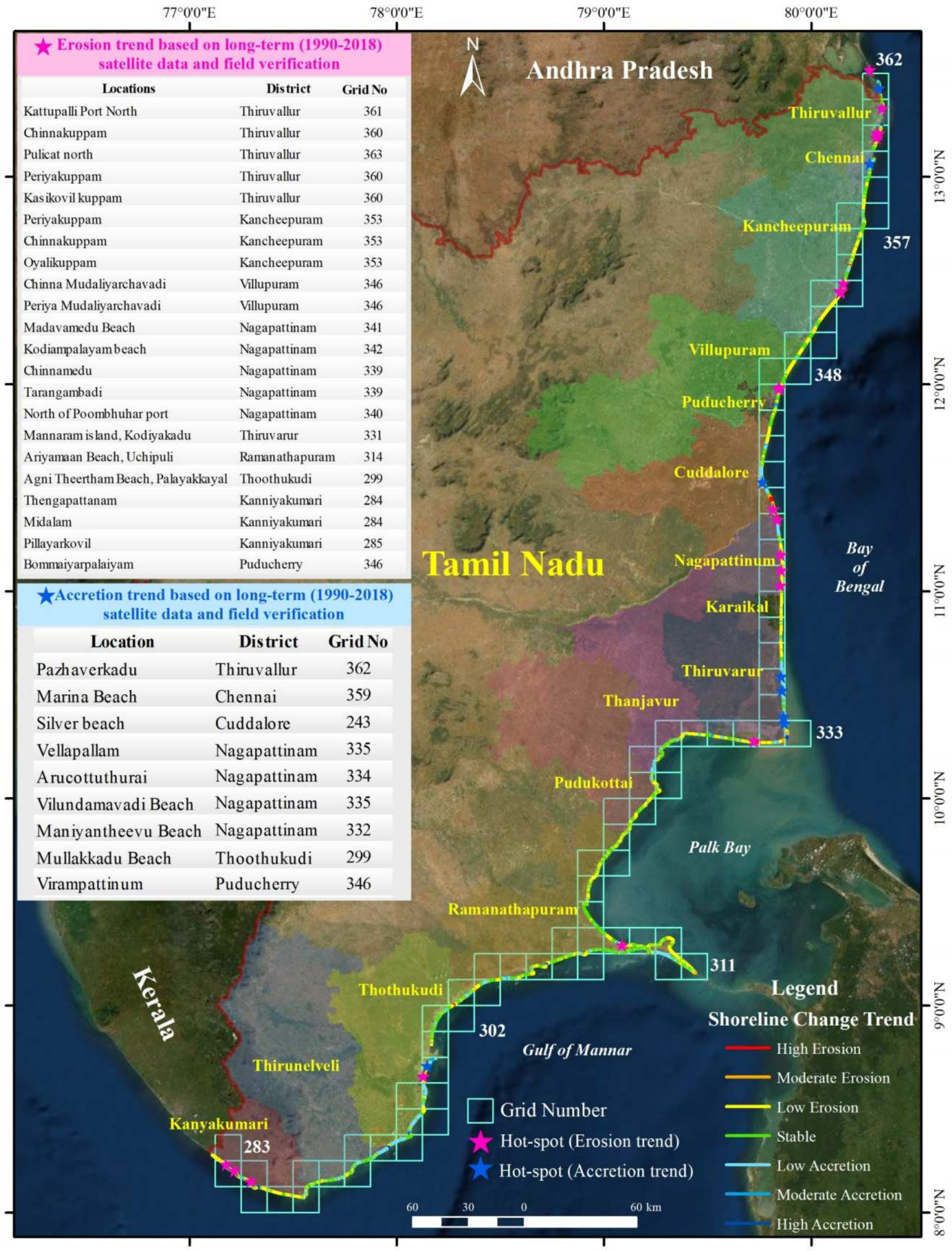
Tamil Nadu

★ Erosion trend based on long-term (1990-2018) satellite data and field verification

Locations	District	Grid No
Kattupalli Port North	Thiruvallur	361
Chinnakuppam	Thiruvallur	360
Pulicat north	Thiruvallur	363
Periyakuppam	Thiruvallur	360
Kasikovil kuppam	Thiruvallur	360
Periyakuppam	Kancheepuram	353
Chinnakuppam	Kancheepuram	353
Oyalikuppam	Kancheepuram	353
Chinna Mudaliyarchavadi	Villupuram	346
Periya Mudaliyarchavadi	Villupuram	346
Madavamedu Beach	Nagapattinam	341
Kodiampalayam beach	Nagapattinam	342
Chinnamedu	Nagapattinam	339
Tarangambadi	Nagapattinam	339
North of Poombhuhar port	Nagapattinam	340
Mannaram island, Kodiyakadu	Thiruvarur	331
Ariyamaan Beach, Uchipuli	Ramanathapuram	314
Agni Theertham Beach, Palayakkayal	Thoothukudi	299
Thengapattanam	Kanniyakumari	284
Midalam	Kanniyakumari	284
Pillayarkovil	Kanniyakumari	285
Bommaiyarpalaiyam	Puducherry	346

★Accretion trend based on long-term (1990-2018) satellite data and field verification

Location	District	Grid No
Pazhaverkadu	Thiruvallur	362
Marina Beach	Chennai	359
Silver beach	Cuddalore	243
Vellapallam	Nagapattinam	335
Arucottuthurai	Nagapattinam	334
Vilundamavadi Beach	Nagapattinam	335
Maniyantheevu Beach	Nagapattinam	332
Mullakkadu Beach	Thoothukudi	299
Virampattinum	Puducherry	346



Field Photographs: Erosion hotspot regions along Tamil Nadu Coast

Midalam - Kanyakumari

Thengapattanam - Kanyakumari

Tarangambadi - Nagapattinum

Periya Mudaliyarchavadi- Villupuram

Chinna Mudaliyarchavadi -Villupuram

Chinnakuppam - Kancheepuram

Field Photographs: Accretion hotspot regions along Tamil Nadu Coast

Marina beach - Chennai

Silver beach - Cuddalore

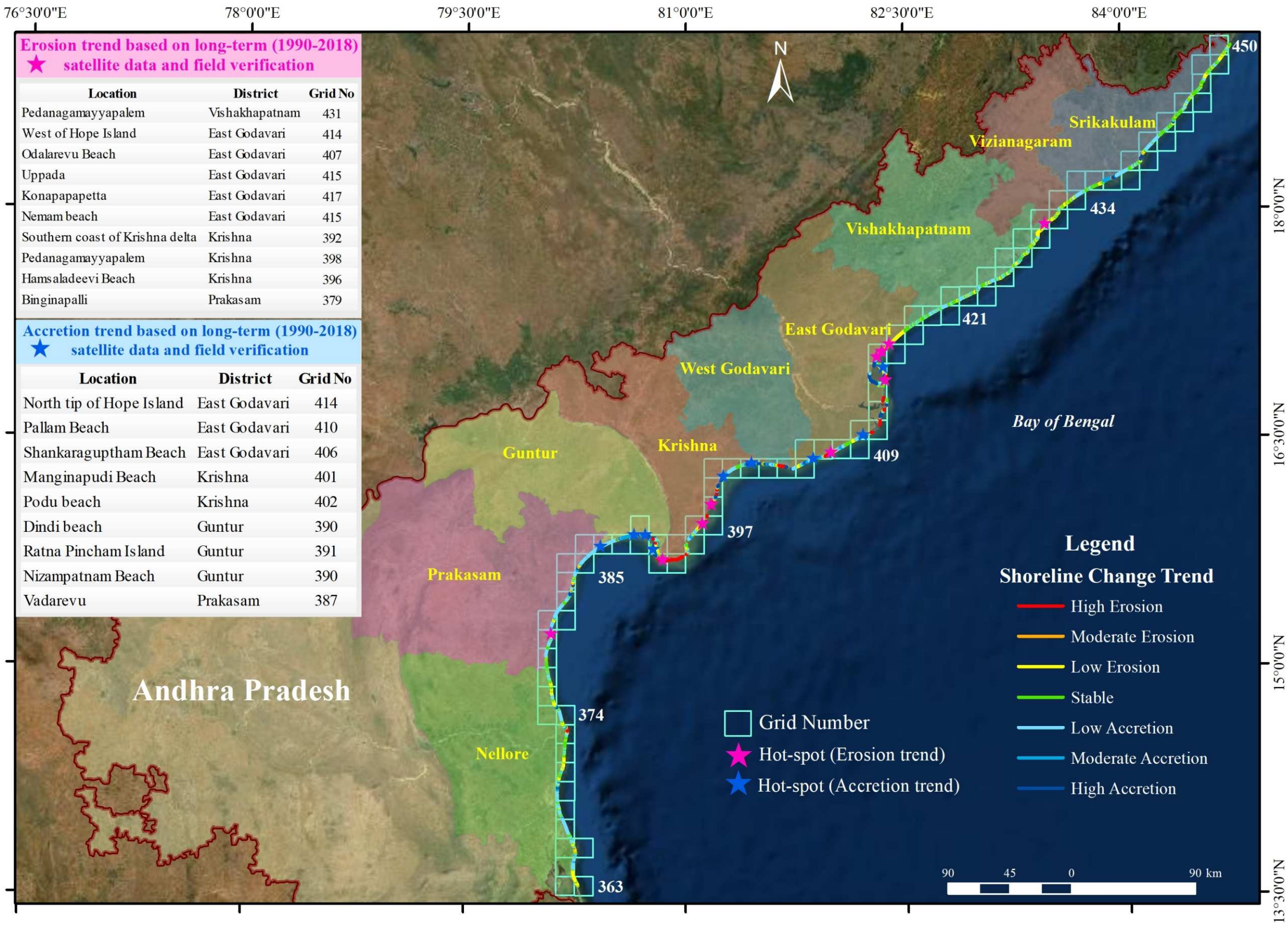
Arucottuthurai–Vedaraniyam - Nagapattinum

Erosion trend based on long-term (1990-2018) satellite data and field verification

Location	District	Grid No
Pedanagamayyapalem	Vishakhapatnam	431
West of Hope Island	East Godavari	414
Odalarevu Beach	East Godavari	407
Uppada	East Godavari	415
Konapapapetta	East Godavari	417
Nemam beach	East Godavari	415
Southern coast of Krishna delta	Krishna	392
Pedanagamayyapalem	Krishna	398
Hamsaladeevi Beach	Krishna	396
Binginapalli	Prakasam	379

Accretion trend based on long-term (1990-2018) satellite data and field verification

Location	District	Grid No
North tip of Hope Island	East Godavari	414
Pallam Beach	East Godavari	410
Shankaraguptham Beach	East Godavari	406
Manginapudi Beach	Krishna	401
Podu beach	Krishna	402
Dindi beach	Guntur	390
Ratna Pincham Island	Guntur	391
Nizampatnam Beach	Guntur	390
Vadarevu	Prakasam	387



Field Photographs: Erosion hotspot regions along Andhra Pradesh Coast

Hamsaladeevi Beach, Ramakrishnapuram

Palathumbalapalayem

Nemam beach

Uppada

Konapapapetta

Pedanagamayyapalem

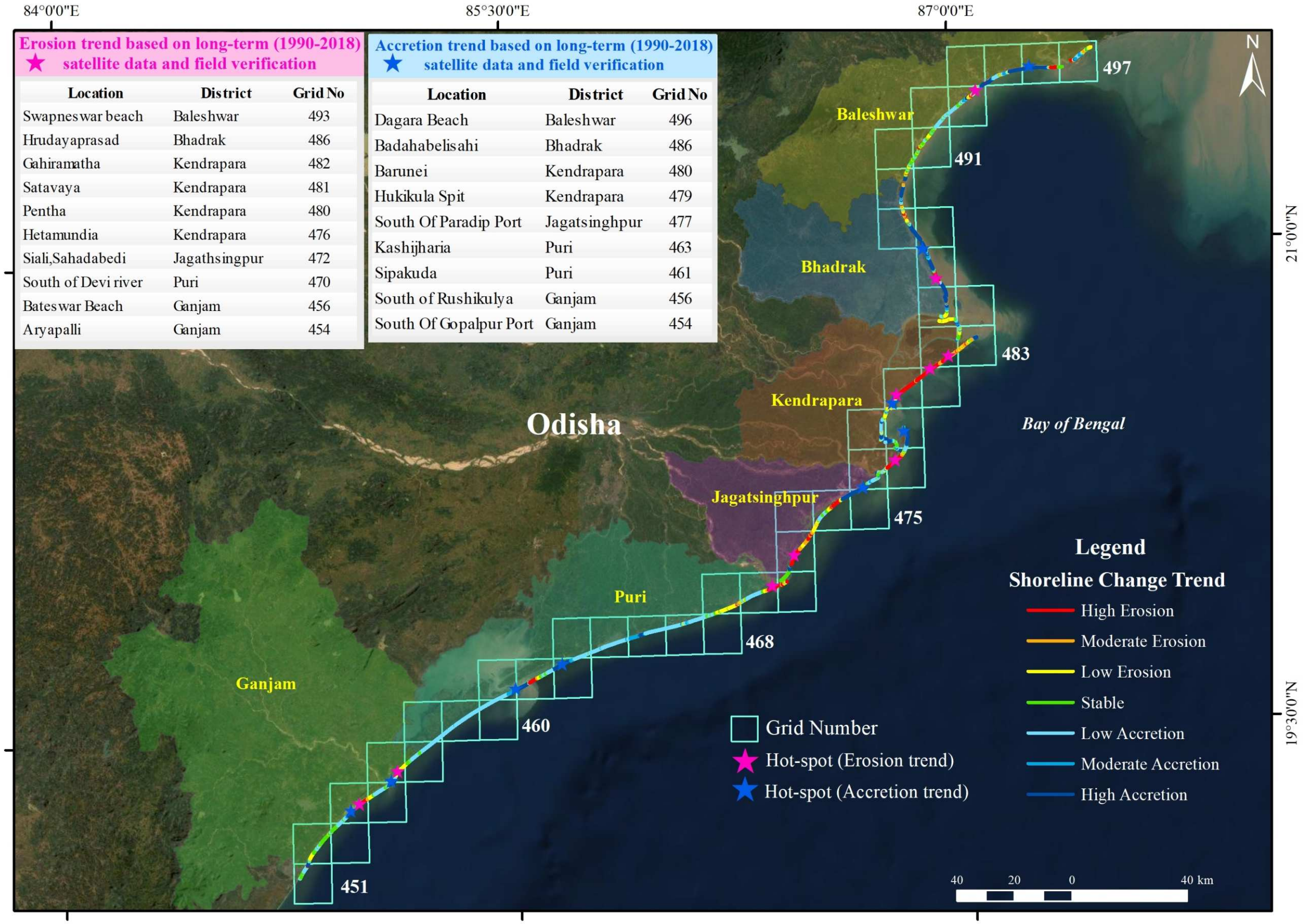
Binginapalli

Erosion trend based on long-term (1990-2018) satellite data and field verification

Location	District	Grid No
Swapneswar beach	Baleshwar	493
Hrudayaprasad	Bhadrak	486
Gahiramatha	Kendrapara	482
Satavaya	Kendrapara	481
Pentha	Kendrapara	480
Hetamundia	Kendrapara	476
Siali,Sahadabedi	Jagathsingpur	472
South of Devi river	Puri	470
Bateswar Beach	Ganjam	456
Aryapalli	Ganjam	454

Accretion trend based on long-term (1990-2018) satellite data and field verification

Location	District	Grid No
Dagara Beach	Baleshwar	496
Badahabelisahi	Bhadrak	486
Barunei	Kendrapara	480
Hukikula Spit	Kendrapara	479
South Of Paradip Port	Jagatsinghpur	477
Kashijharia	Puri	463
Sipakuda	Puri	461
South of Rushikulya	Ganjam	456
South Of Gopalpur Port	Ganjam	454



Field Photographs: Erosion hotspot regions along Odisha Coast

Aryapalli Odisha

Pentha

Field Photographs: Accretion hotspot regions along Odisha Coast

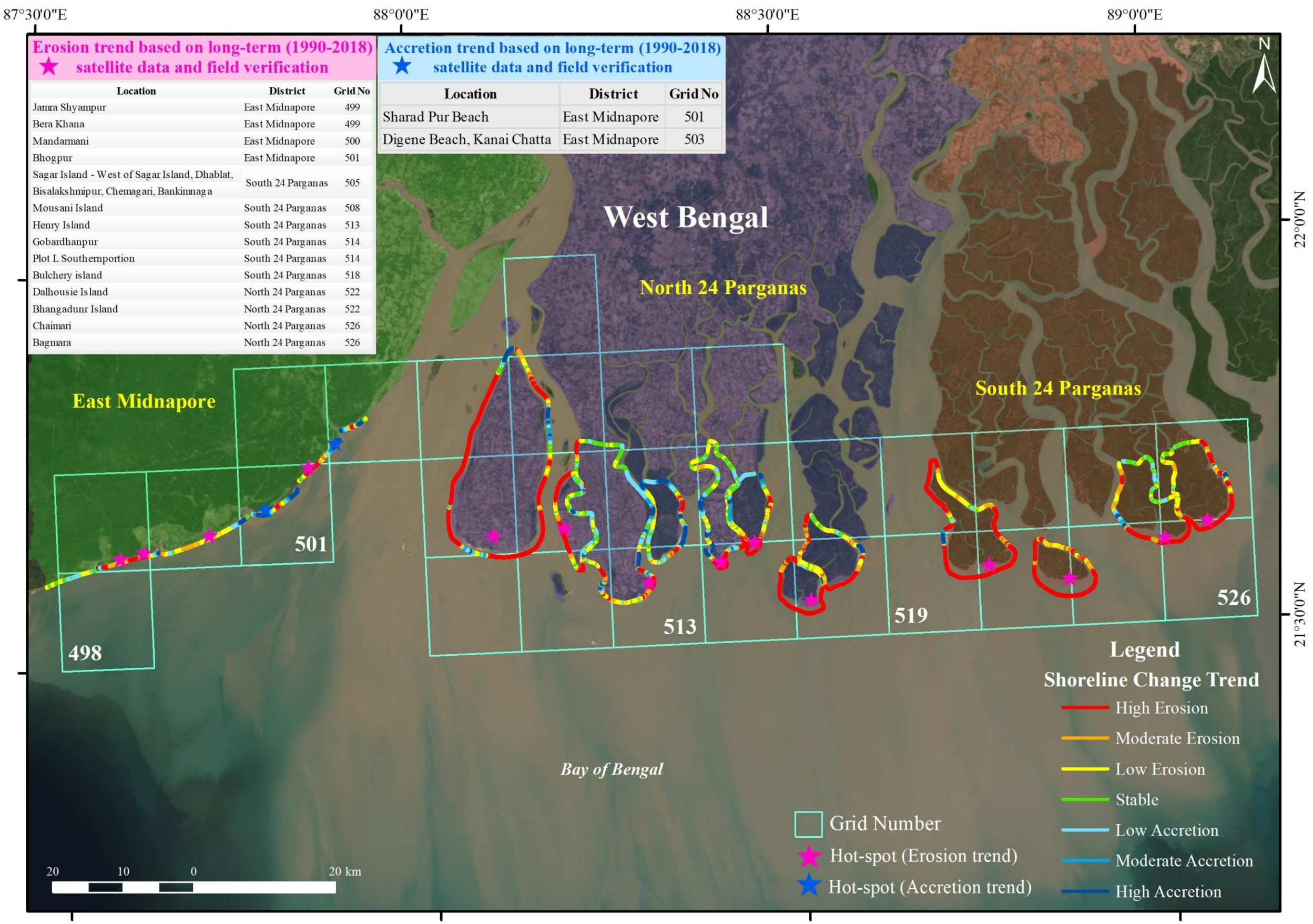
South Of Paradip Port

Erosion trend based on long-term (1990-2018) satellite data and field verification

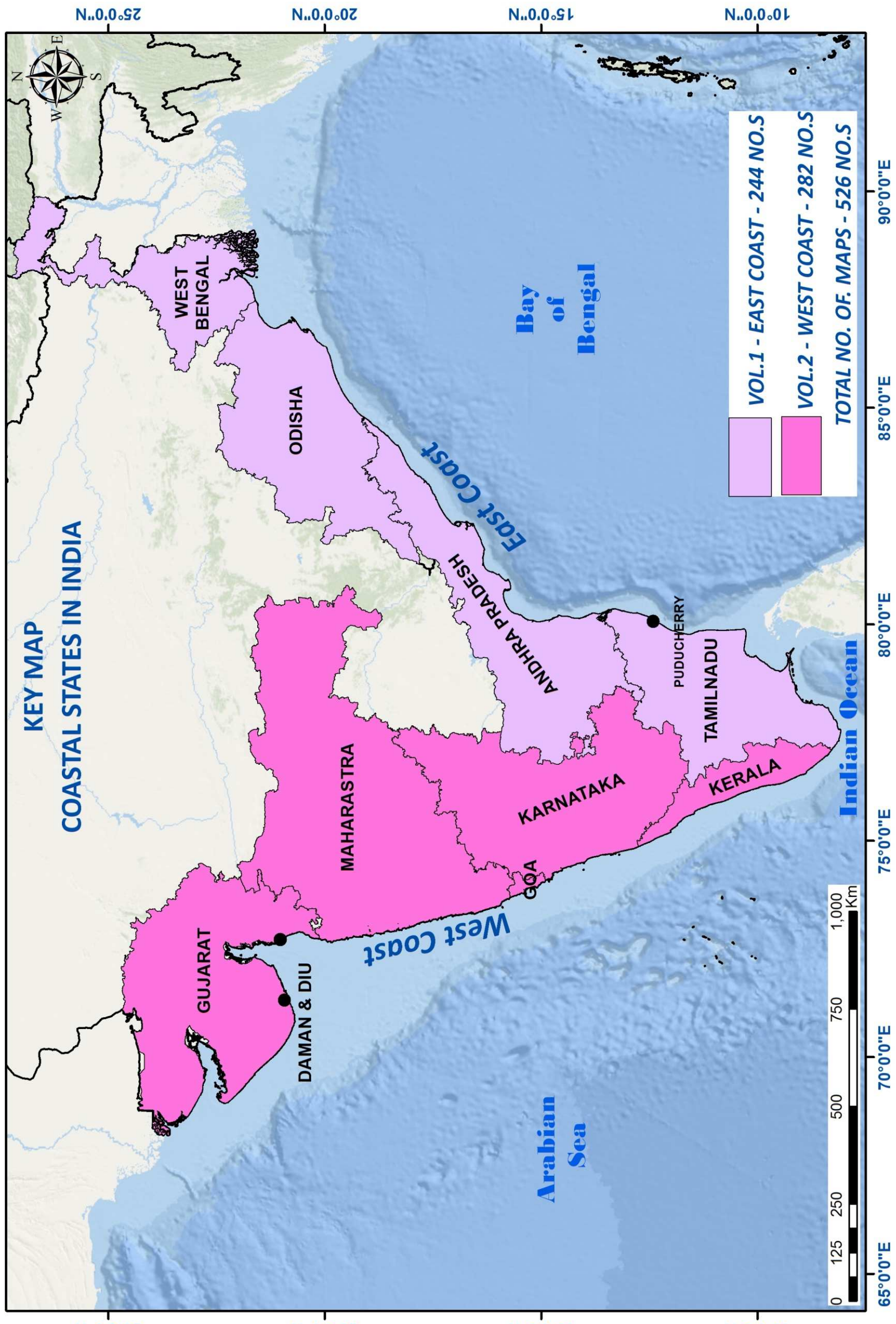
Location	District	Grid No
Jamra Shyampur	East Midnapore	499
Bera Khana	East Midnapore	499
Mandarmani	East Midnapore	500
Bhogpur	East Midnapore	501
Sagar Island - West of Sagar Island, Dhablat, Bisalakshmipur, Chemagari, Bankimnaga	South 24 Parganas	505
Mousani Island	South 24 Parganas	508
Henry Island	South 24 Parganas	513
Gobardhanpur	South 24 Parganas	514
Plot L Southemportion	South 24 Parganas	514
Bulchery island	South 24 Parganas	518
Dalhousie Island	North 24 Parganas	522
Bhangadunr Island	North 24 Parganas	522
Chaimari	North 24 Parganas	526
Bagmara	North 24 Parganas	526

Accretion trend based on long-term (1990-2018) satellite data and field verification

Location	District	Grid No
Sharad Pur Beach	East Midnapore	501
Digene Beach, Kanai Chatta	East Midnapore	503



Key Map


KEY MAP
COASTAL STATES IN INDIA
VOL.1 - EAST COAST - 244 NO.S
VOL.2 - WEST COAST - 282 NO.S
TOTAL NO. OF. MAPS - 526 NO.S
WEST BENGAL
ODISHA
ANDHRA PRADESH
PUDUCHERRY
TAMILNADU
KERALA
KARNATAKA
GOA
MAHARASTRA
GUJARAT
DAMAN & DIU
East Coast
West Coast
Bay of Bengal
Indian Ocean
Arabian Sea
0 125 250 500 750 1,000 Km
90°0'0"E
85°0'0"E
80°0'0"E
75°0'0"E
70°0'0"E
65°0'0"E
25°0'0"N
20°0'0"N
15°0'0"N
10°0'0"N

List of Maps

East Coast of India

Tamil Nadu

1990 - 2018

KANNIYAKUMARI

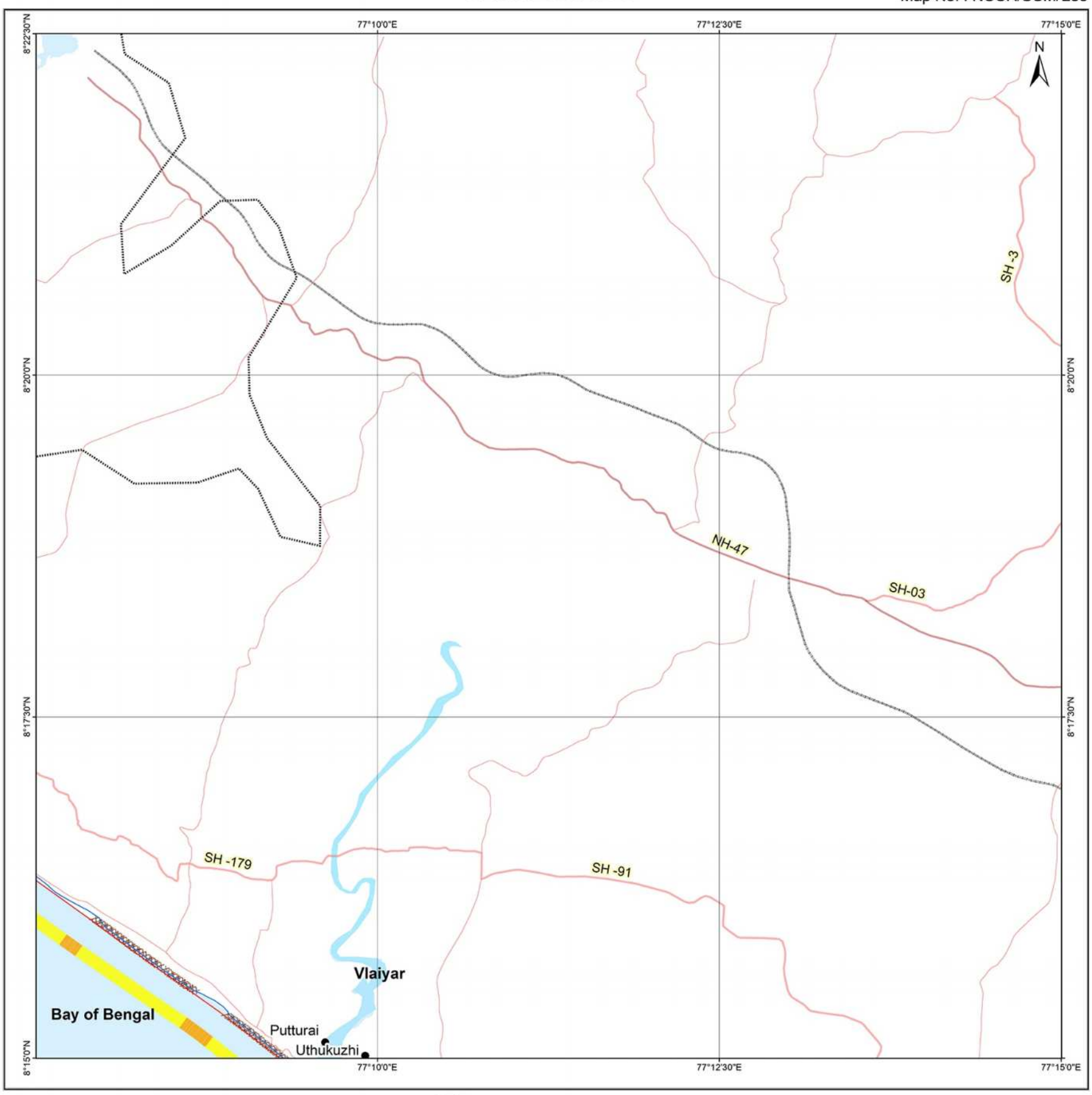
SHORELINE CHANGE MAP

TAMIL NADU

Restricted Use

58 H / 3 / SE

Map No. : NCCR/SCM/283



Shoreline Change Trend for Period 1990 - 2018

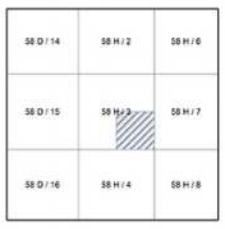
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/30/2018

Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

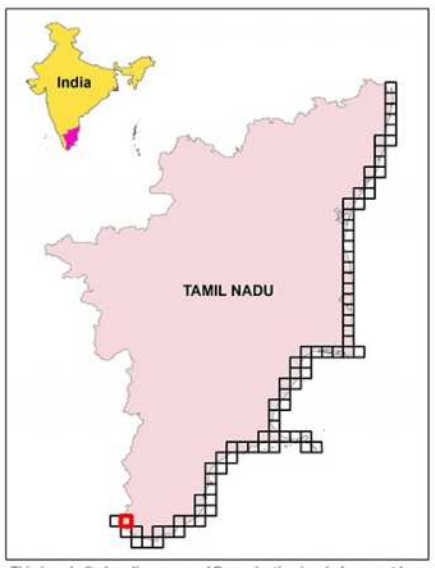
UTM Coordinates Zone 43

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/30/2018
LISS-IV	04/28/2017 & 02/10/2017
LISS-IV	02/25/2016
LISS-IV	03/22/2015
LISS-IV	09/11/2014
LISS-IV	05/19/2013
LISS-IV	01/25/2012
LISS-III	01/10/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

Prepared by

Government of India
Ministry of Earth Sciences

ESSO

National Centre for Coastal Research (NCCR)
Pallikaranai, Chennai - 600100

1990 - 2018

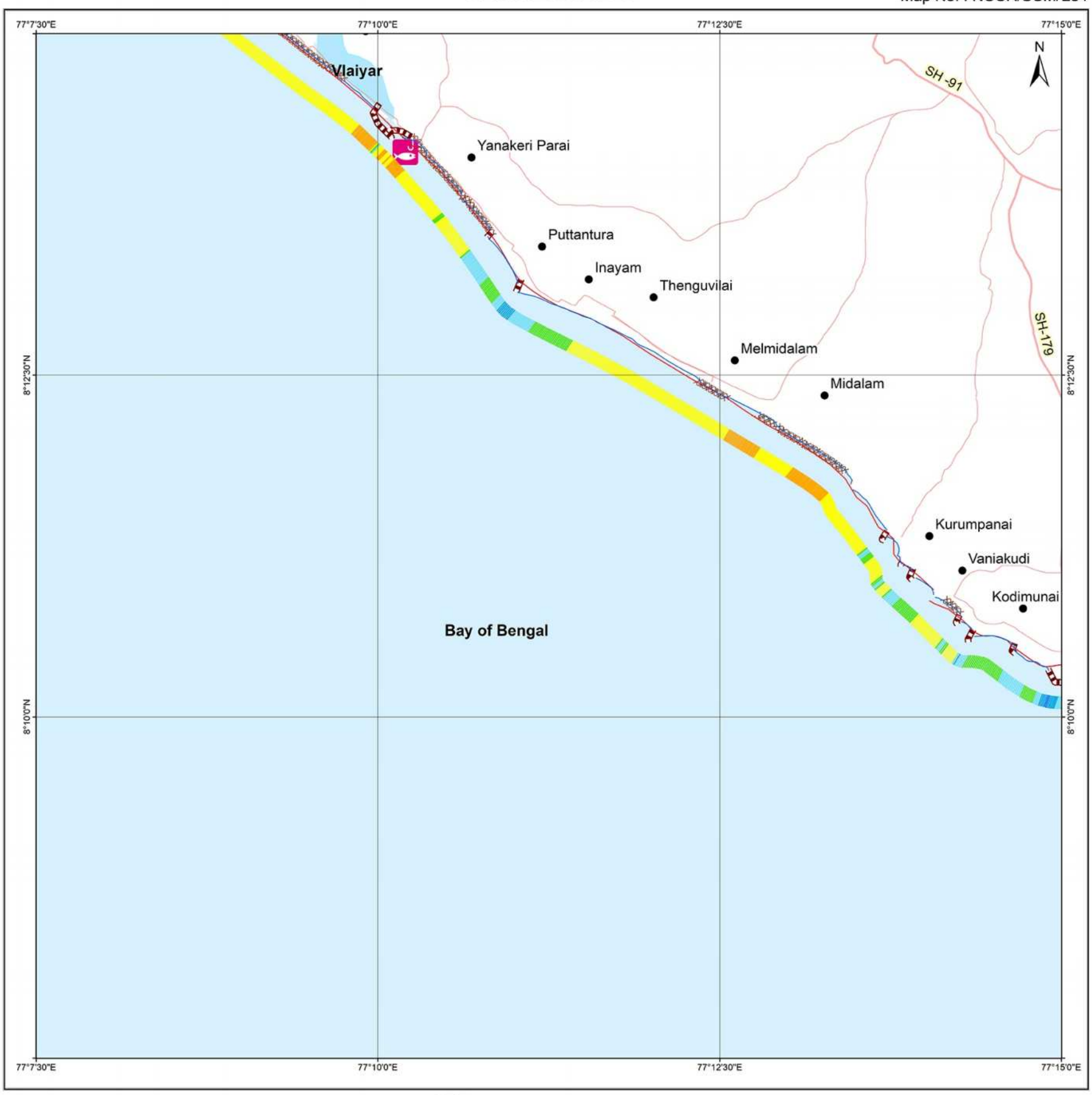
KANNIYAKUMARI

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 H / 4 / NE

Map No. : NCCR/SCM/284



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
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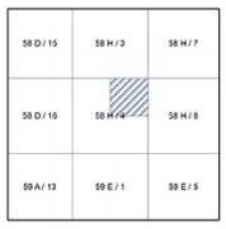
Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

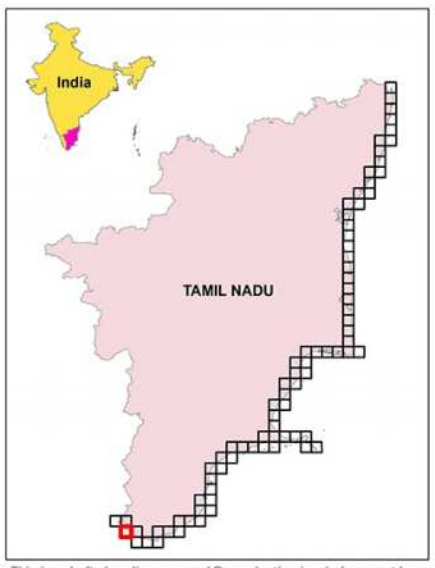
UTM Coordinates Zone 43

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/30/2018
LISS-IV	04/28/2017
LISS-IV	04/28/2016
LISS-IV	03/22/2015
LISS-IV	09/11/2014
LISS-IV	05/19/2013
LISS-IV	01/25/2012
LISS-III	07/01/2006 & 01/10/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
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- Lakes
- Rivers

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1990 - 2018

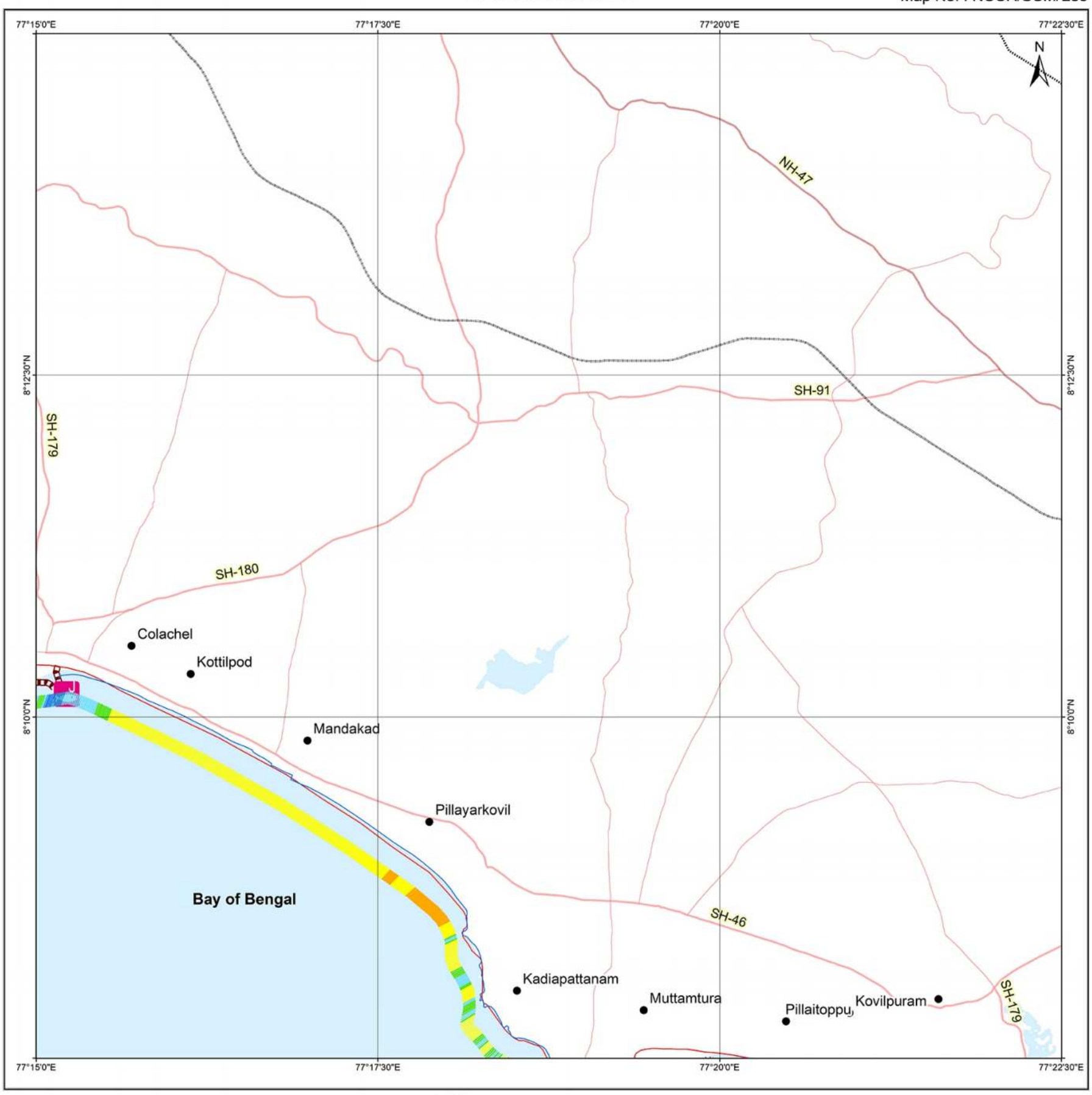
KANNIYAKUMARI

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 H / 8 / NW

Map No. : NCCR/SCM/285



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/30/2018

Index to sheets

Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 43

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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LISS-IV	01/25/2012
LISS-III	01/10/2008
PAN (Cartosat-1)	07/01/2006
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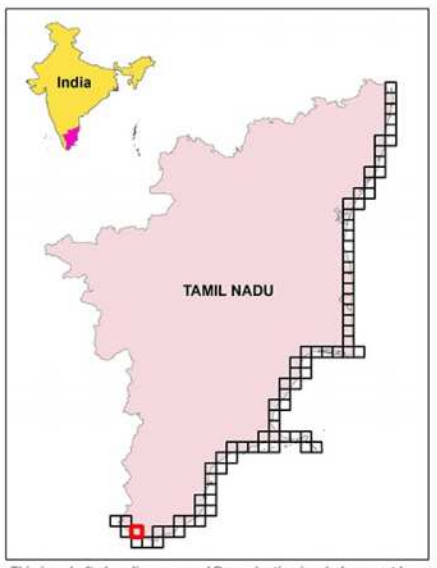
TM	03/11/1992



- Settlements
- Port
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- Seawall/Ripraps
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1990 - 2018

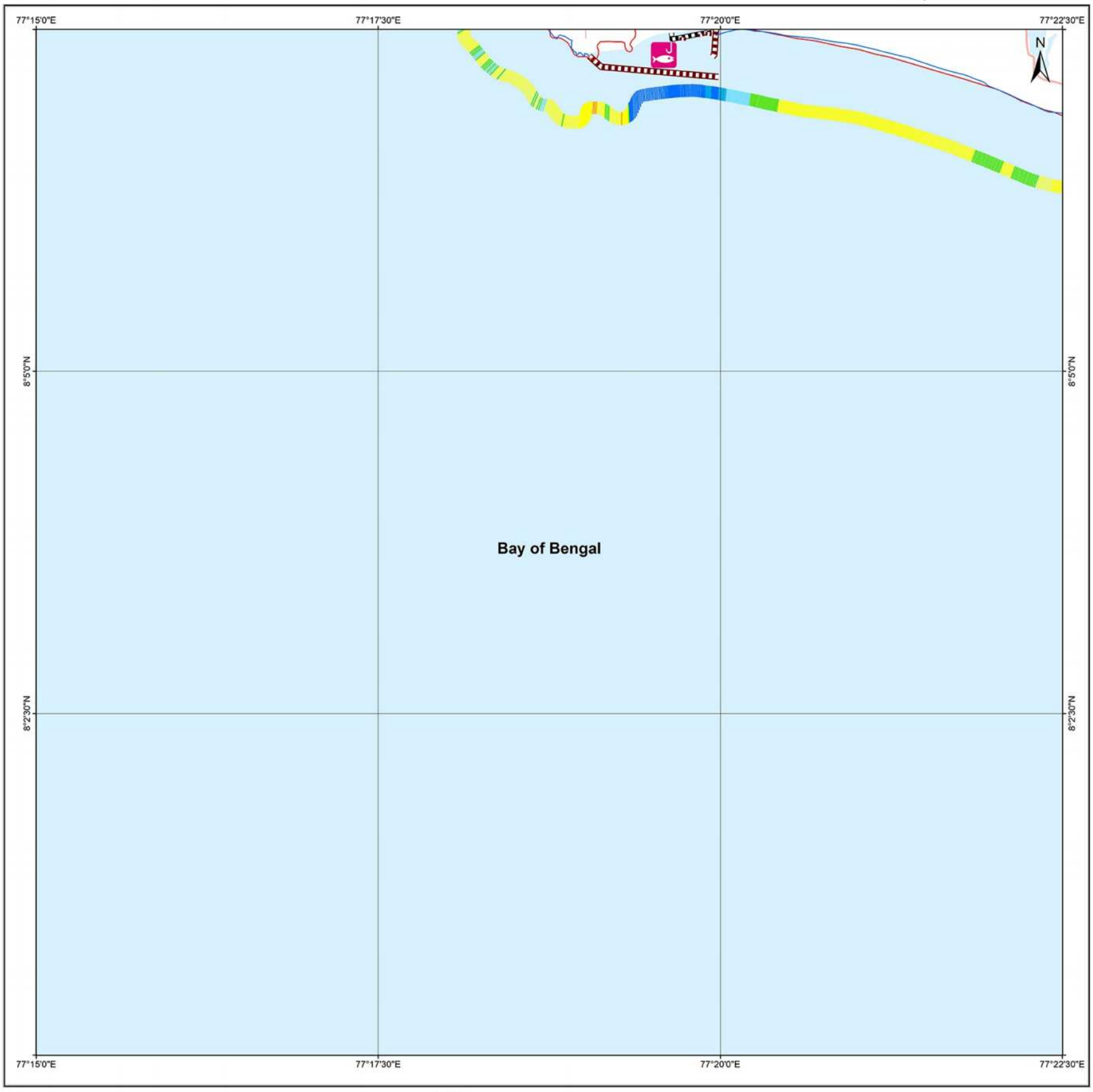
KANNIYAKUMARI

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 H / 8 / SW

Map No. : NCCR/SCM/286



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/30/2018

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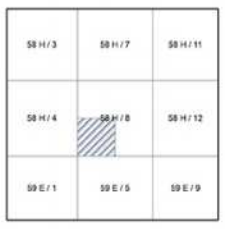
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 43

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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LISS-IV	05/19/2013
LISS-IV	01/25/2012
LISS-III	01/10/2008
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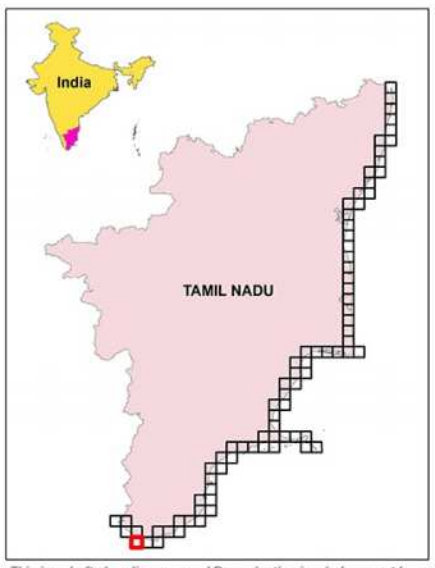
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
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- Breakwater
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KANNIYAKUMARI

SHORELINE CHANGE MAP
TAMIL NADU

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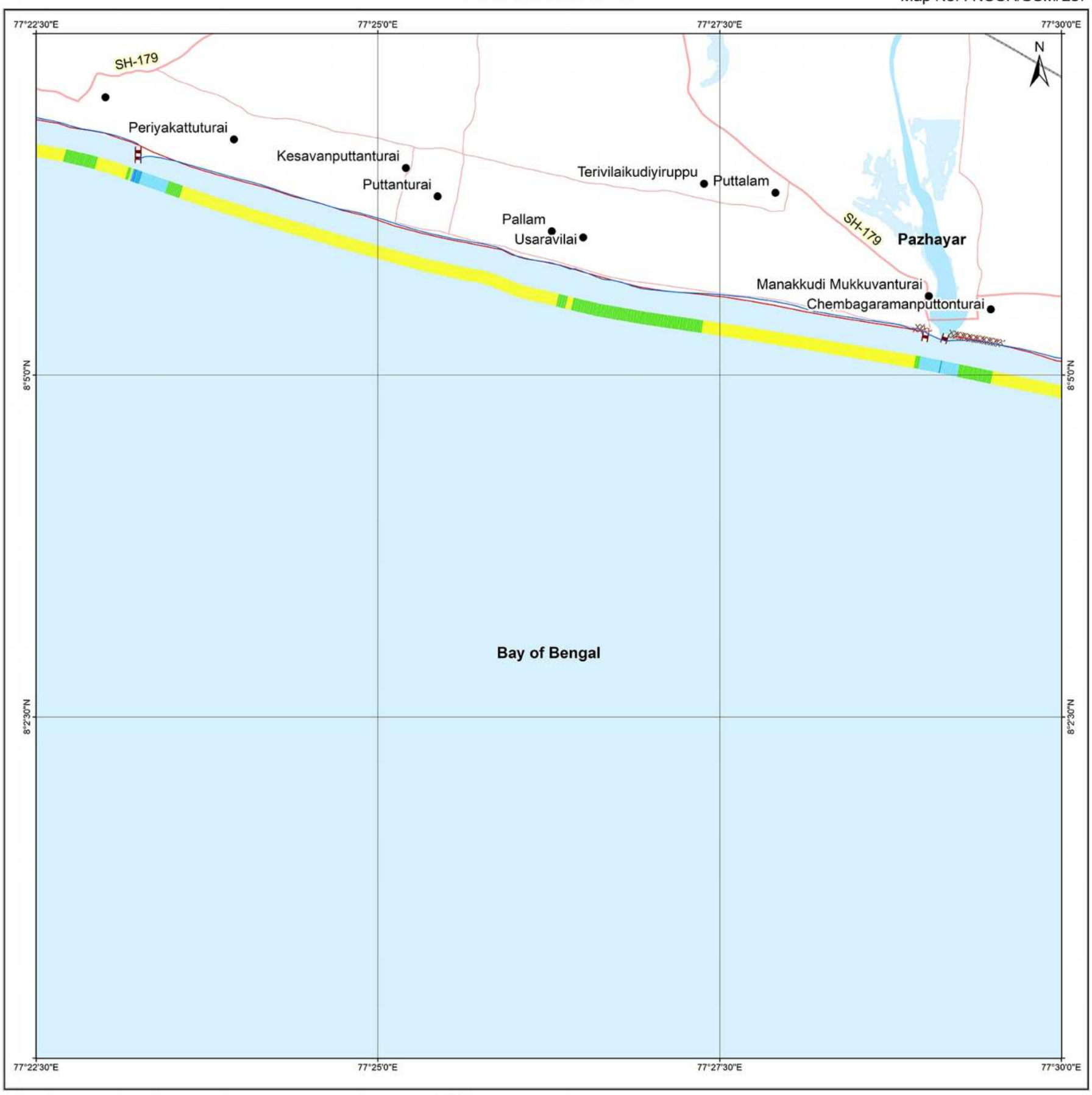
58 H / 8 / SE

Map No. : NCCR/SCM/287



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/30/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 43

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LISS-IV	01/25/2012
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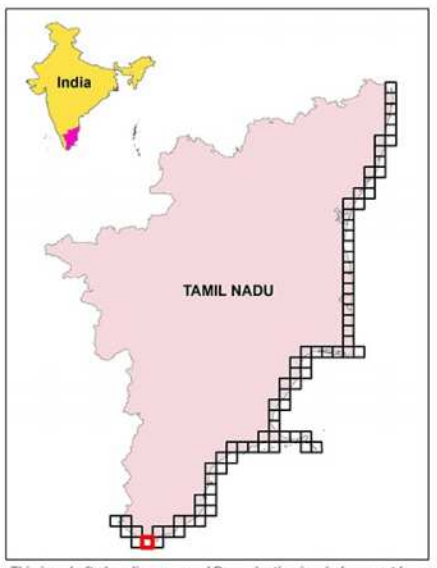

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KANNIYAKUMARI

SHORELINE CHANGE MAP
TAMIL NADU

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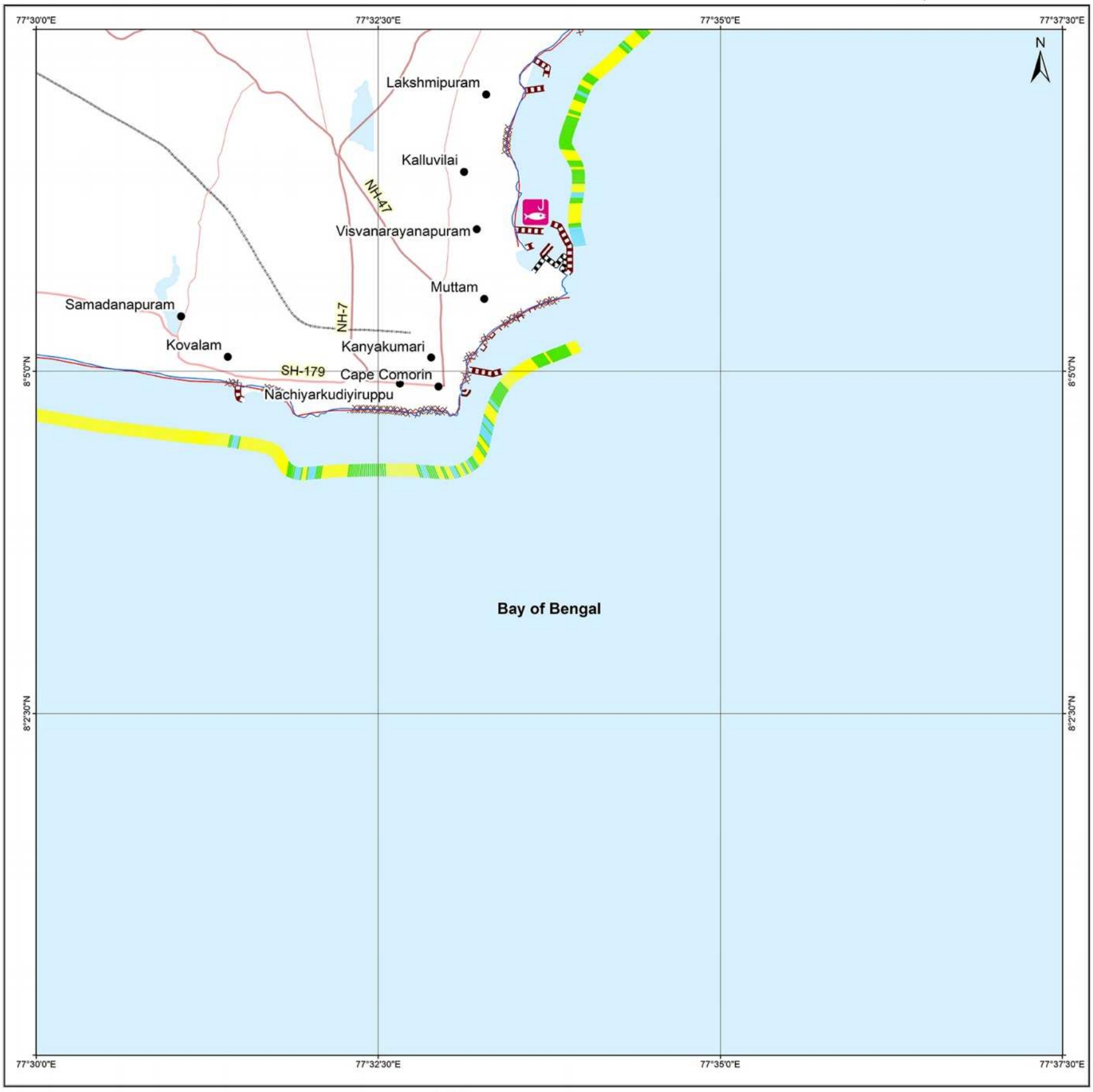
58 H / 12 / SW

Map No. : NCCR/SCM/288



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/30/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 43

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

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LISS-IV	01/25/2012
LISS-III	01/10/2008
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ETM+	12/15/2000
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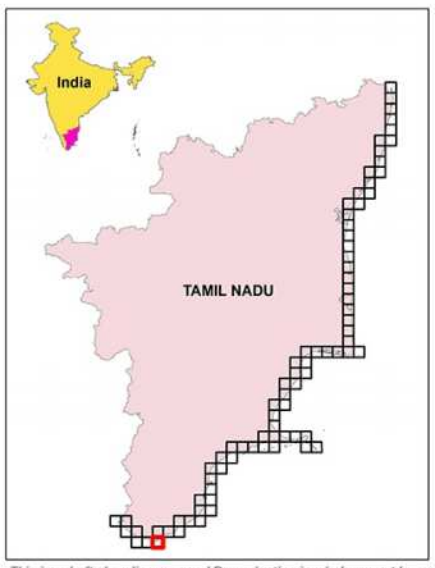

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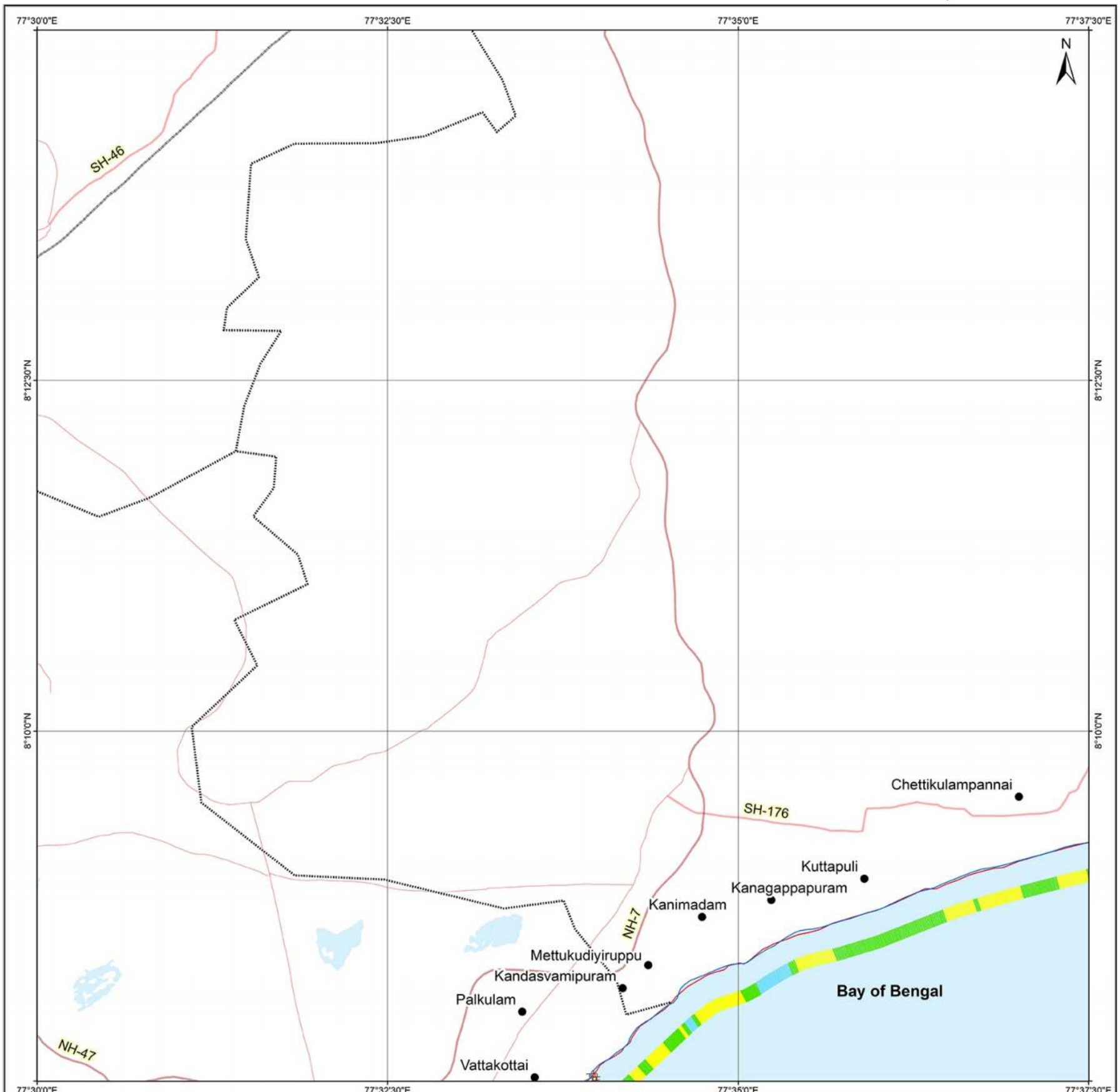
TIRUNELVELI &KANNIYAKUMARI

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 H / 12 / NW

Map No. : NCCR/SCM/289



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/30/2018

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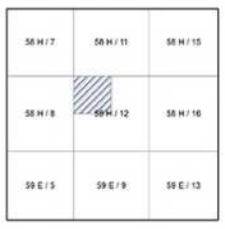
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 43

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

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LISS-IV	04/28/2017
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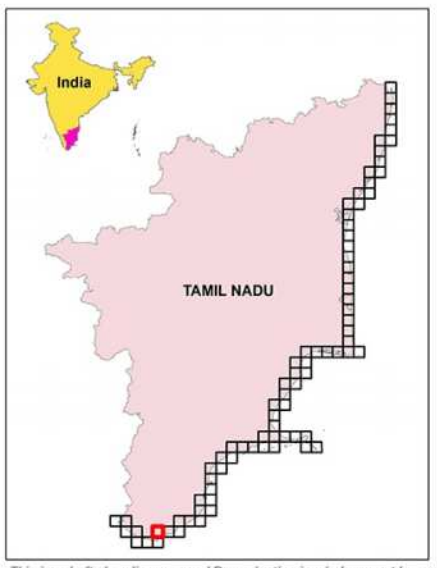
LISS-IV	09/11/2014
LISS-IV	05/19/2013
LISS-IV	01/25/2012
LISS-III	01/10/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
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- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
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- State Highways
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- Rivers

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1990 - 2018

TIRUNELVELI

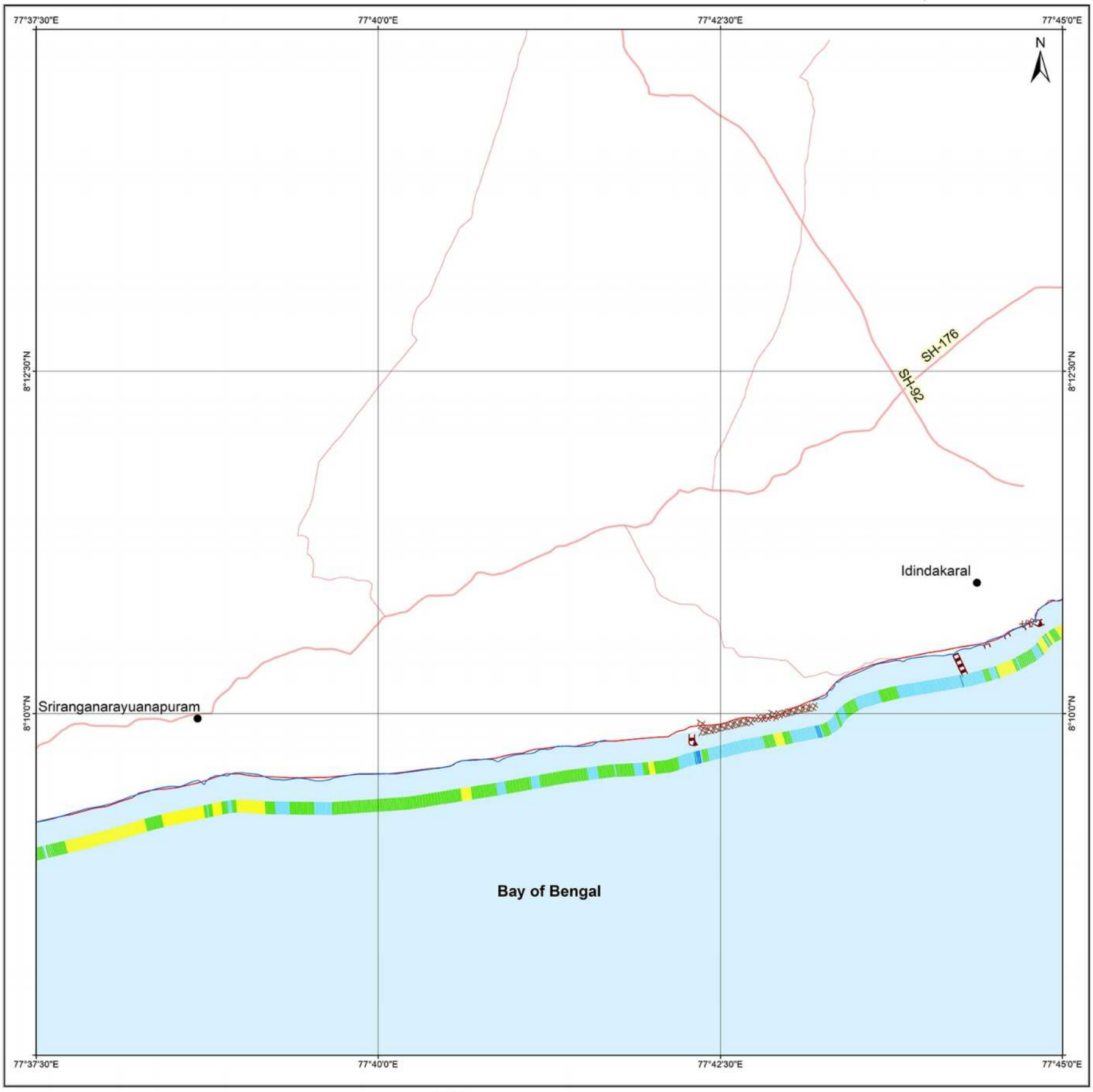
SHORELINE CHANGE MAP

TAMIL NADU

Restricted Use

58 H / 12 / NE

Map No. : NCCR/SCM/290



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/30/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 43

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/30/2018
LISS-IV	04/28/2017 & 07/09/2017
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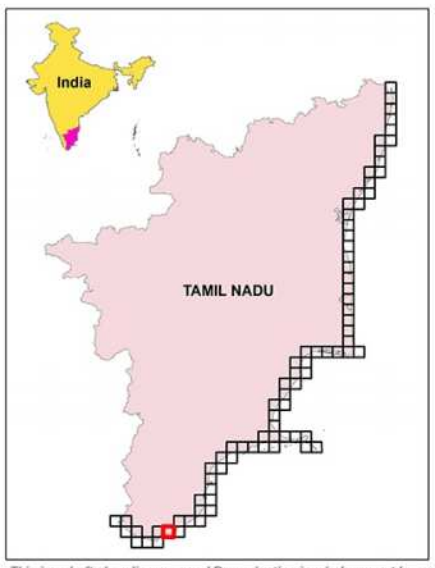
LISS-IV	03/22/2015
LISS-IV	09/11/2014
LISS-IV	05/19/2013
LISS-IV	01/25/2012
LISS-III	01/10/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
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1990 - 2018

TIRUNELVELI

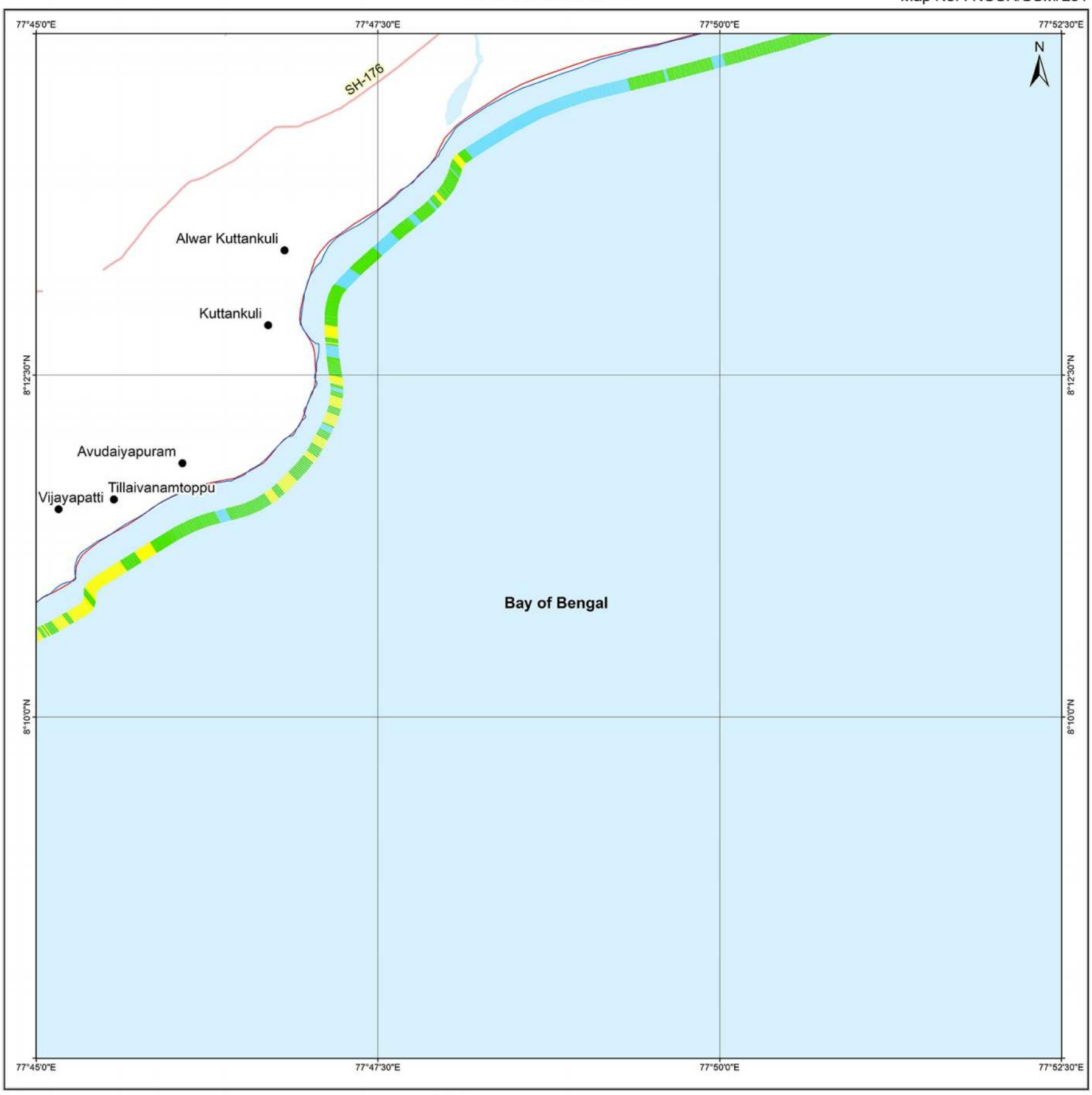
SHORELINE CHANGE MAP

TAMIL NADU

Restricted Use

58 H / 16 / NW

Map No. : NCCR/SCM/291



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018 & 03/30/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 43

Datum : The World Geodetic System 1984 (WGS84)

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LISS-IV	09/11/2014
LISS-IV	05/19/2013
LISS-IV	01/25/2012
LISS-III	01/10/2008
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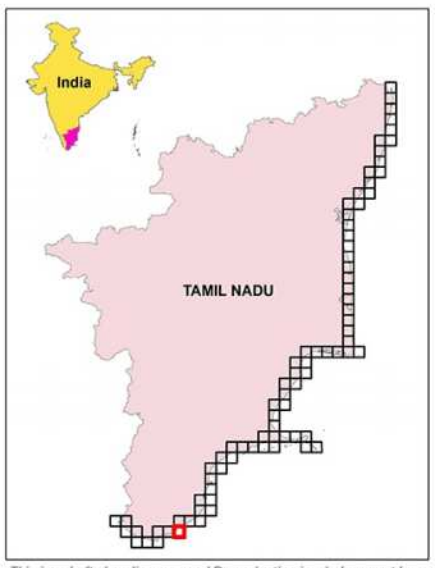
TM	03/11/1992



- Settlements
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1990 - 2018

THOOTHUKUDI & TIRUNELVELI

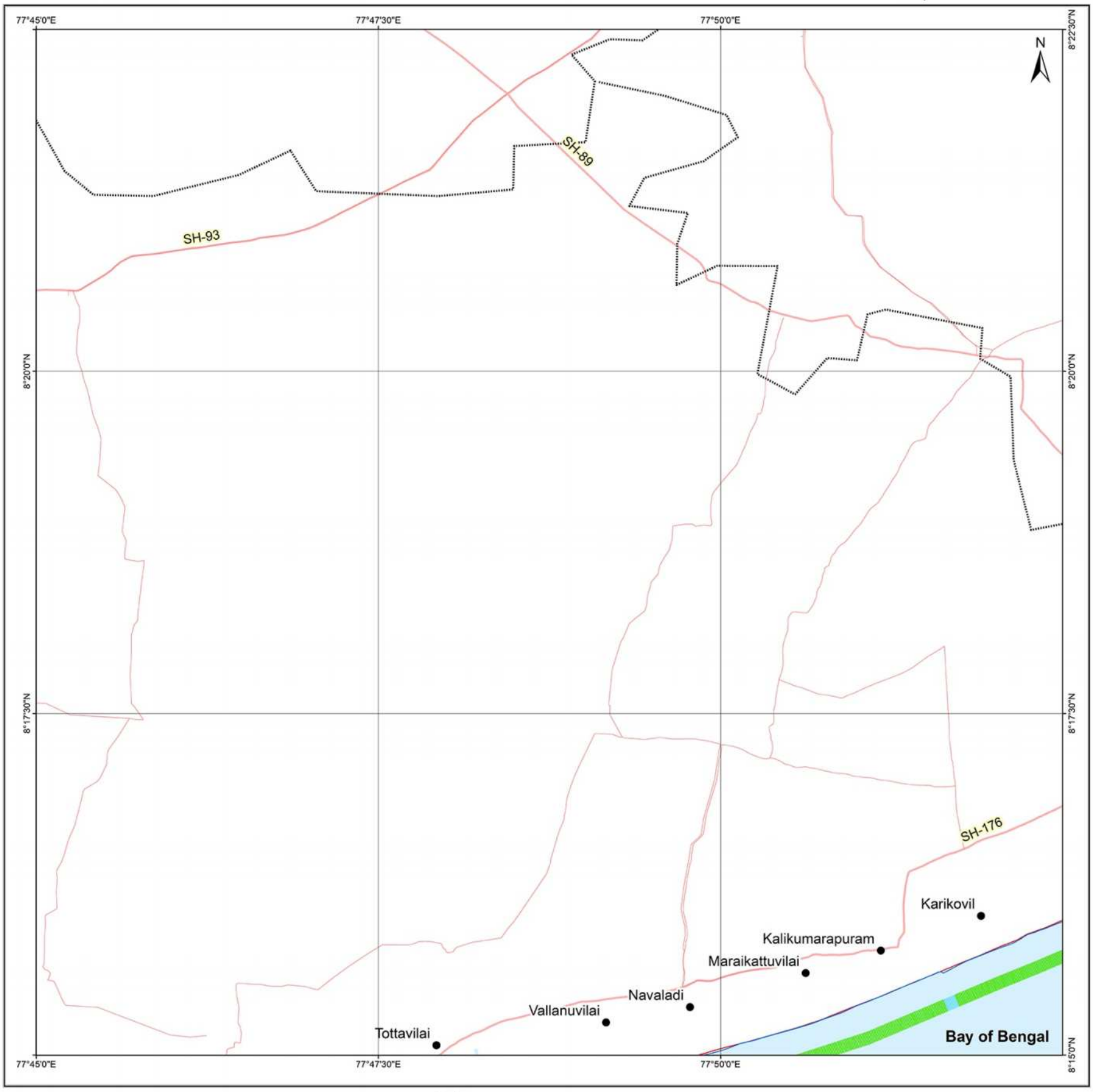
SHORELINE CHANGE MAP

TAMIL NADU

Restricted Use

58 H / 15 / SW

Map No. : NCCR/SCM/292



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018

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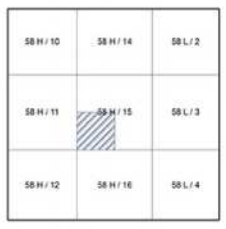

Scale

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1:25,000

UTM Coordinates Zone 43

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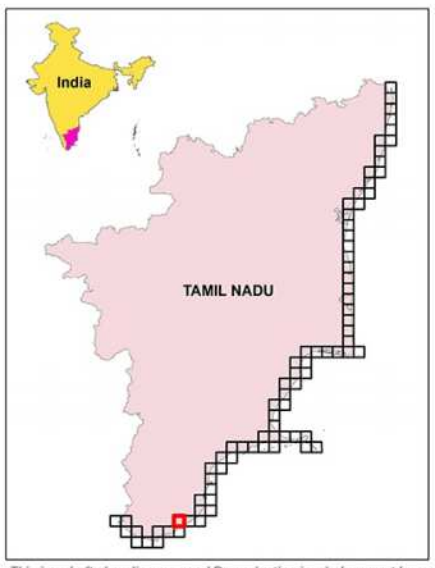
ETM+	12/15/2000
TM	03/11/1992



- Settlements
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- Breakwater
- Seawall/Ripraps
- Rocky Coast
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THOOTHUKUDI & TIRUNELVELI

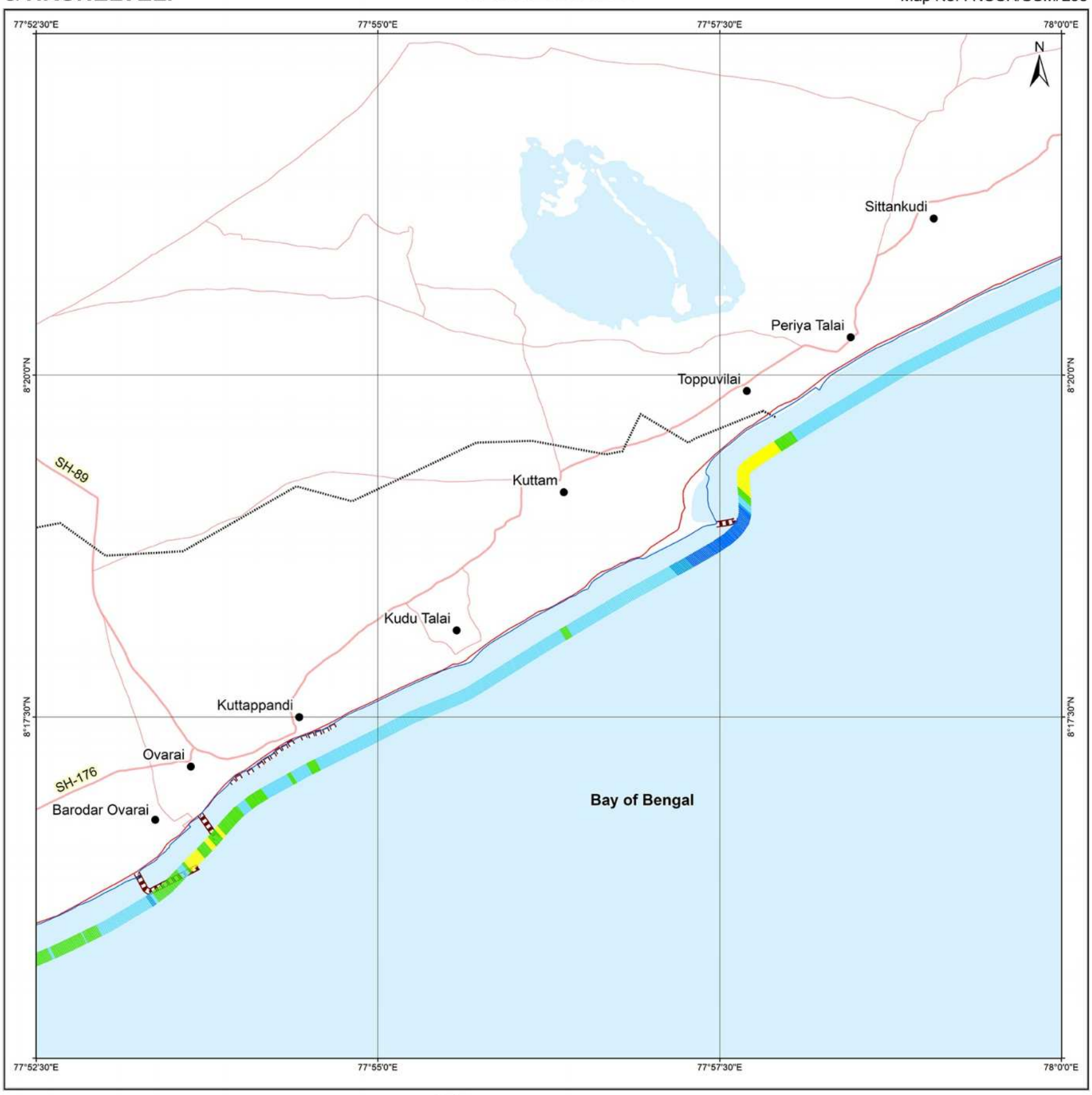
SHORELINE CHANGE MAP

TAMIL NADU

Restricted Use

58 H / 15 / SE

Map No. : NCCR/SCM/293



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018

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Incidence on 1:50,000 Sheets

Scale

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UTM Coordinates Zone 43

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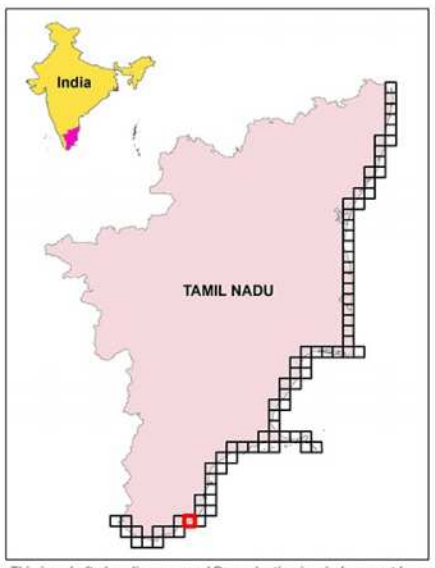
ETM+	12/15/2000
TM	03/11/1992



- Settlements
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THOOTHUKUDI

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 L / 3 / SW

Map No. : NCCR/SCM/294

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018

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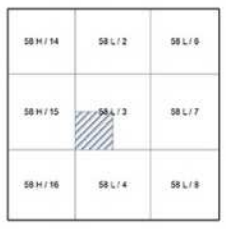


Scale

1000 m 500 0 1 2 km

1:25,000

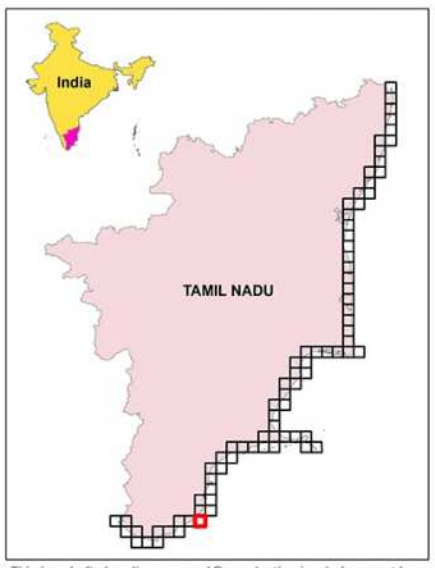
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/06/2018
LISS-IV	07/09/2017 & 04/17/2017
LISS-IV	01/28/2016
LISS-IV	06/02/2015
LISS-IV	07/01/2014
LISS-IV	07/30/2013
LISS-IV	04/06/2012
LISS-III	01/10/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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1990 - 2018

THOOTHUKUDI

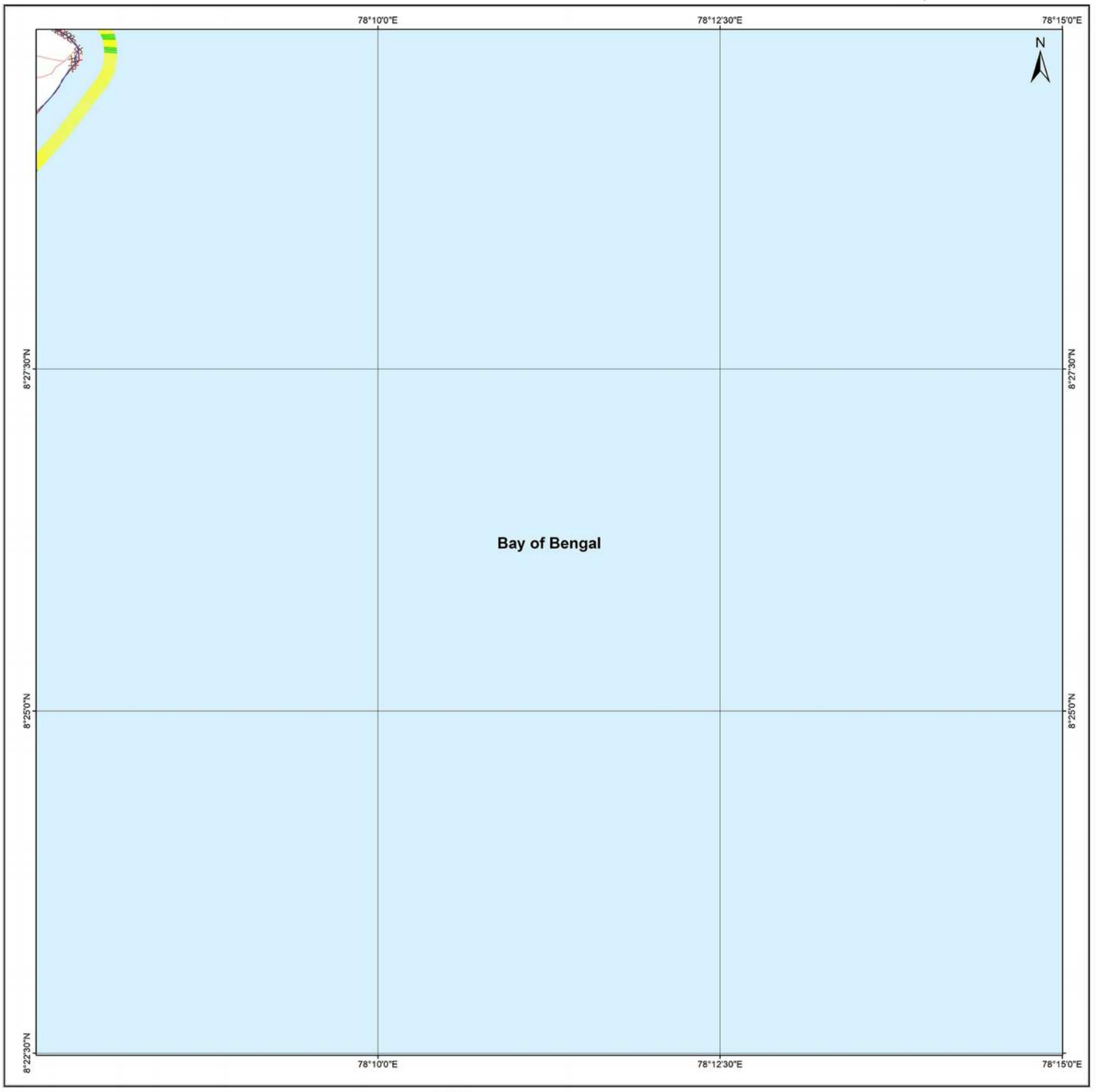
SHORELINE CHANGE MAP

TAMIL NADU

Restricted Use

58 L / 3 / NE

Map No. : NCCR/SCM/295



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018

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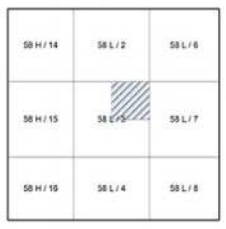
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/06/2018
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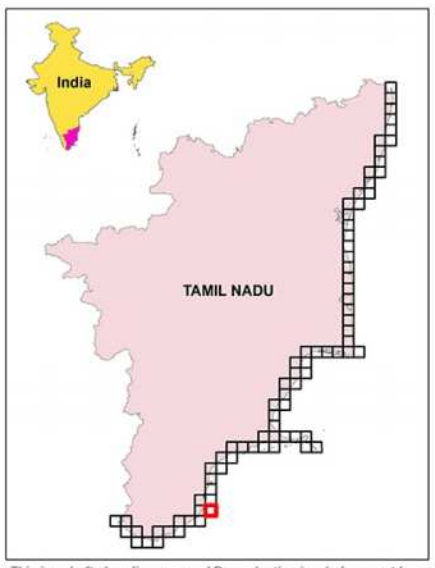
LISS-IV	01/28/2016
LISS-IV	06/02/2015
LISS-IV	07/01/2014
LISS-IV	07/30/2013
LISS-IV	04/06/2012
LISS-III	01/10/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
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SHORELINE CHANGE MAP
TAMIL NADU

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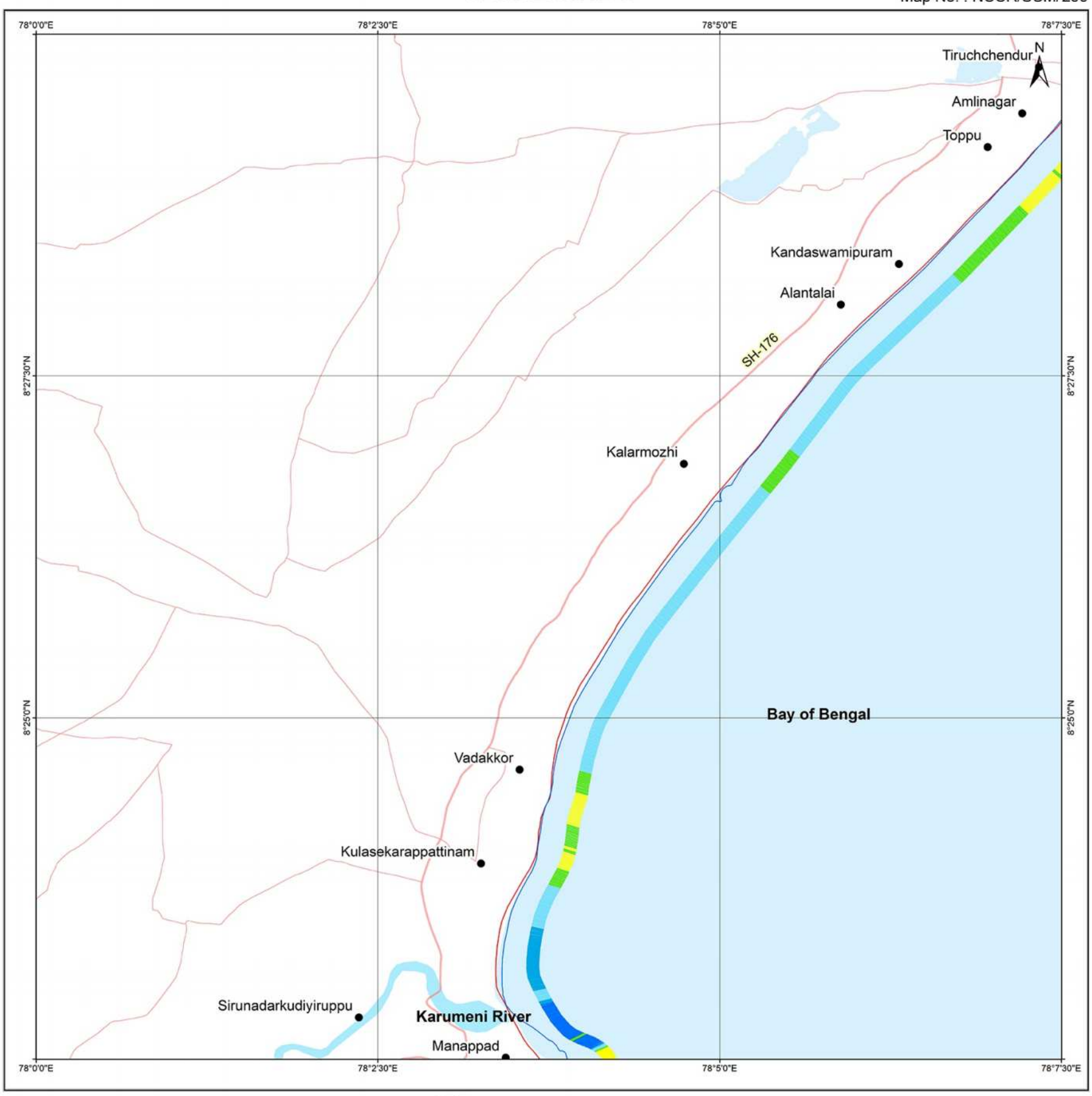
58 L / 3 / NW

Map No. : NCCR/SCM/296



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018

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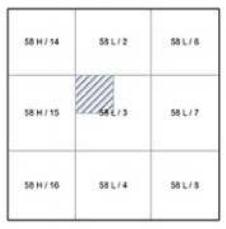

Scale

1000 m 500 0 1 2 km

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UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

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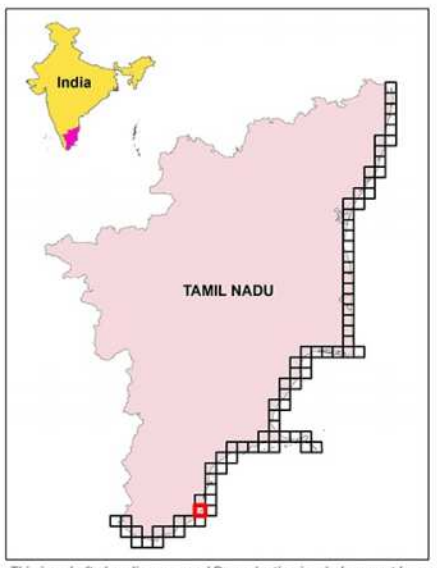
LISS-IV	04/06/2012
LISS-III	01/10/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
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THOOTHUKUDI

SHORELINE CHANGE MAP
TAMIL NADU

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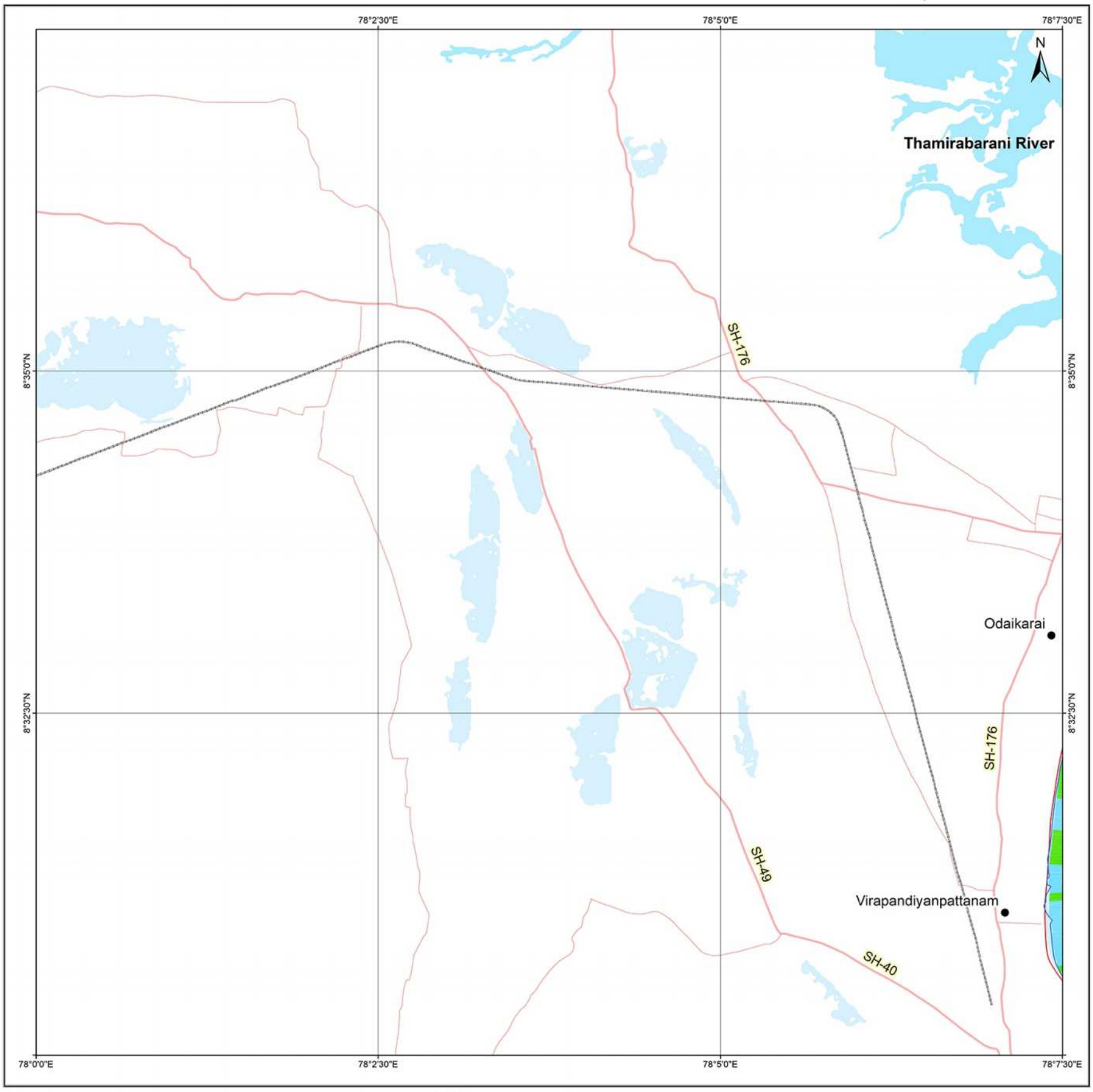
58 L / 2 / SW

Map No. : NCCR/SCM/297



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018

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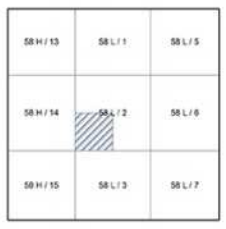
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/06/2018
LISS-IV	04/17/2017
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LISS-IV	06/02/2015
LISS-IV	07/01/2014
LISS-IV	07/30/2013
LISS-IV	04/06/2012
LISS-III	01/10/2008
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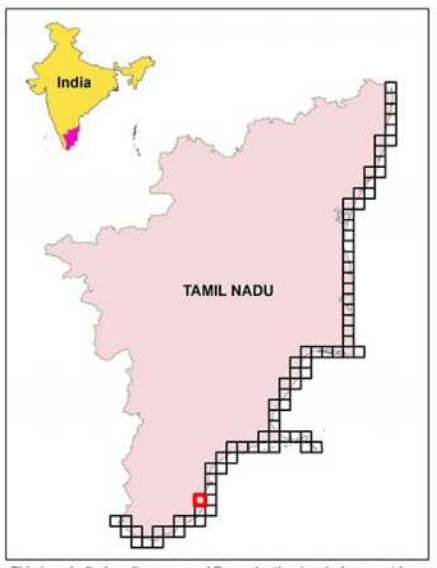
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
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SHORELINE CHANGE MAP
TAMIL NADU

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58 L / 2 / SE

Map No. : NCCR/SCM/298

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/06/2018
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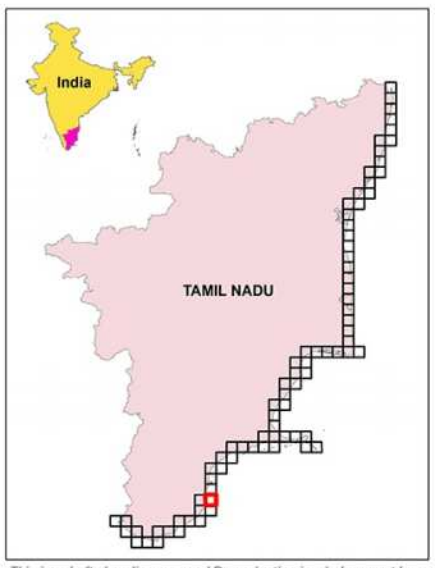
LISS-IV	07/01/2014
LISS-IV	07/30/2013
LISS-IV	04/06/2012
LISS-III	01/10/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
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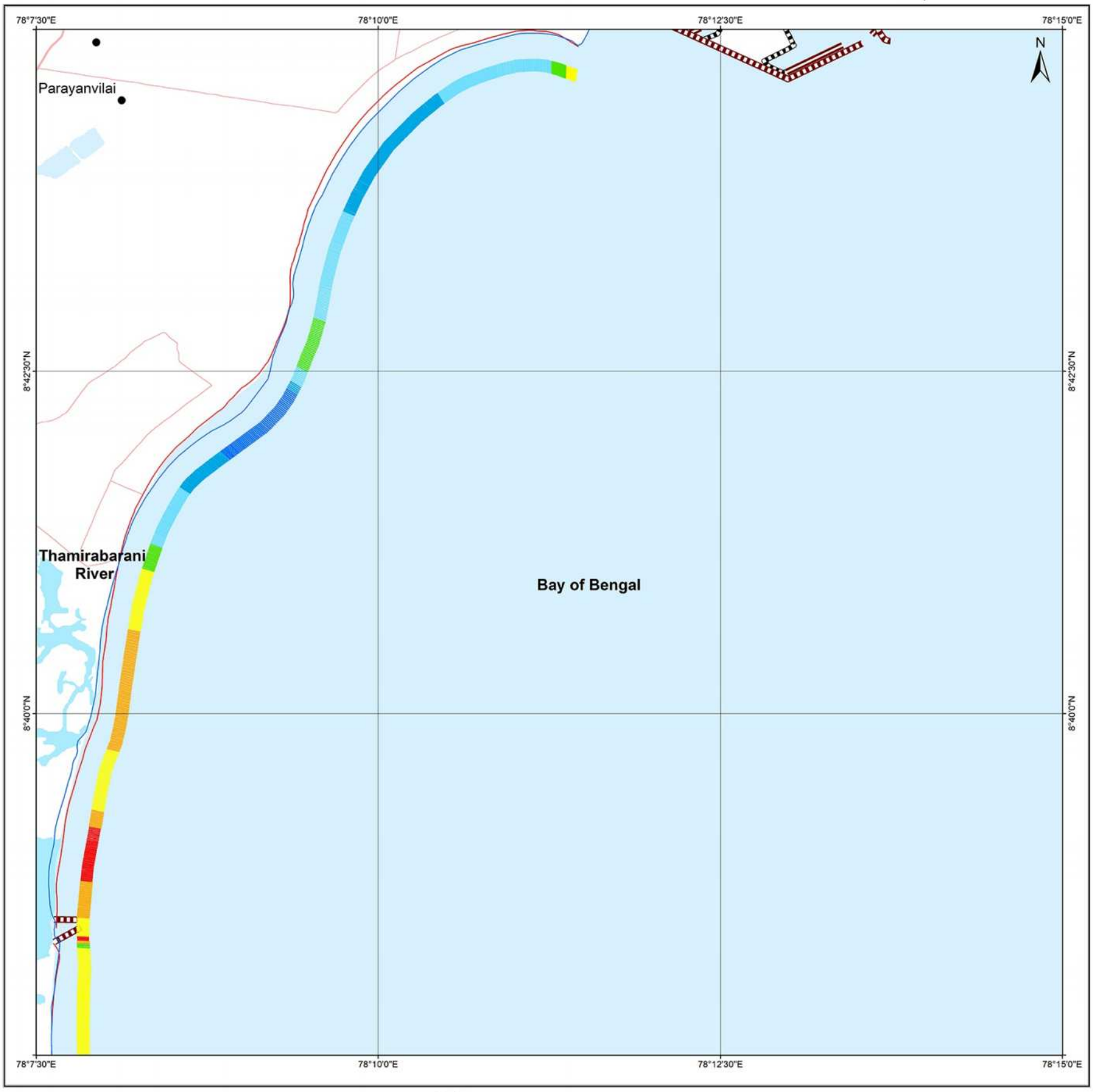
58 L / 2 / NE

Map No. : NCCR/SCM/299



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018

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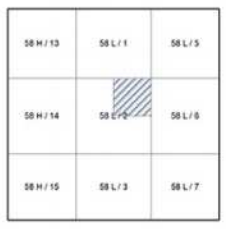


Scale

1000 m 500 0 1 2 km

1:25,000

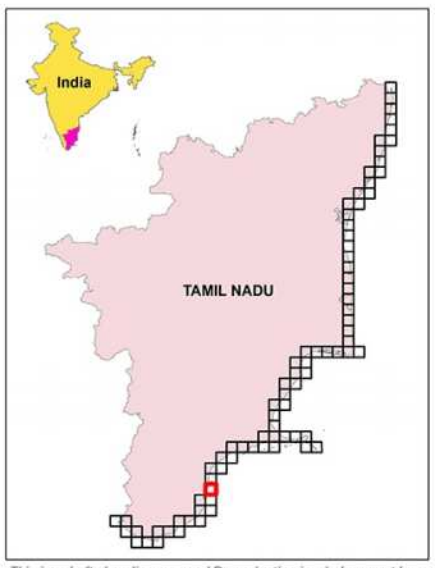
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/06/2018
LISS-IV	04/17/2017
LISS-IV	01/28/2016
LISS-IV	06/02/2015
LISS-IV	07/01/2014
LISS-IV	07/30/2013
LISS-IV	04/06/2012
LISS-III	01/10/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
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SHORELINE CHANGE MAP

TAMIL NADU

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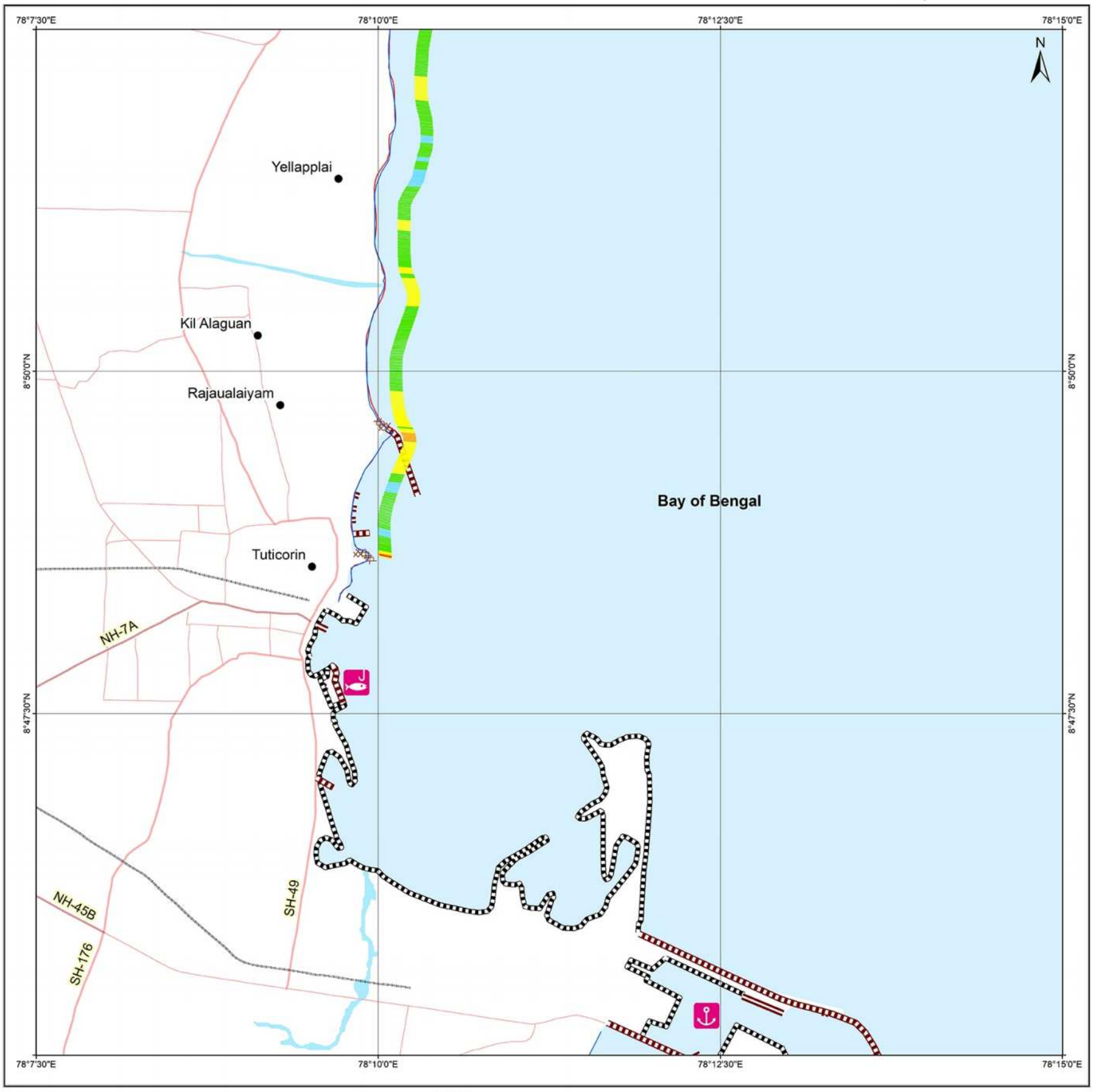
58 L / 1 / SE

Map No. : NCCR/SCM/300



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018

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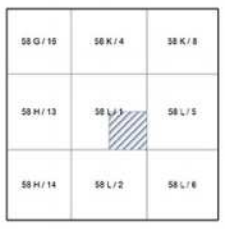
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/06/2018
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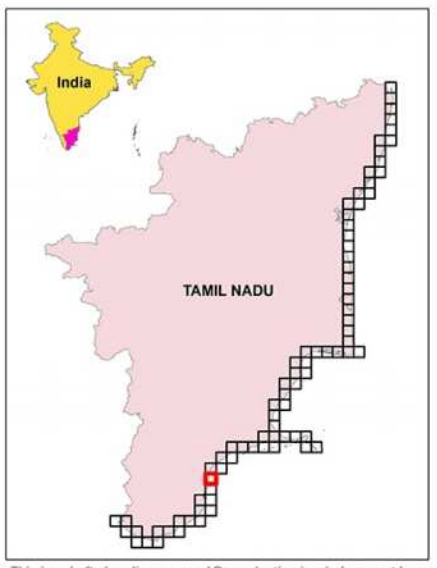
LISS-IV	06/02/2015
LISS-IV	07/01/2014
LISS-IV	07/30/2013
LISS-IV	04/06/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
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THOOTHUKUDI

SHORELINE CHANGE MAP
TAMIL NADU

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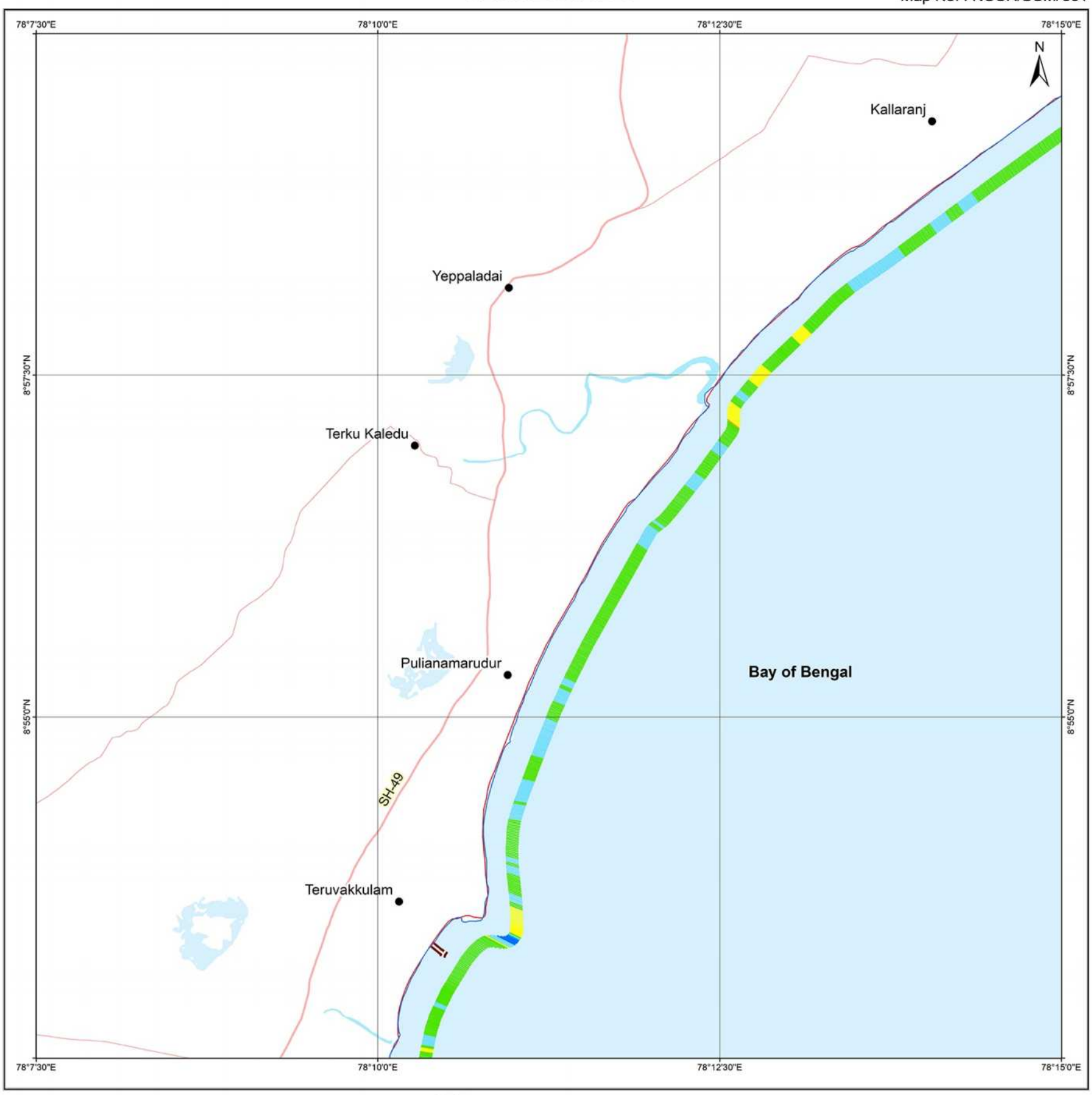
Map No. : NCCR/SCM/301



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018

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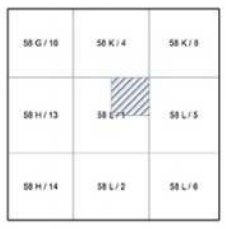

Scale

1000 m 500 0 1 2 km

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UTM Coordinates Zone 44

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Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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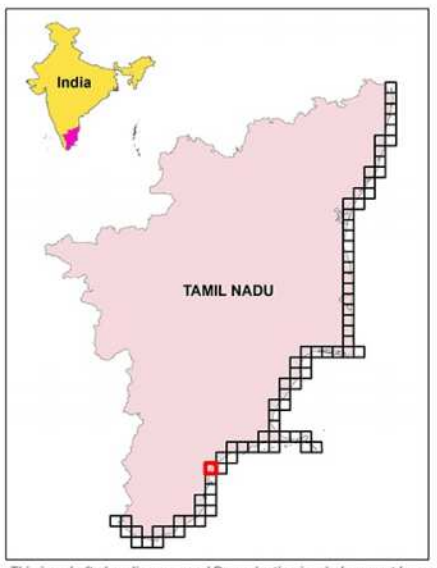
LISS-IV	06/02/2015
LISS-IV	07/01/2014
LISS-IV	07/30/2013
LISS-IV	04/06/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
- Harbour
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- Breakwater
- Seawall/Ripraps
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SHORELINE CHANGE MAP

TAMIL NADU

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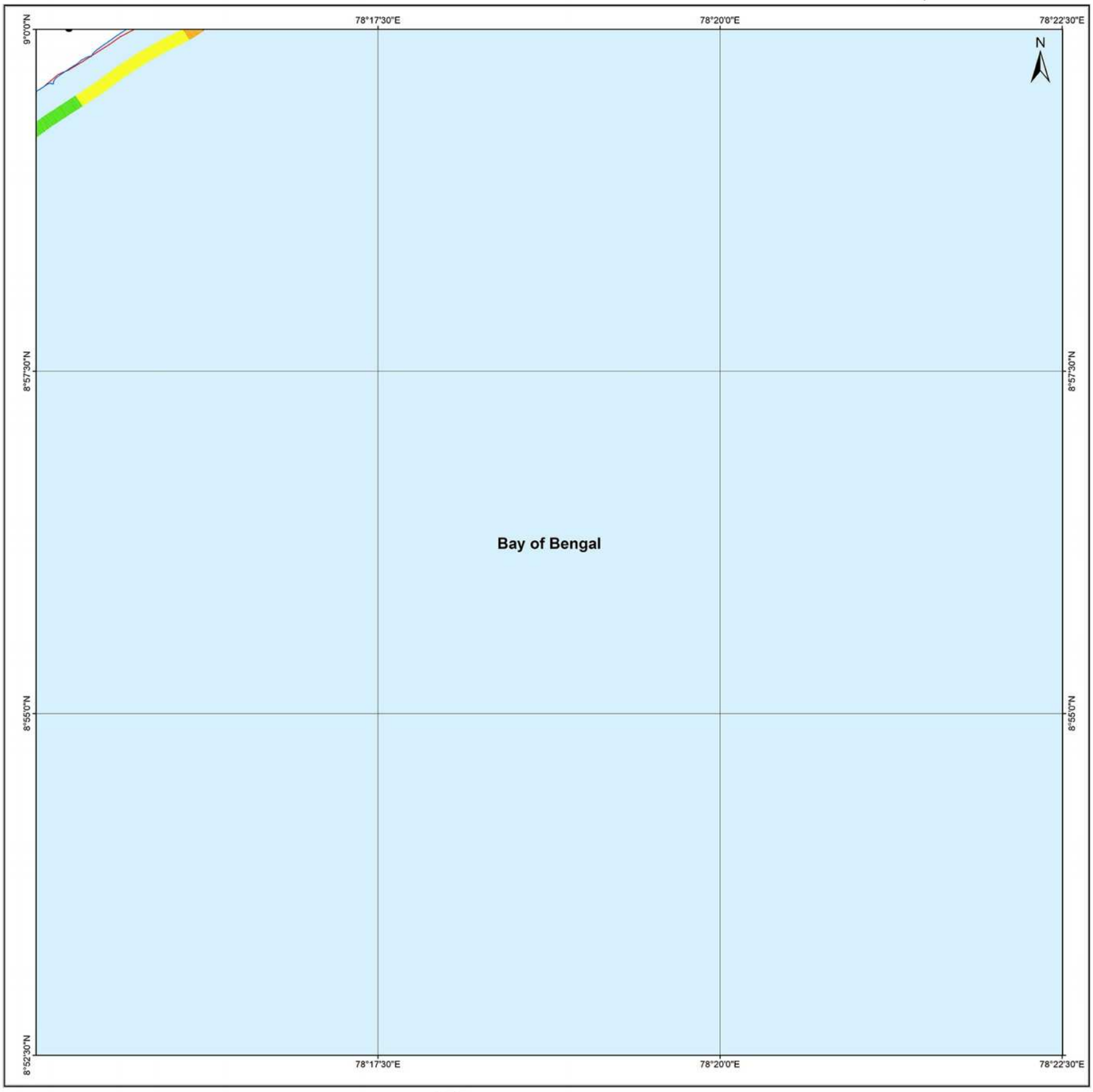
58 L / 5 / NW

Map No. : NCCR/SCM/302



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

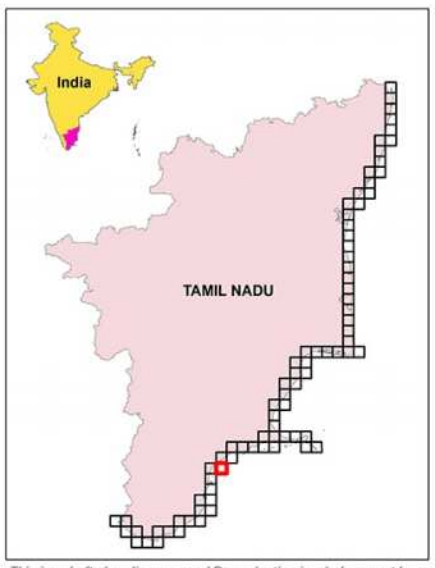
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/06/2018
LISS-IV	04/16/2017
LISS-IV	03/21/2016
LISS-IV	06/02/2015
LISS-IV	05/14/2014
LISS-IV	01/24/2013
LISS-IV	05/29/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
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SHORELINE CHANGE MAP

RAMANATHAPURAM & THOOTHUKUDI

TAMIL NADU

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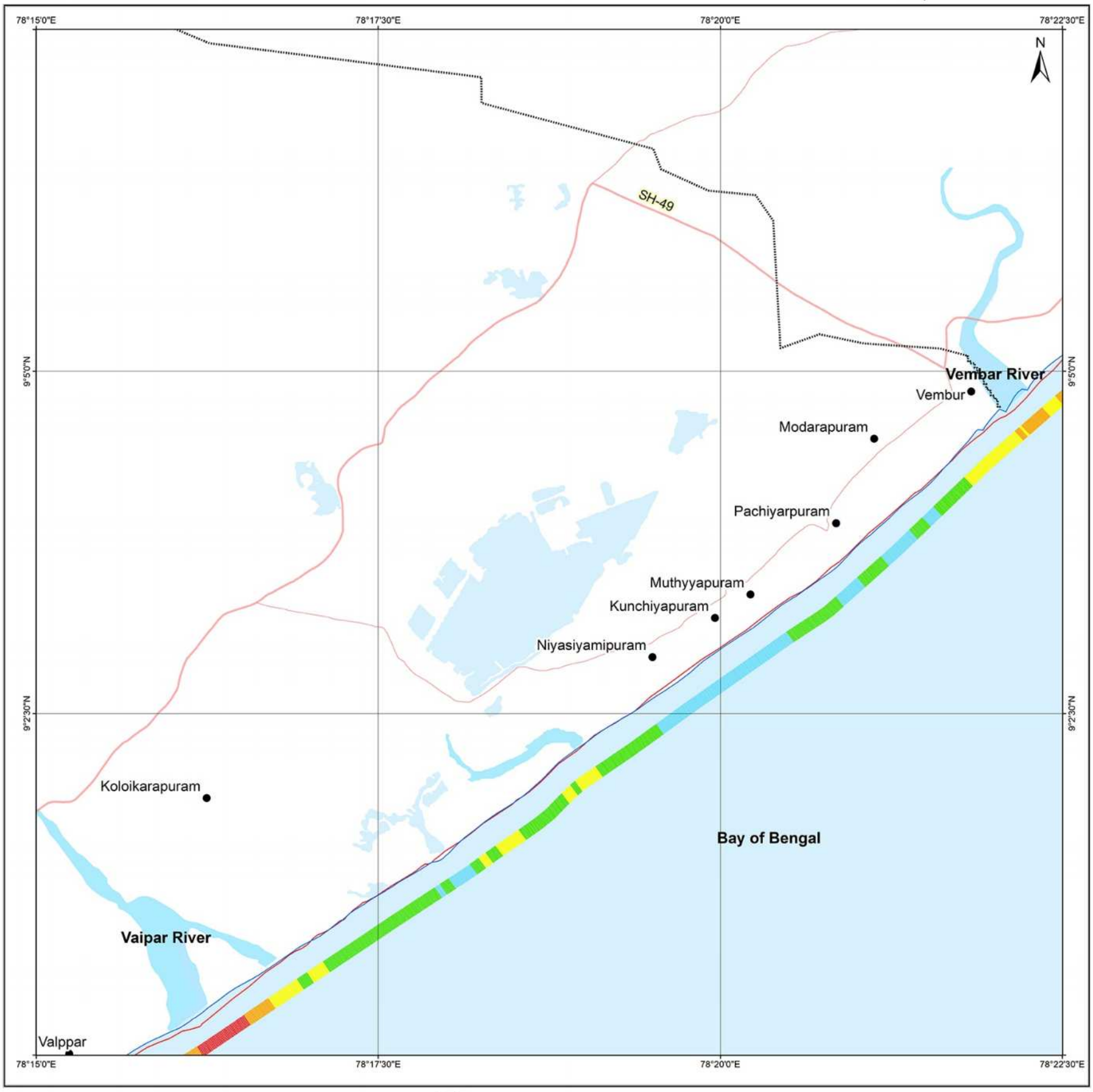
58 K / 8 / SW

Map No. : NCCR/SCM/303



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
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Scale

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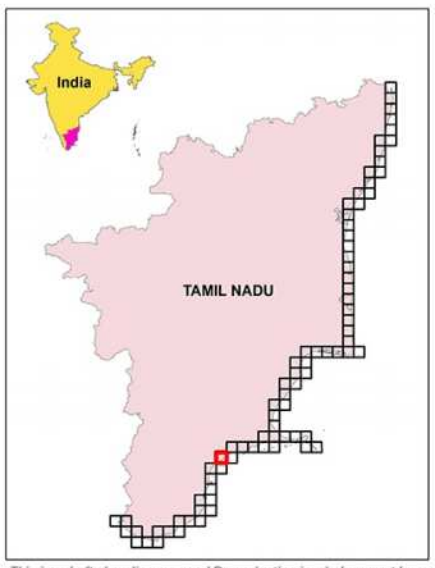
LISS-IV	05/14/2014
LISS-IV	07/30/2013
LISS-IV	04/06/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
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RAMANATHAPURAM

SHORELINE CHANGE MAP
TAMIL NADU

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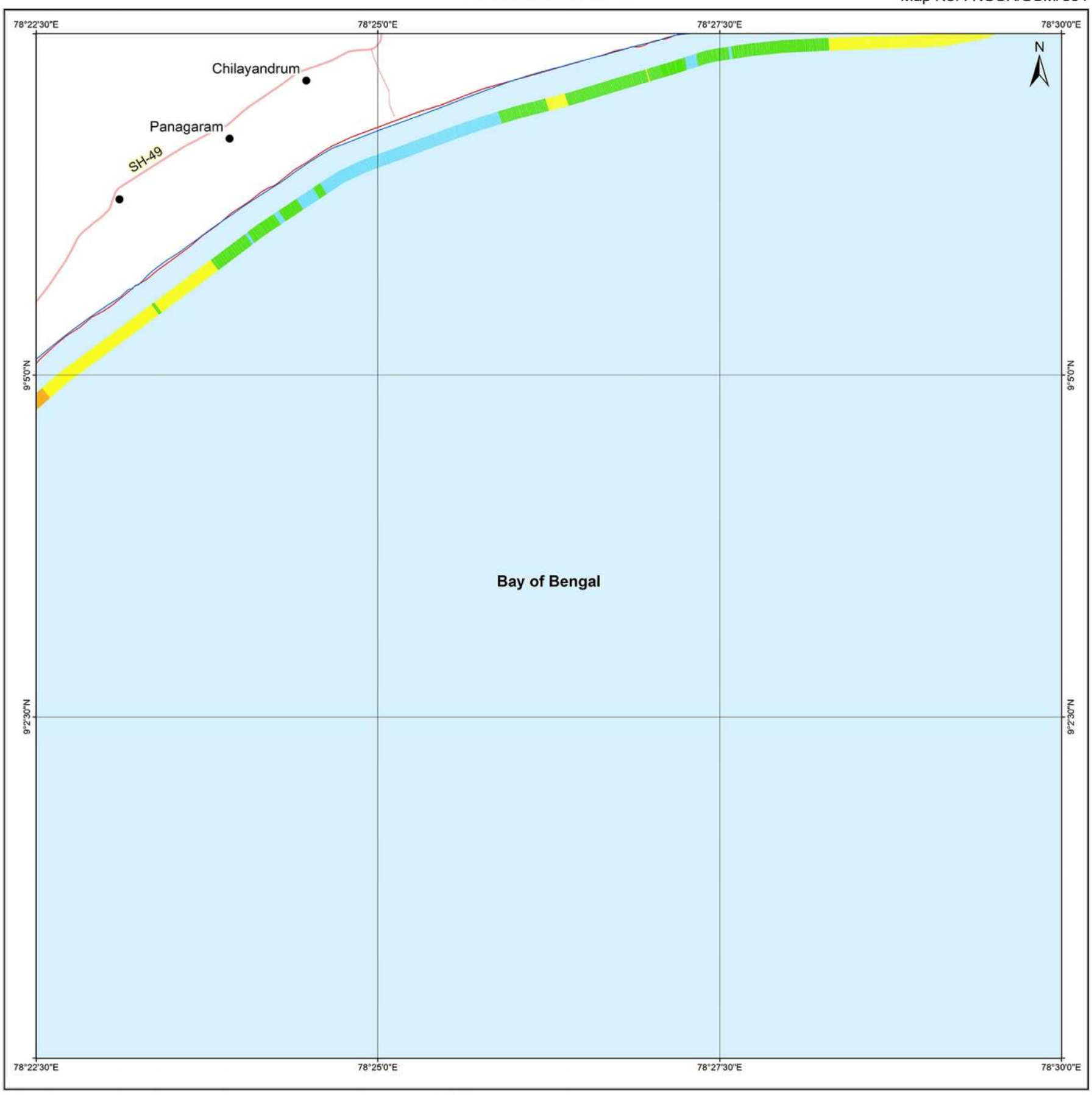
58 K / 8 / SE

Map No. : NCCR/SCM/304



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018

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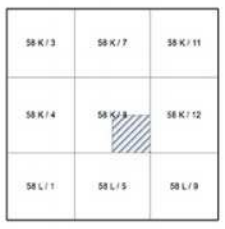
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

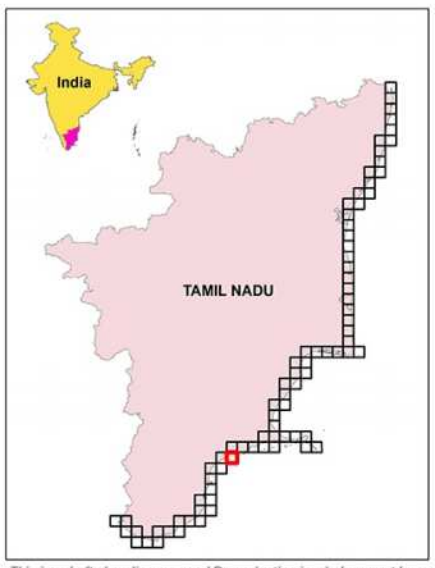
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/06/2018
LISS-IV	02/20/2017
LISS-IV	03/21/2016
LISS-IV	06/02/2015
LISS-IV	05/14/2014
LISS-IV	01/24/2013
LISS-IV	05/29/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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1990 - 2018

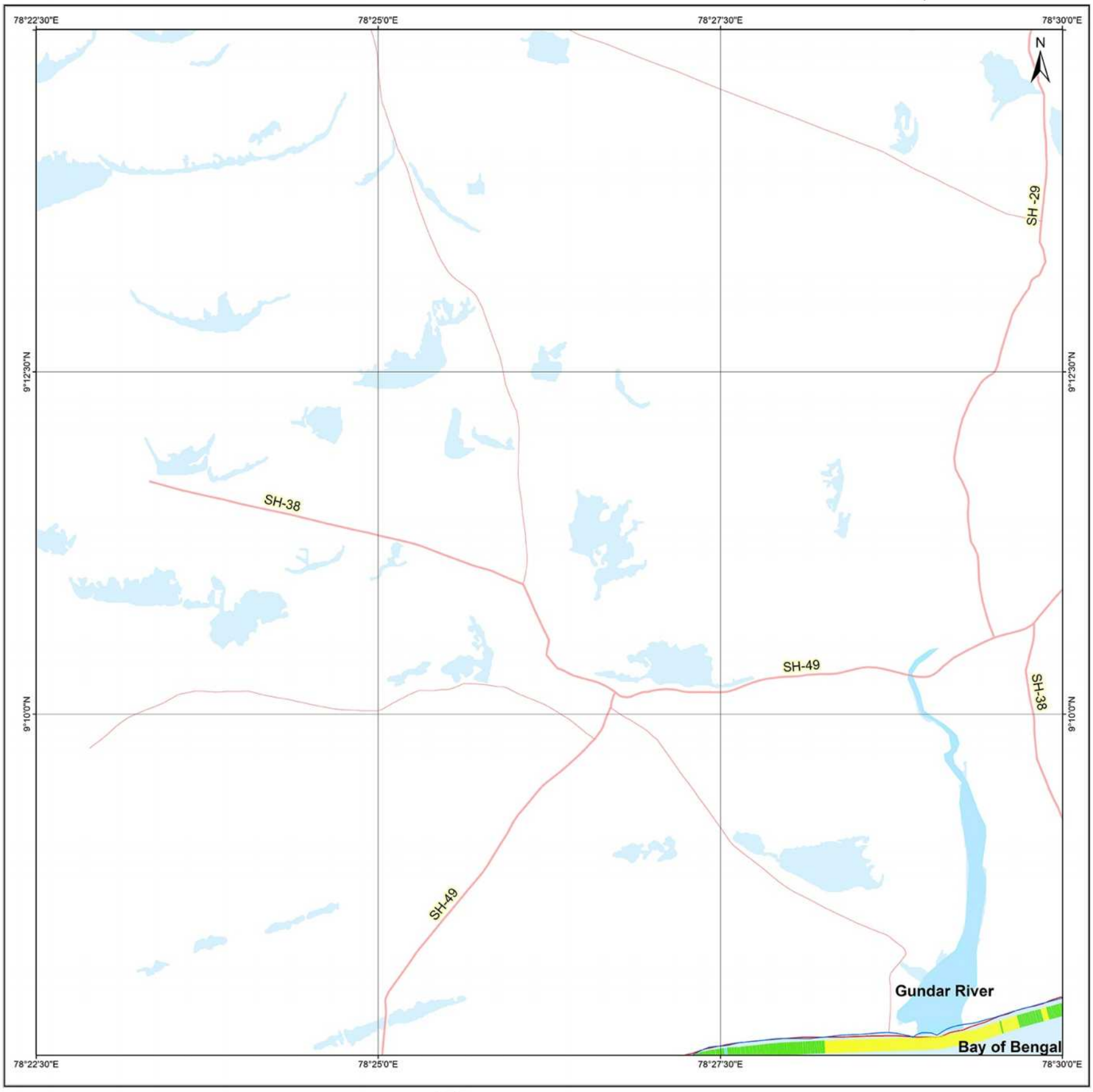
RAMANATHAPURAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 K / 8 / NE

Map No. : NCCR/SCM/305



Shoreline Change Trend for Period 1990 - 2018

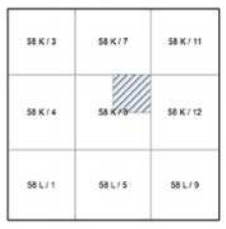
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018

Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

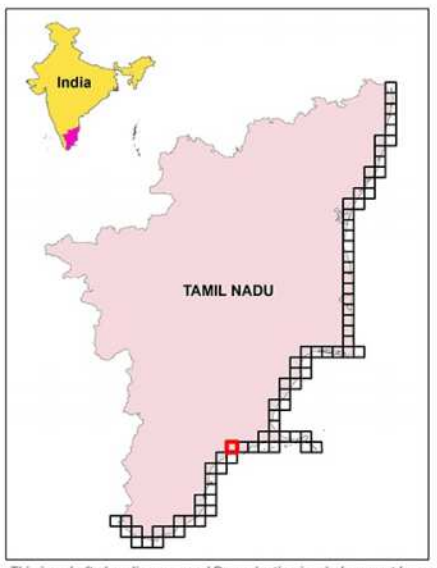
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/06/2018
LISS-IV	02/20/2017
LISS-IV	03/21/2016
LISS-IV	06/02/2015
LISS-IV	05/14/2014
LISS-IV	01/24/2013
LISS-IV	05/29/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
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- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
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1990 - 2018

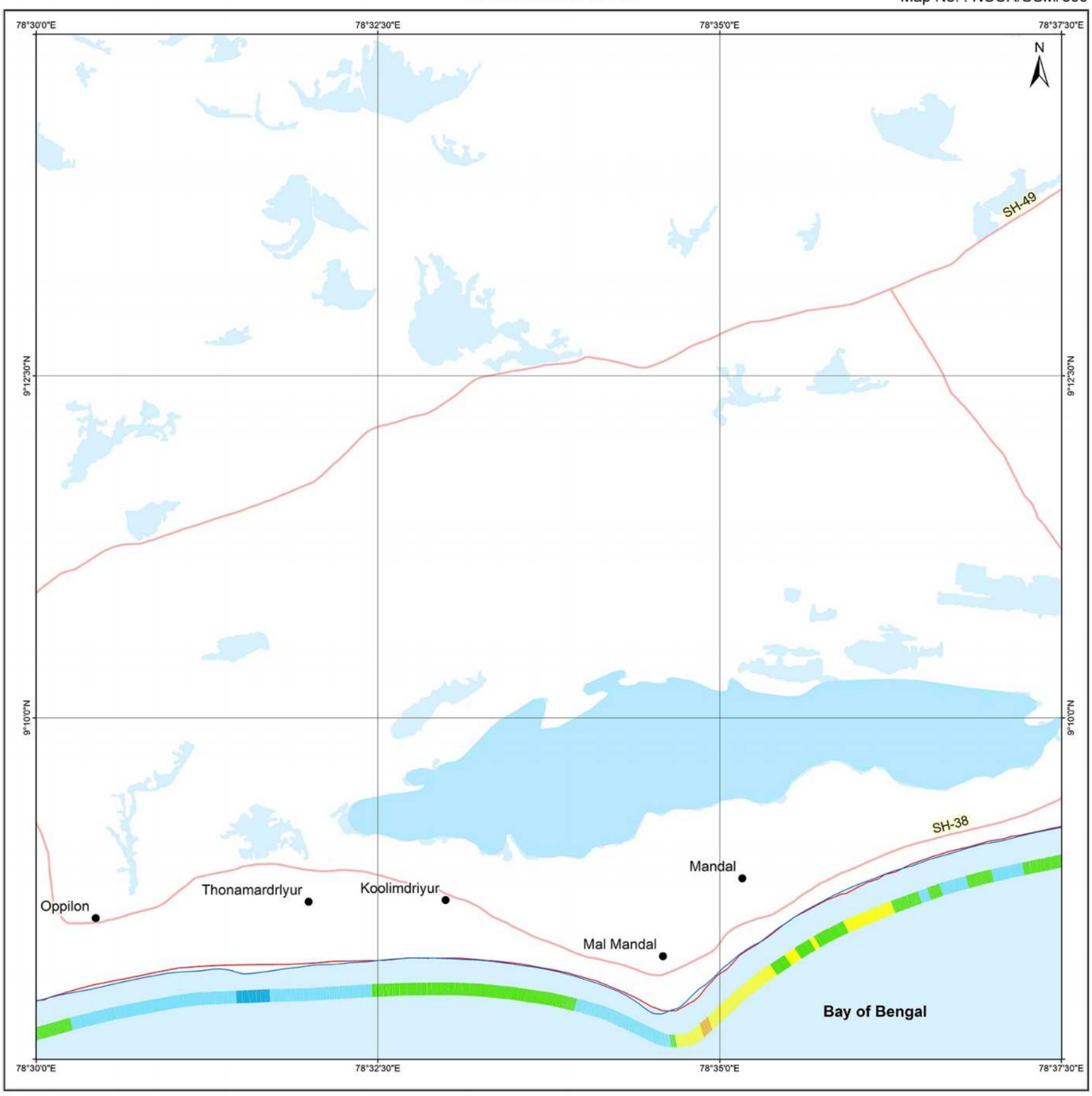
RAMANATHAPURAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 K / 12 / NW

Map No. : NCCR/SCM/306



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 03/06/2018 & 01/22/2018

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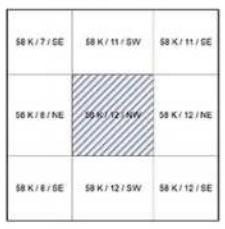


Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

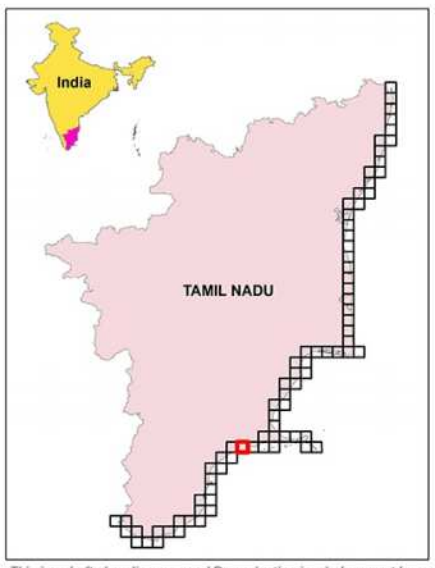
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/06/2018 & 01/22/2018
LISS-IV	02/20/2017
LISS-IV	03/21/2016
LISS-IV	03/03/2015
LISS-IV	05/14/2014
LISS-IV	01/24/2013
LISS-IV	05/29/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000
TM	03/11/1992



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
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- Lakes
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1990 - 2018

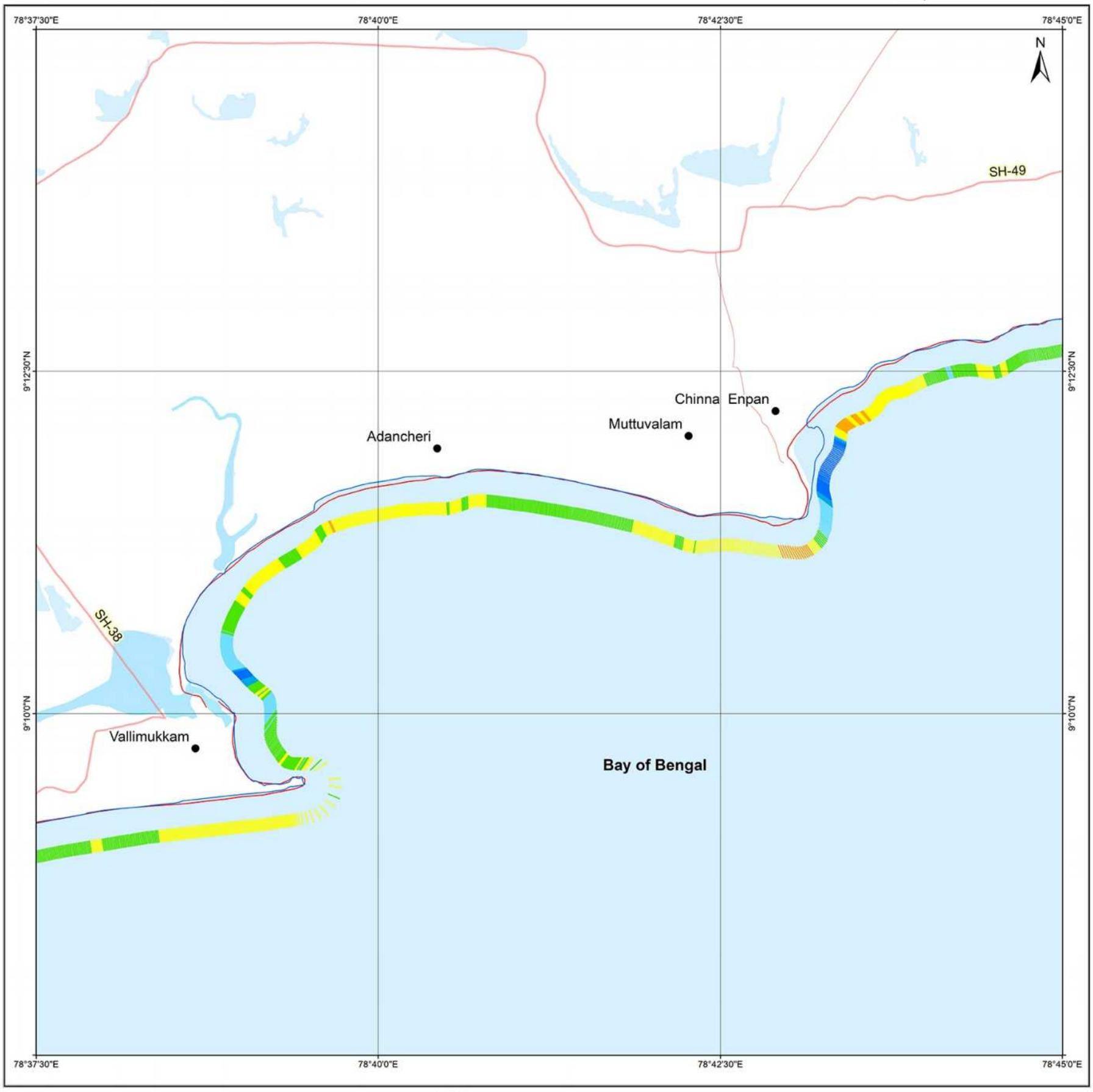
RAMANATHAPURAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 K / 12 / NE

Map No. : NCCR/SCM/307



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 03/11/1992
- 01/22/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

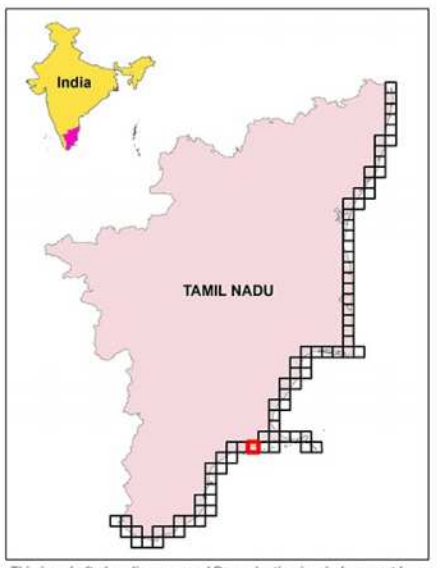
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	01/22/2018
LISS-IV	02/20/2017
LISS-IV	03/21/2016
LISS-IV	03/03/2015
LISS-IV	04/01/2014
LISS-IV	01/24/2013
LISS-IV	05/29/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	12/15/2000 & 10/19/2000
TM	03/11/1992



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
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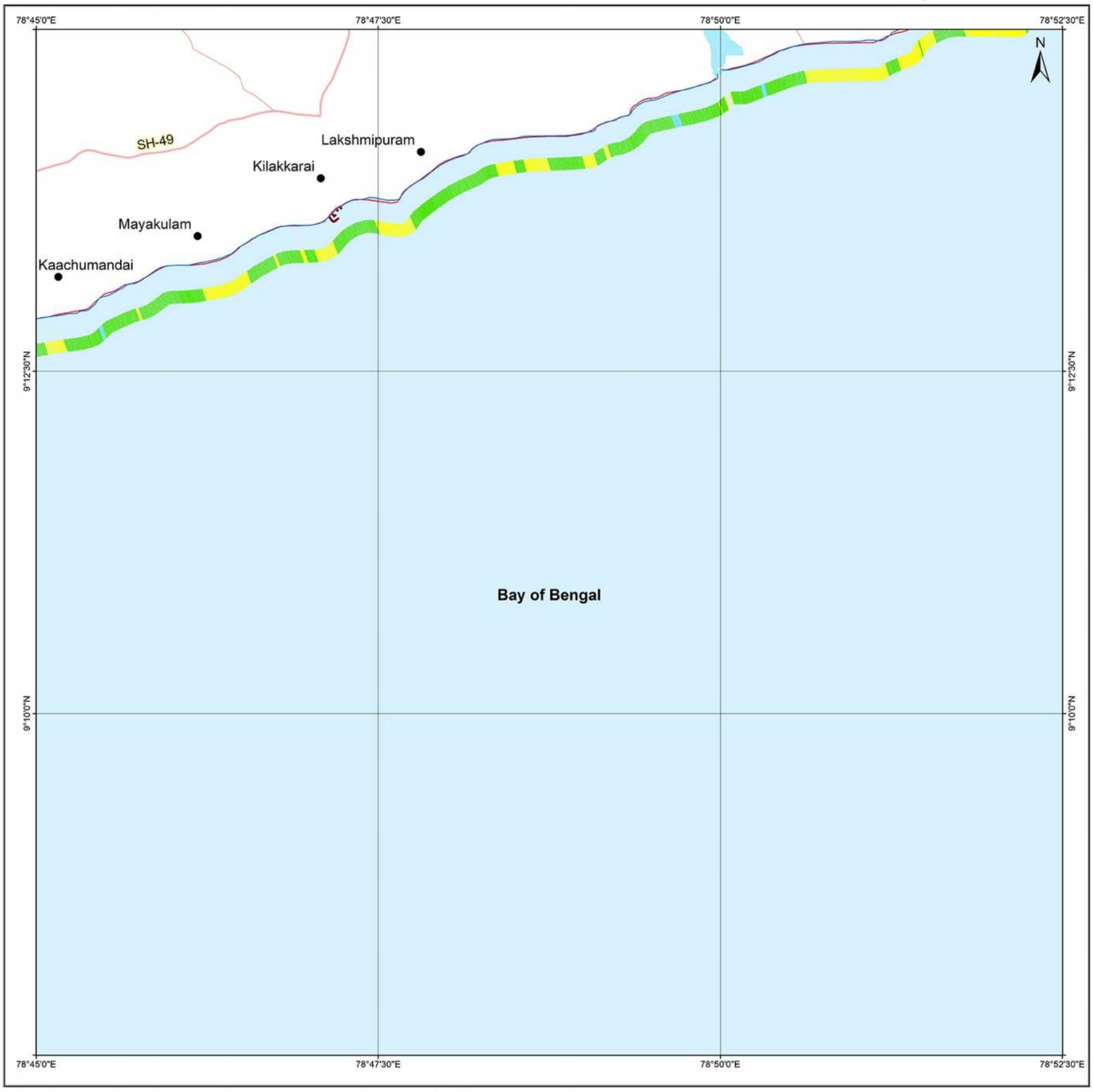
SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 K / 16 / NW

Map No. : NCCR/SCM/308



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 02/06/1988
- 01/22/2018

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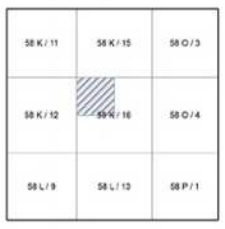
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

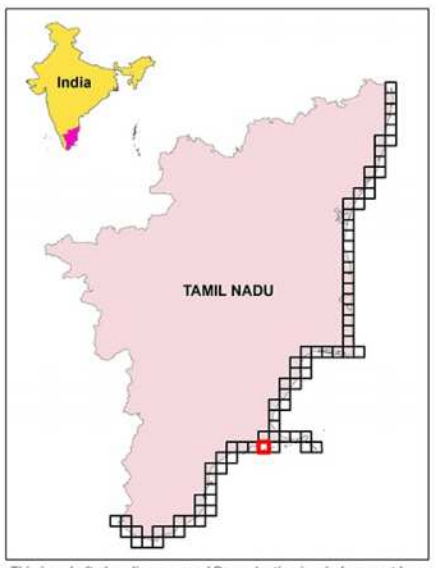
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	01/22/2018
LISS-IV	02/20/2017
LISS-IV	03/21/2016
LISS-IV	03/03/2015
LISS-IV	04/01/2014
LISS-IV	01/24/2013
LISS-IV	05/29/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/19/2000
TM	02/06/1988



- Settlements
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- Breakwater
- Seawall/Ripraps
- Rocky Coast
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- State Highways
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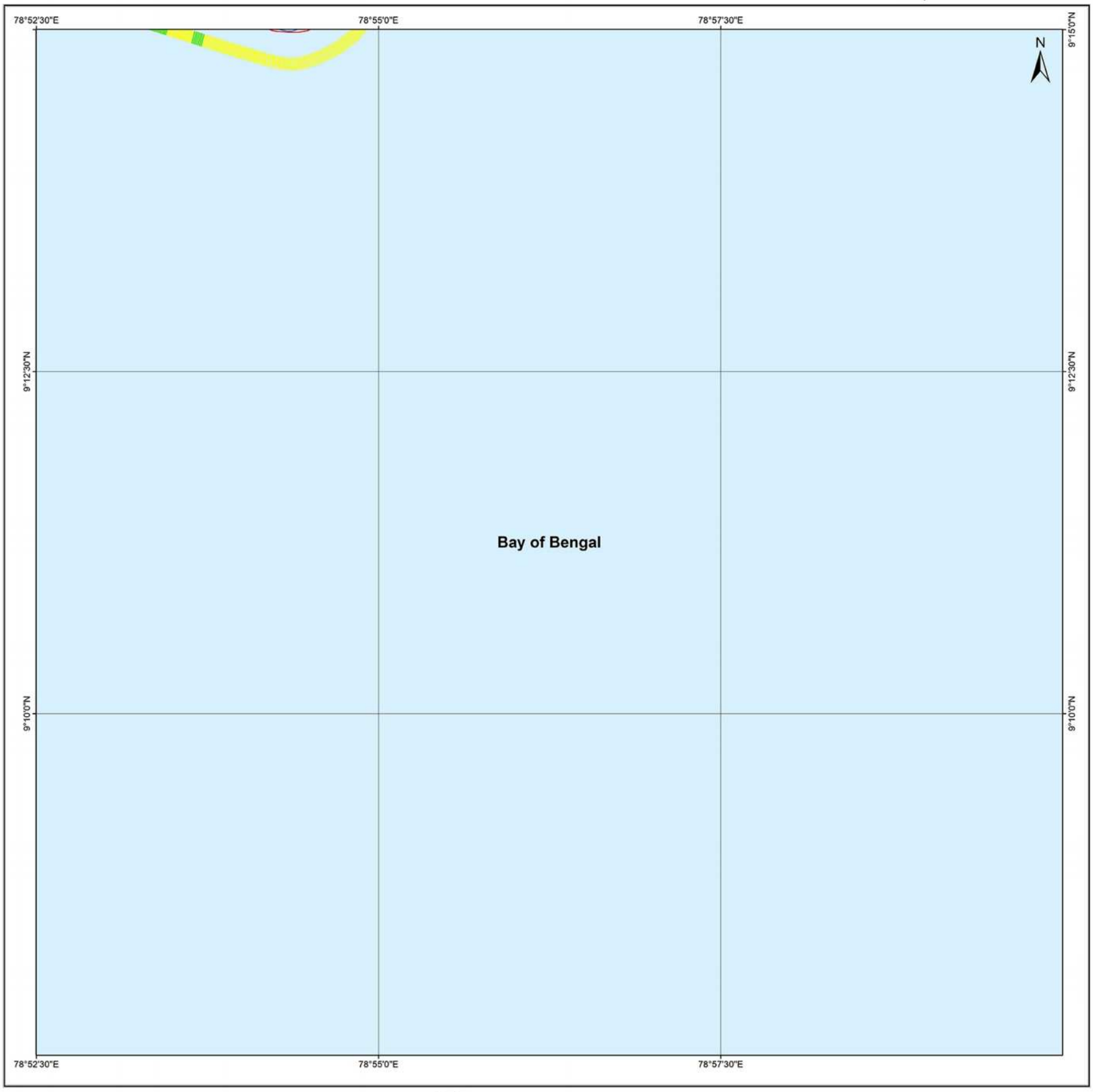
SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 K / 16 / NE

Map No. : NCCR/SCM/309



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 02/06/1988
- 01/22/2018

Index to sheets

Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

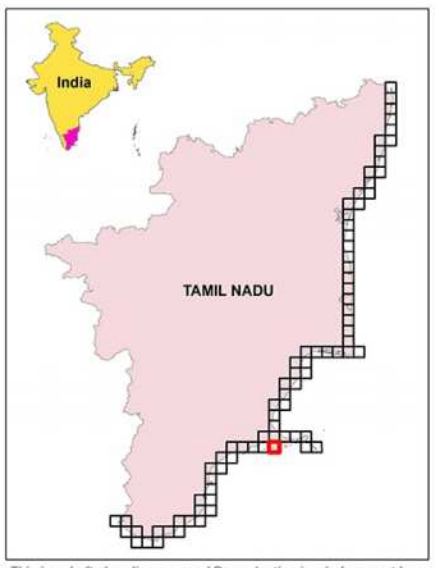
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	01/22/2018
LISS-IV	02/20/2017
LISS-IV	03/21/2016
LISS-IV	03/03/2015
LISS-IV	04/01/2014
LISS-IV	01/24/2013
LISS-IV	05/29/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/19/2000
TM	02/06/1988



- Settlements
- Port
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- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
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- Administrative Boundary
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- State Highways
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- Rivers

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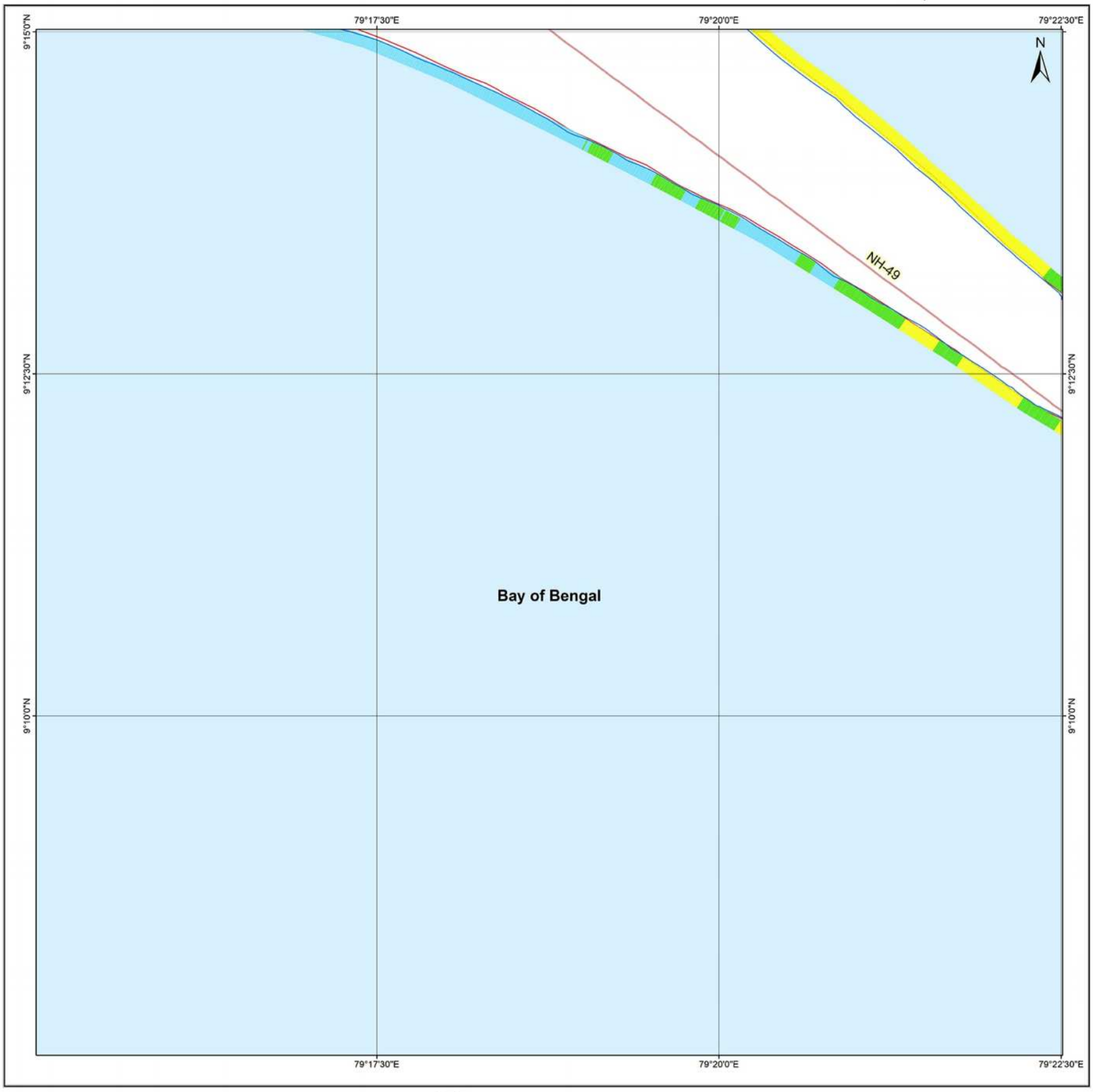
RAMANATHAPURAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 O / 8 / NW

Map No. : NCCR/SCM/310



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 02/06/1988
- 03/23/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

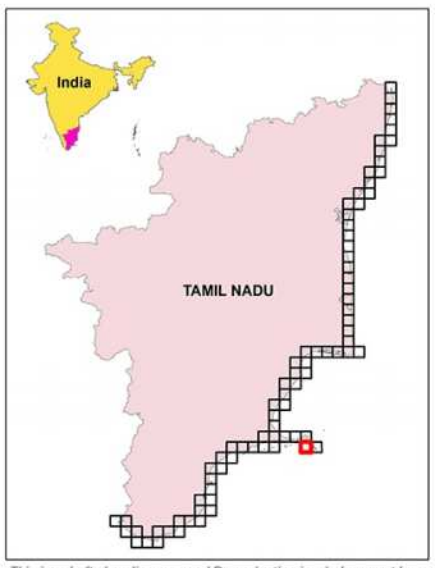
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/23/2018
LISS-IV	06/20/2017
LISS-IV	09/12/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	04/06/2013
LISS-IV	06/22/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/19/2000
TM	02/06/1988



- Settlements
- Port
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- Breakwater
- Seawall/Ripraps
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1990 - 2018

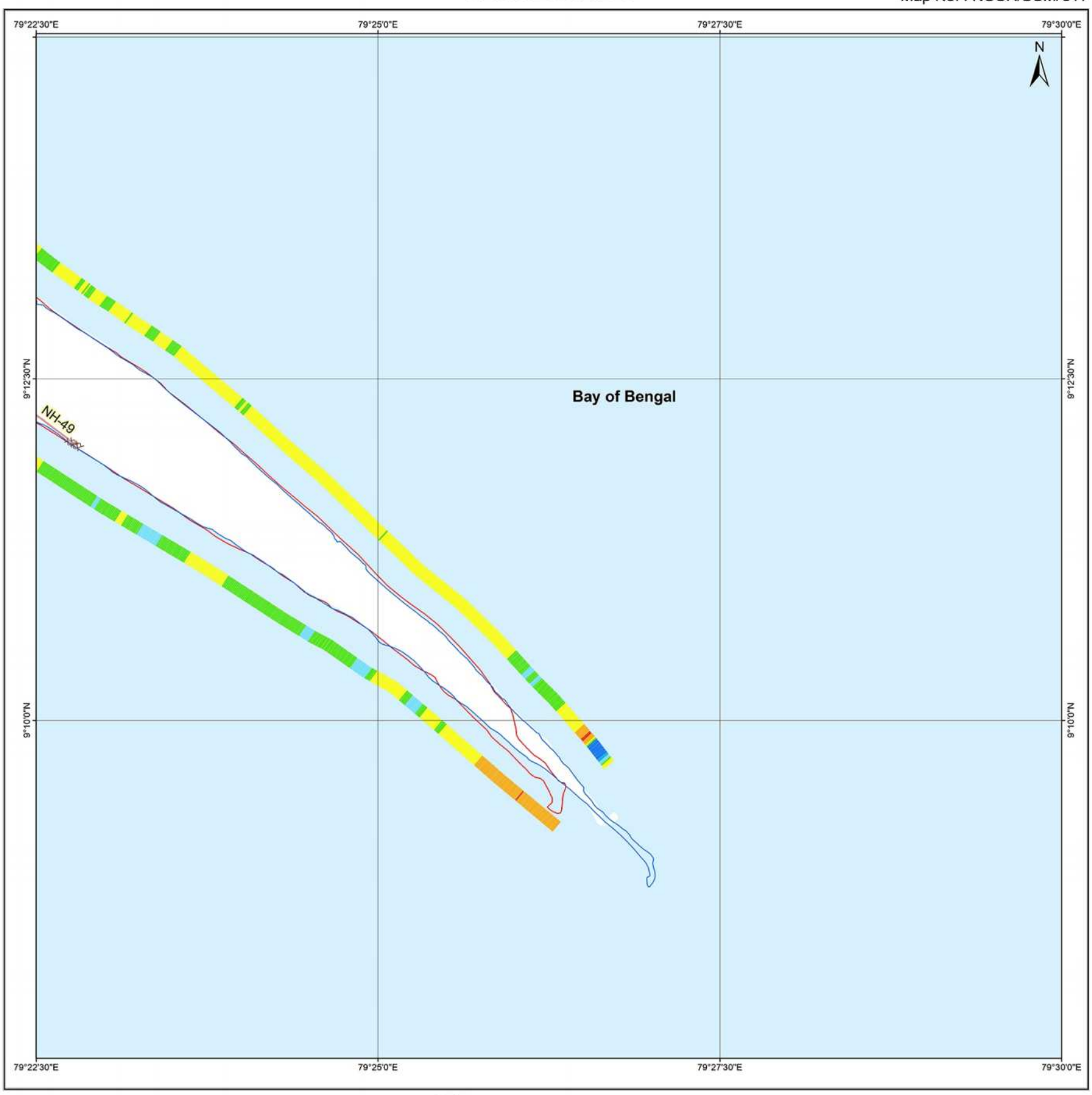
RAMANATHAPURAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 O / 8 / NE

Map No. : NCCR/SCM/311



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 02/06/1988
- 03/23/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

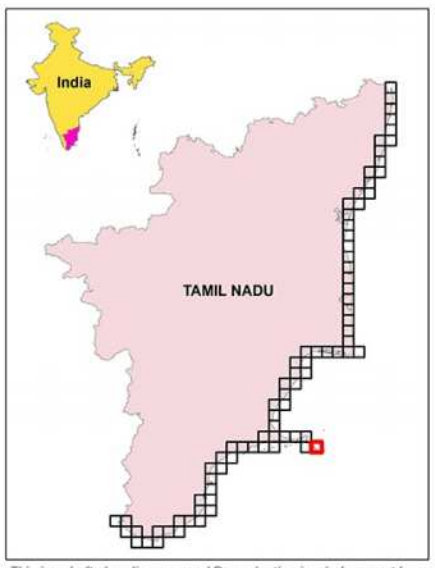
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/23/2018
LISS-IV	06/20/2017
LISS-IV	09/12/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	04/06/2013
LISS-IV	06/22/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006 & 03/16/2005
ETM+	10/19/2000
TM	02/06/1988



- Settlements
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RAMANATHAPURAM

SHORELINE CHANGE MAP
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58 O / 7 / SW

Map No. : NCCR/SCM/312

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 02/06/1988
- 03/23/2018

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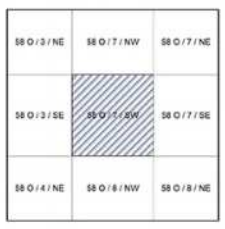

Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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LISS-IV	09/12/2016
LISS-IV	07/01/2015
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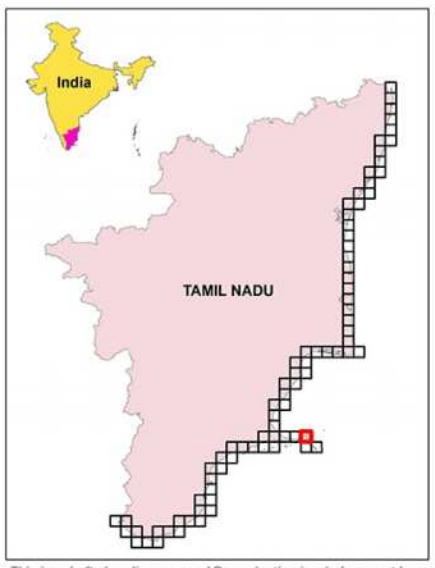
LISS-IV	04/06/2013
LISS-IV	06/22/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/19/2000
TM	02/06/1988



- Settlements
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RAMANATHAPURAM

SHORELINE CHANGE MAP
TAMIL NADU

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58 O / 3 / SE

Map No. : NCCR/SCM/313

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 02/06/1988
- 03/23/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
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LISS-IV	06/20/2017 & 02/20/2017
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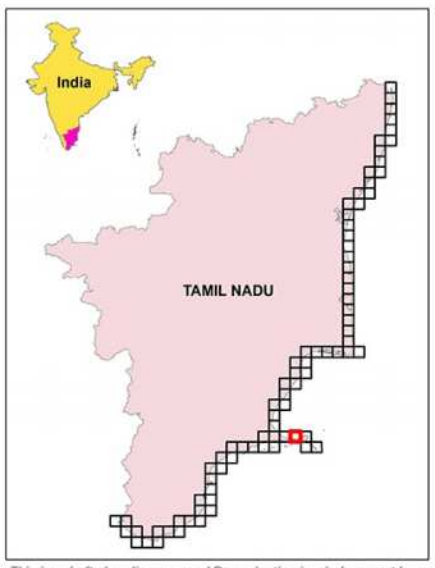
LISS-IV	07/01/2015
LISS-IV	04/01/2014
LISS-IV	04/06/2013
LISS-IV	06/22/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/19/2000
TM	02/06/1988



- Settlements
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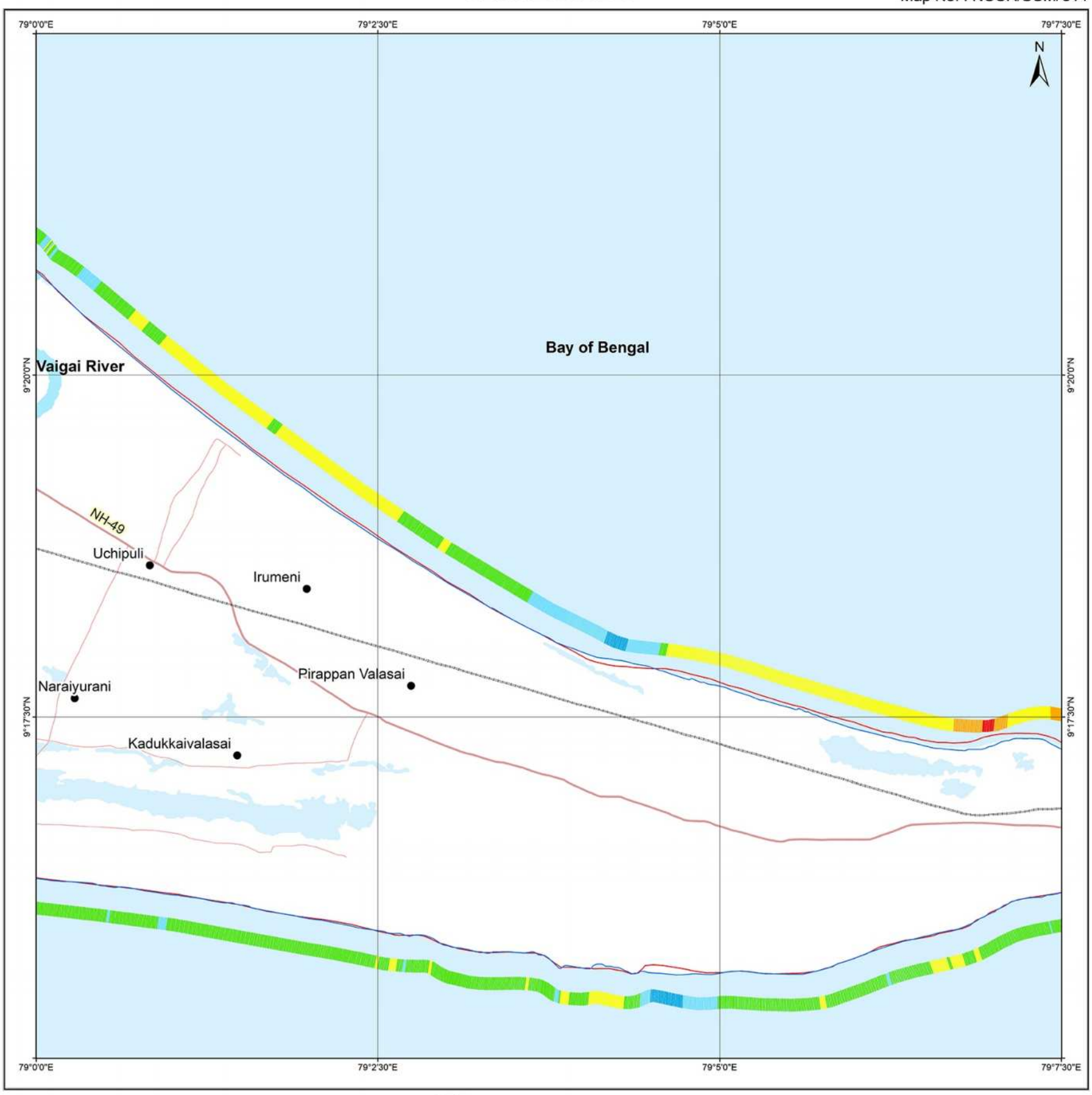
RAMANATHAPURAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 O / 3 / SW

Map No. : NCCR/SCM/314



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 02/06/1988
- 03/23/2018 & 01/22/2018

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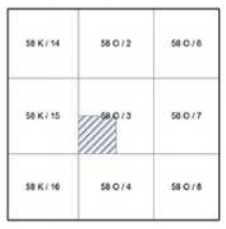


Scale

1000 m 500 0 1 2 km

1:25,000

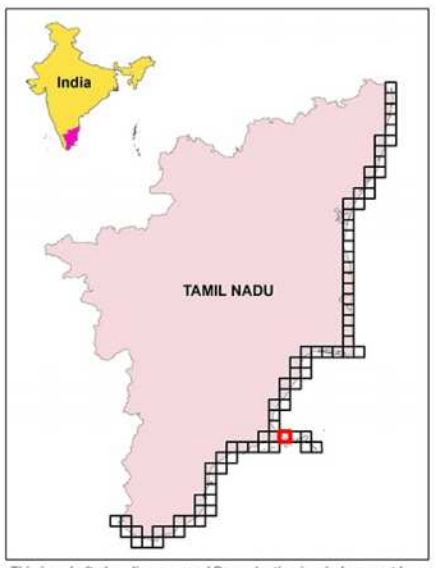
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/23/2018 & 01/22/2018
LISS-IV	02/20/2017
LISS-IV	03/21/2016
LISS-IV	03/03/2015
LISS-IV	04/01/2014
LISS-IV	01/24/2013
LISS-IV	05/29/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/19/2000
TM	02/06/1988



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
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- Lakes
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1990 - 2018

RAMANATHAPURAM

SHORELINE CHANGE MAP
TAMIL NADU

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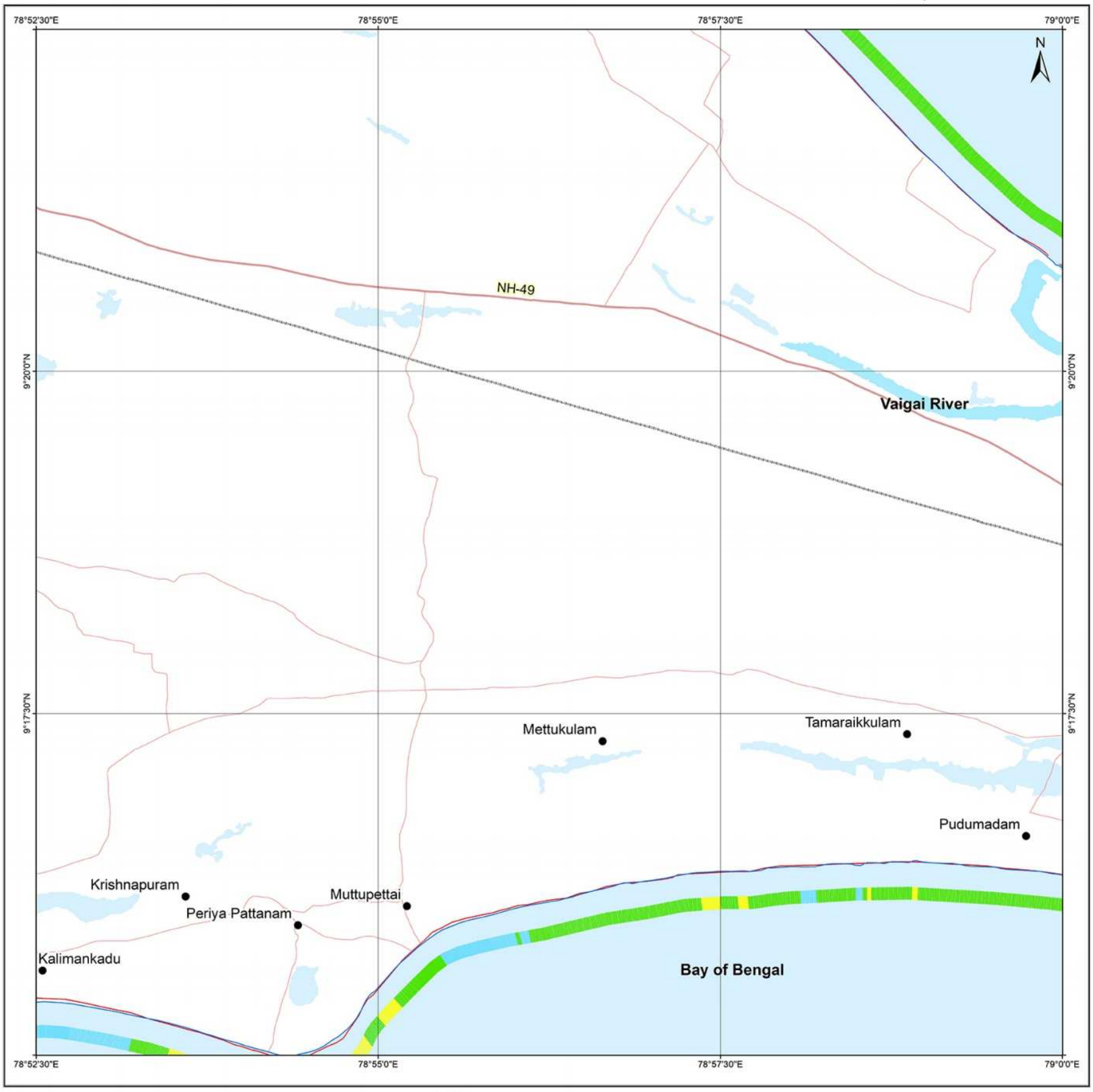
58 K / 15 / SE

Map No. : NCCR/SCM/315



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 02/06/1988
- 01/22/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	01/22/2018
LISS-IV	02/20/2017
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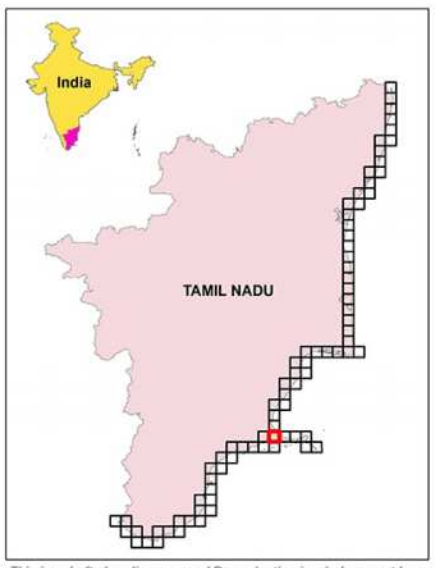

- Settlements
- Port
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- Breakwater
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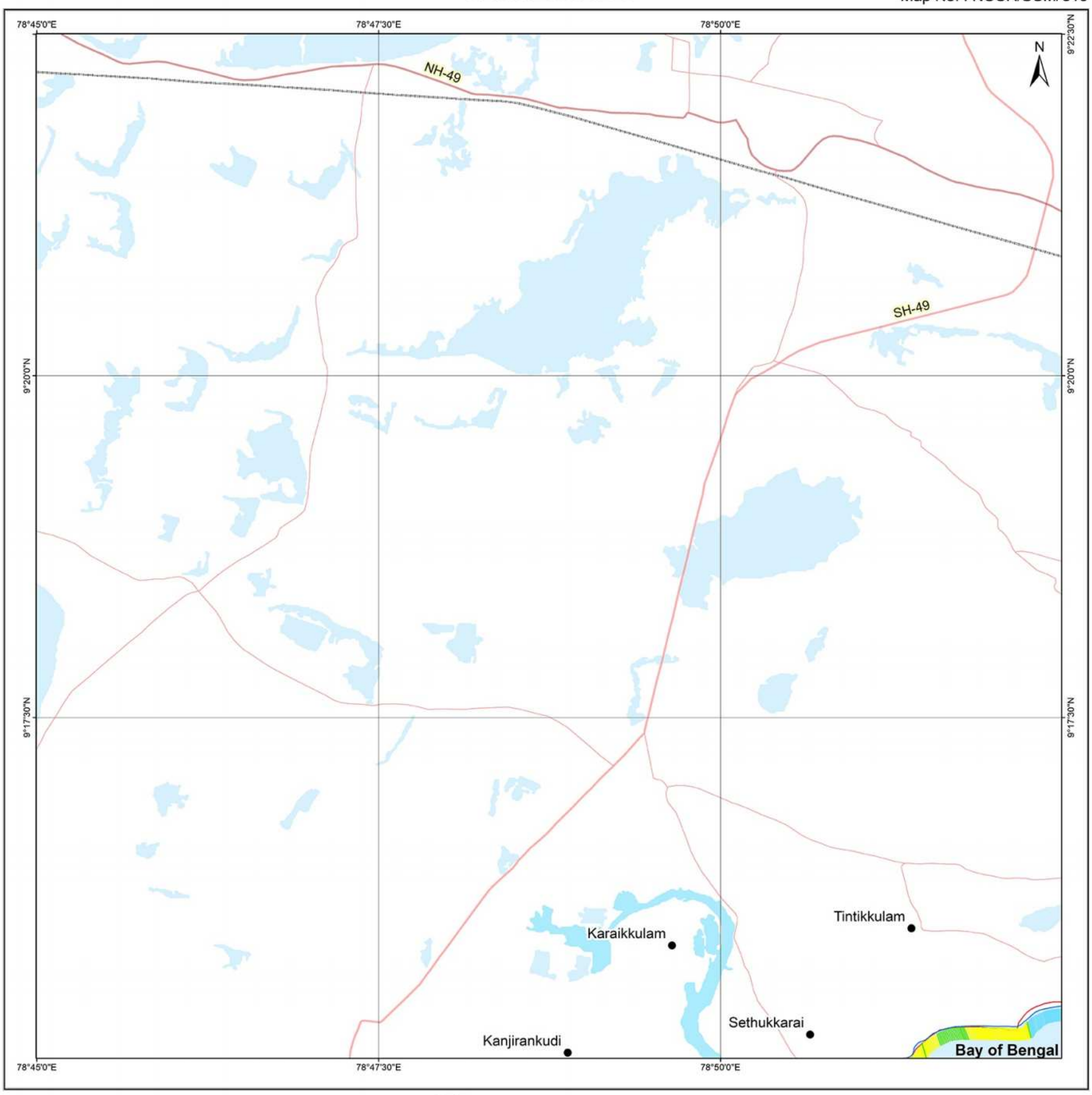
SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 K / 15 / SW

Map No. : NCCR/SCM/316



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 02/06/1988
- 01/22/2018

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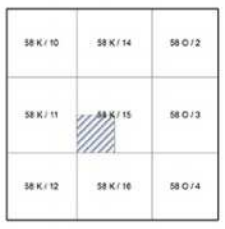

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

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Data Sources: Satellite Data

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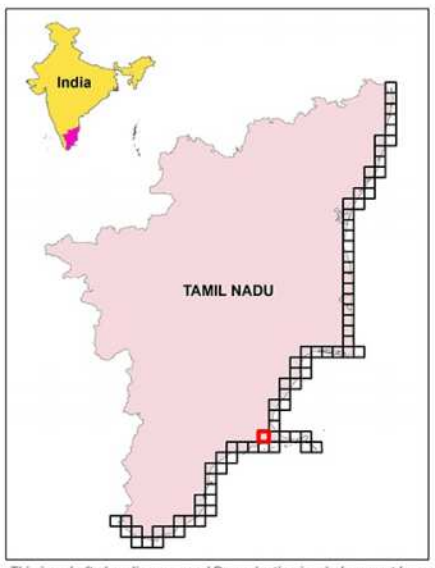

- Settlements
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- Seawall/Ripraps
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TAMIL NADU

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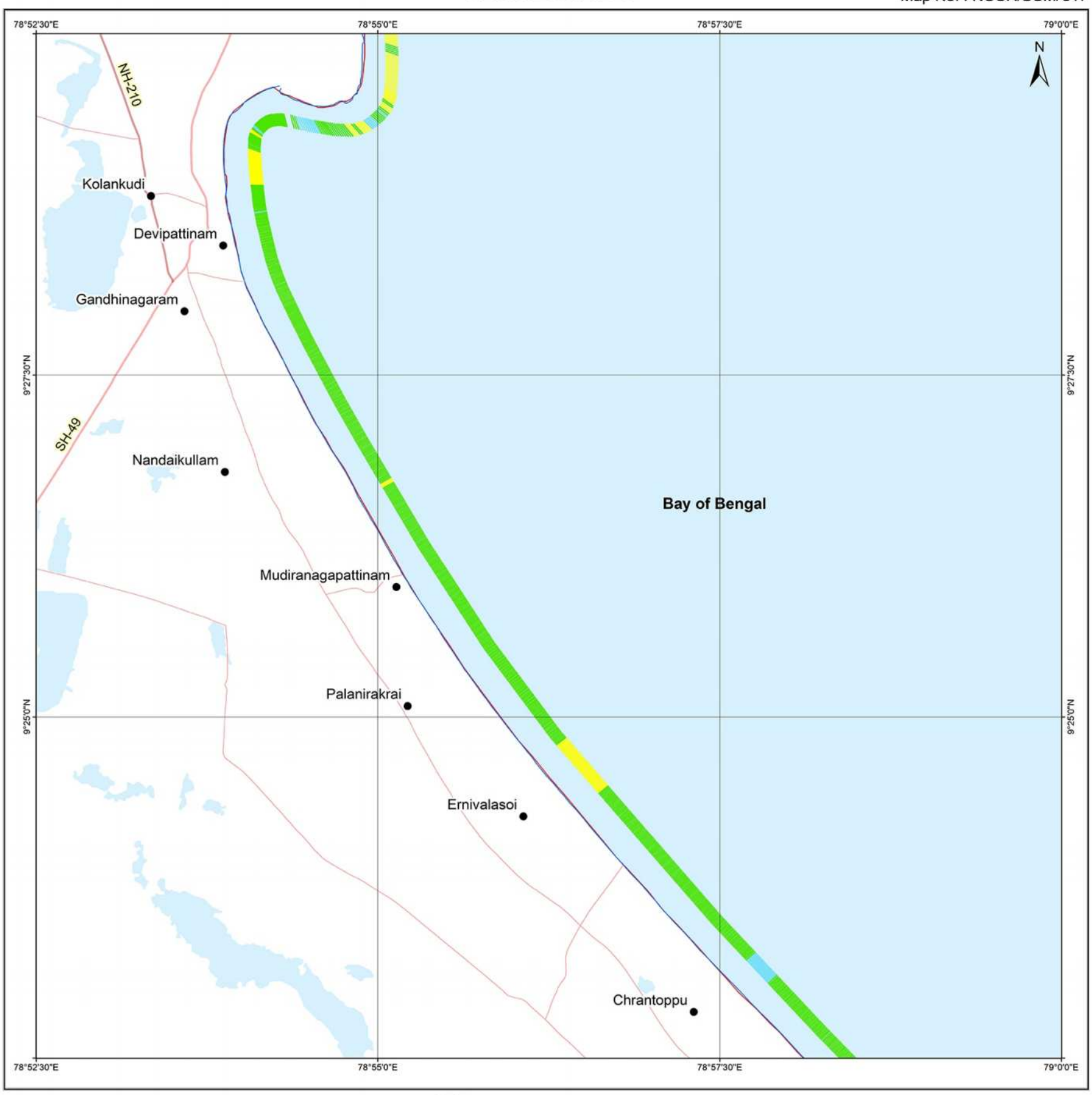
58 K / 15 / NE

Map No. : NCCR/SCM/317



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 02/06/1988
- 01/22/2018

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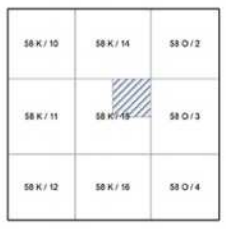

Scale

1000 m 500 0 1 2 km

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UTM Coordinates Zone 44

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LISS-IV	05/29/2012
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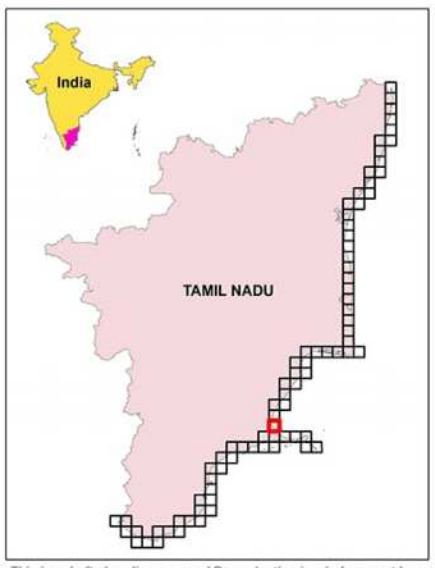
ETM+	10/19/2000
TM	02/06/1988



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SHORELINE CHANGE MAP
TAMIL NADU

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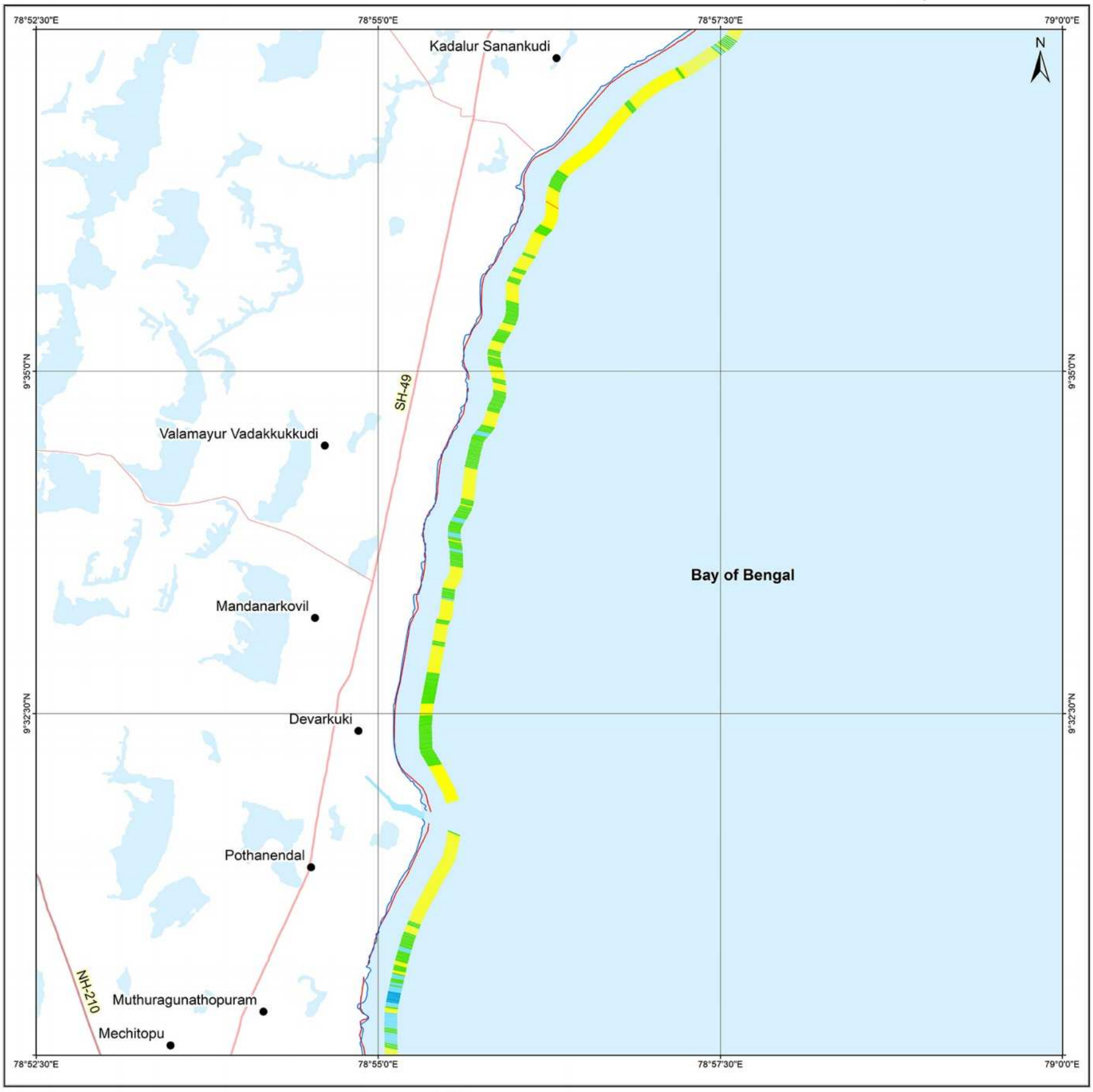
58 K / 14 / SE

Map No. : NCCR/SCM/318



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 02/06/1988
- 01/22/2018

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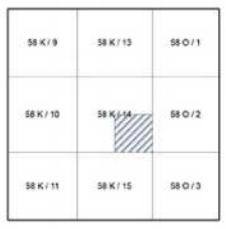

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	01/22/2018
LISS-IV	10/18/2017 & 02/20/2017
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LISS-IV	03/03/2015
LISS-IV	04/01/2014
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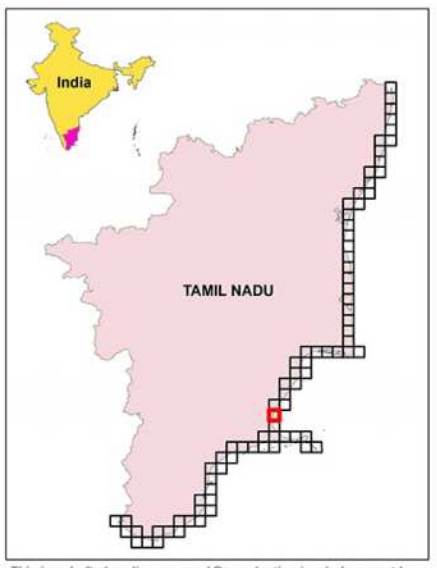
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000 & 10/19/2000
TM	02/06/1988



- Settlements
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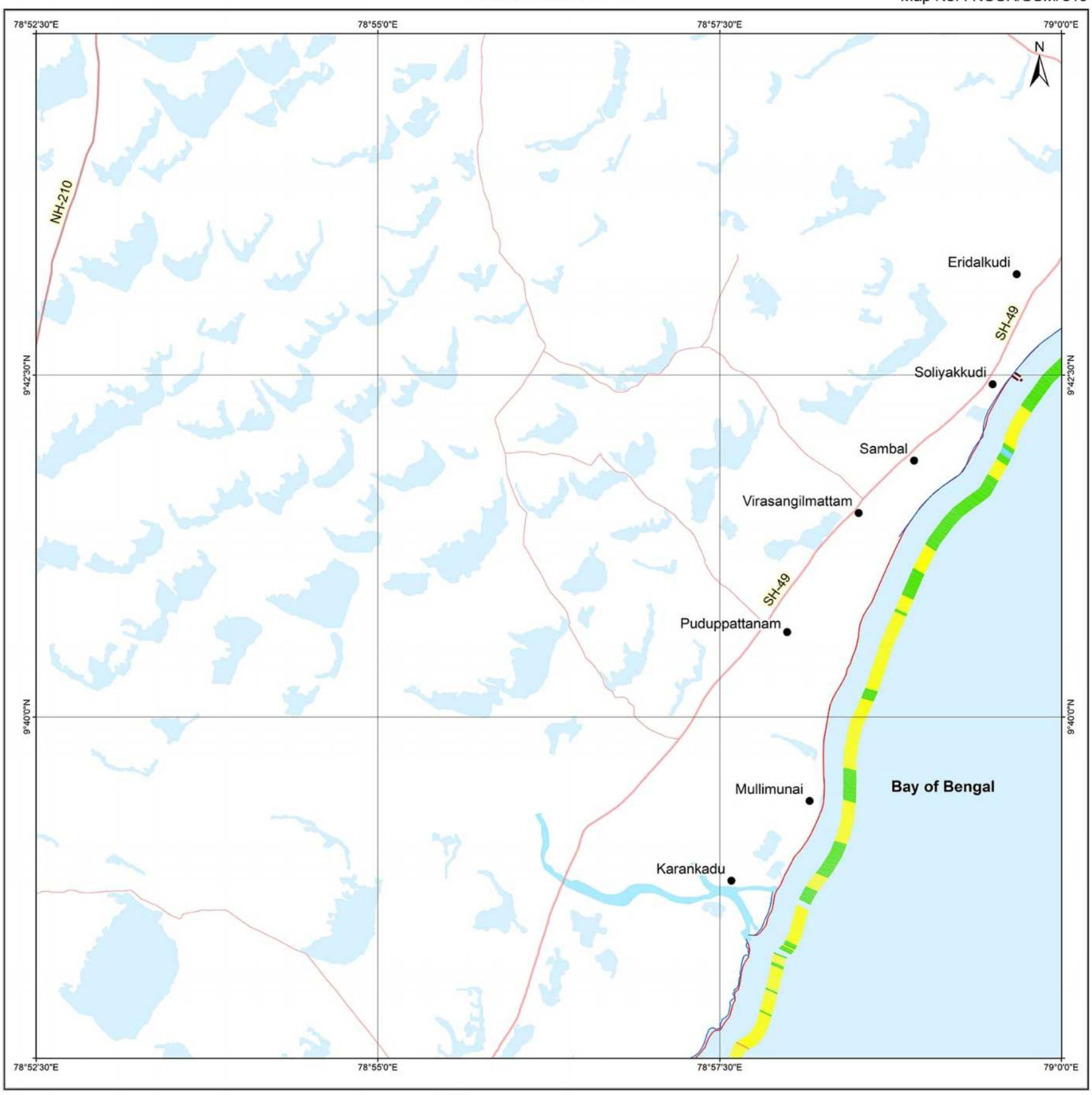
SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 K / 14 / NE

Map No. : NCCR/SCM/319



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 01/22/2018 & 08/02/2018

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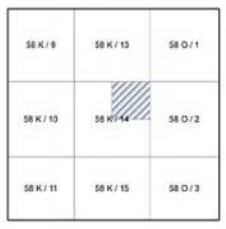


Scale

1000 m 500 0 1 2 km

1:25,000

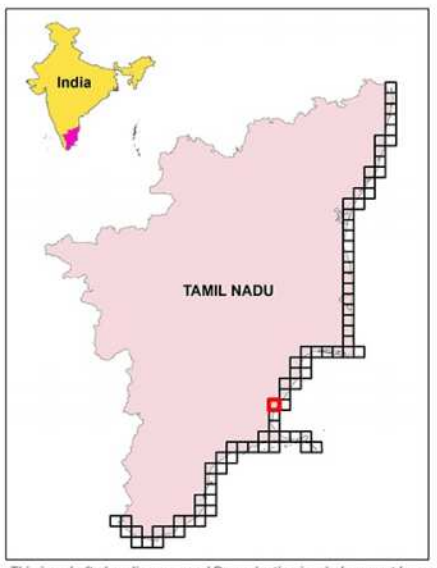
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	01/22/2018 & 08/02/2018
LISS-IV	10/18/2017
LISS-IV	03/21/2016
LISS-IV	03/03/2015
LISS-IV	04/01/2014
LISS-IV	01/24/2013
LISS-IV	05/29/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
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- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
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- Rivers

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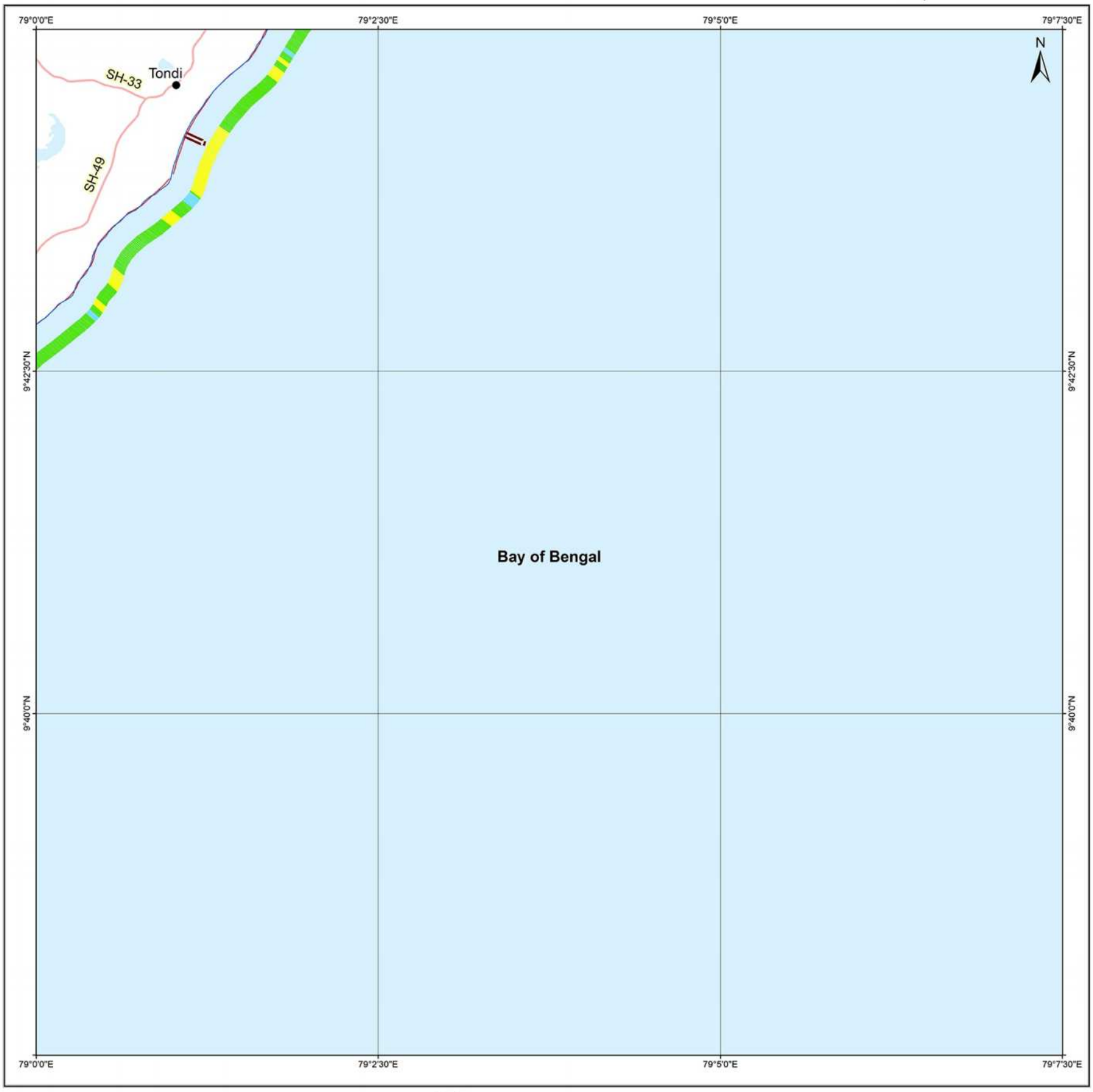
RAMANATHAPURAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 O / 2 / NW

Map No. : NCCR/SCM/320



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 08/02/2018

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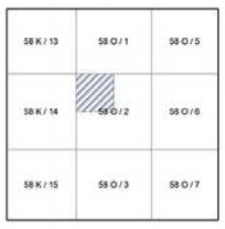
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

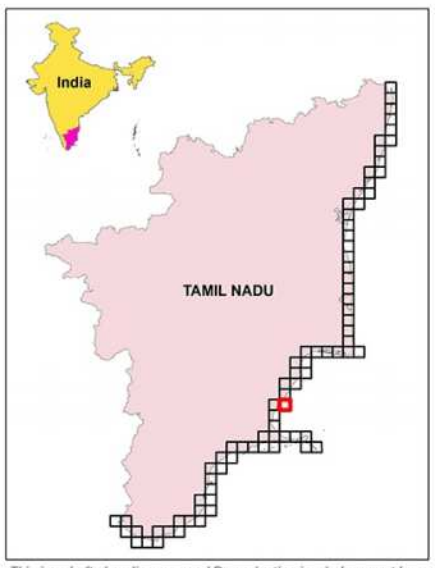
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	08/02/2018
LISS-IV	10/18/2017
LISS-IV	03/21/2016
LISS-IV	03/03/2015
LISS-IV	04/01/2014
LISS-IV	01/24/2013
LISS-IV	05/29/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
- Port
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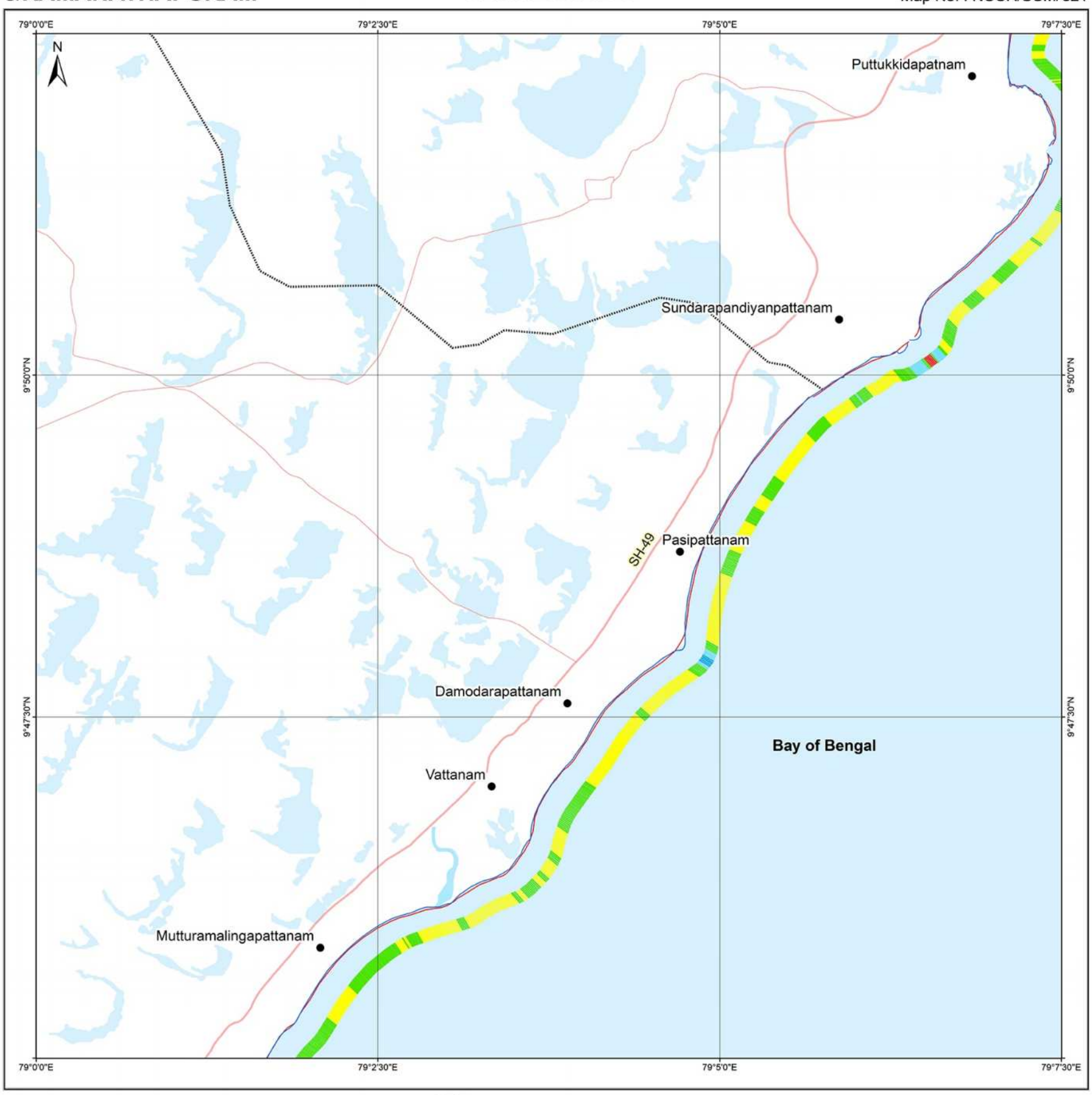
SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 O / 1 / SW

Map No. : NCCR/SCM/321



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 08/02/2018

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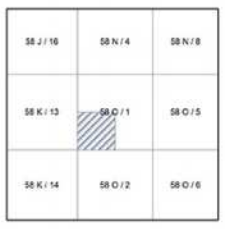
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	08/02/2018
LISS-IV	10/18/2017
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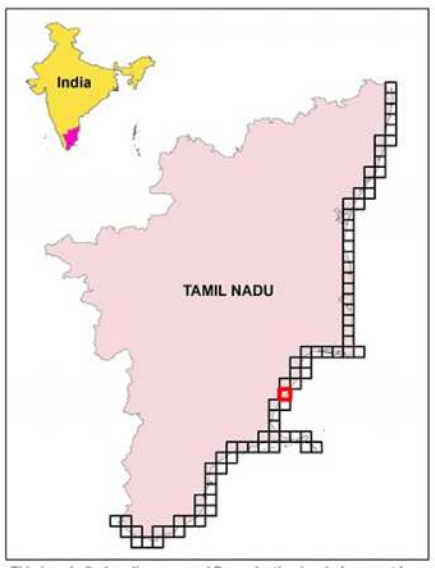

- Settlements
- Port
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PUDUKKOTTAI

SHORELINE CHANGE MAP
TAMIL NADU

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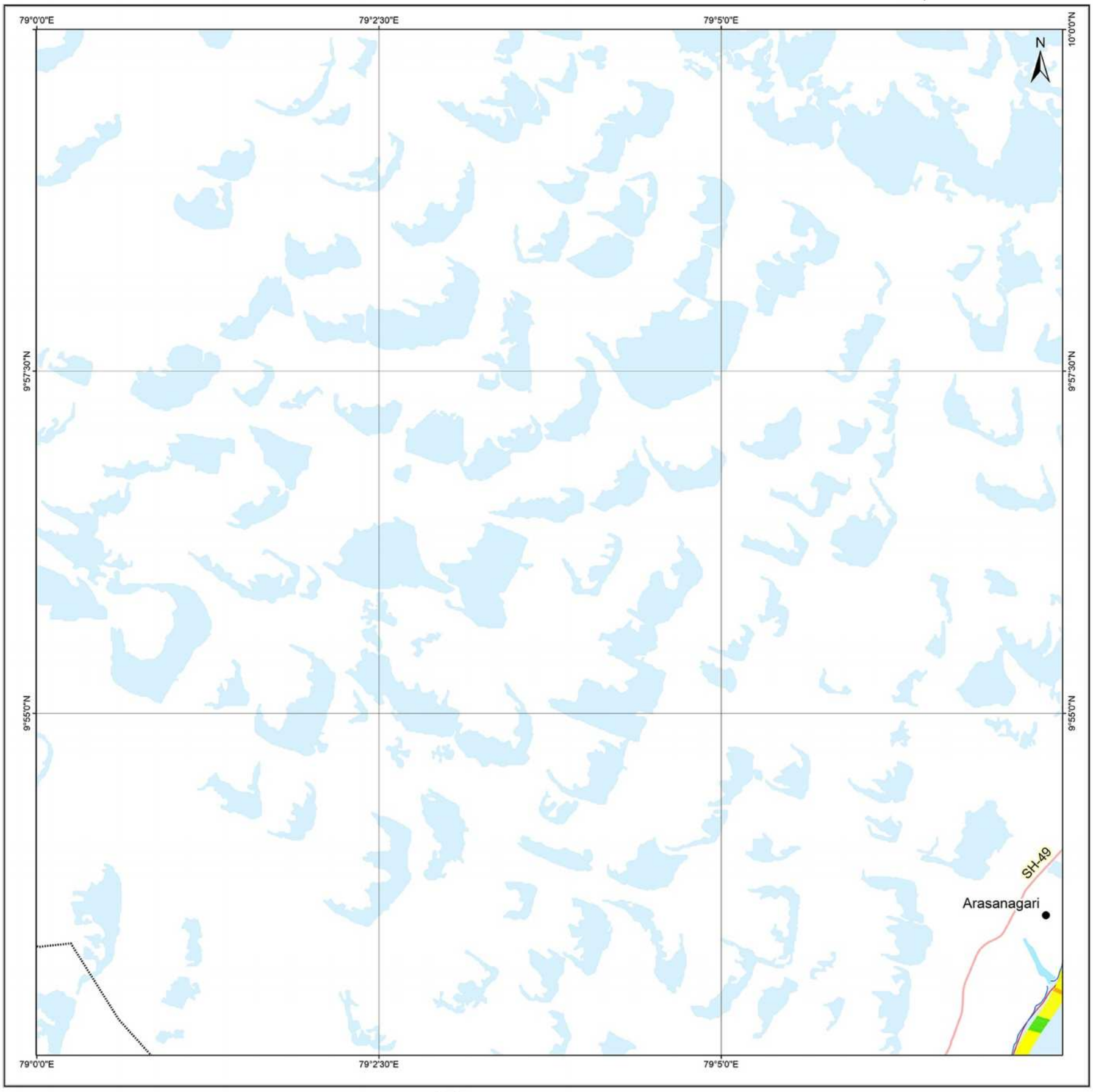
Map No. : NCCR/SCM/322



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 08/02/2018

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Scale

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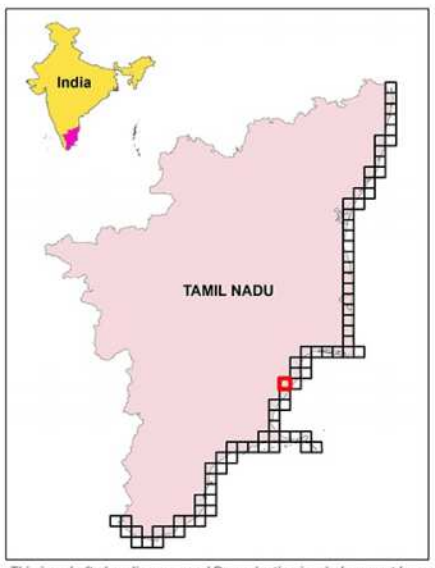
TM	01/29/1990



- Settlements
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SHORELINE CHANGE MAP
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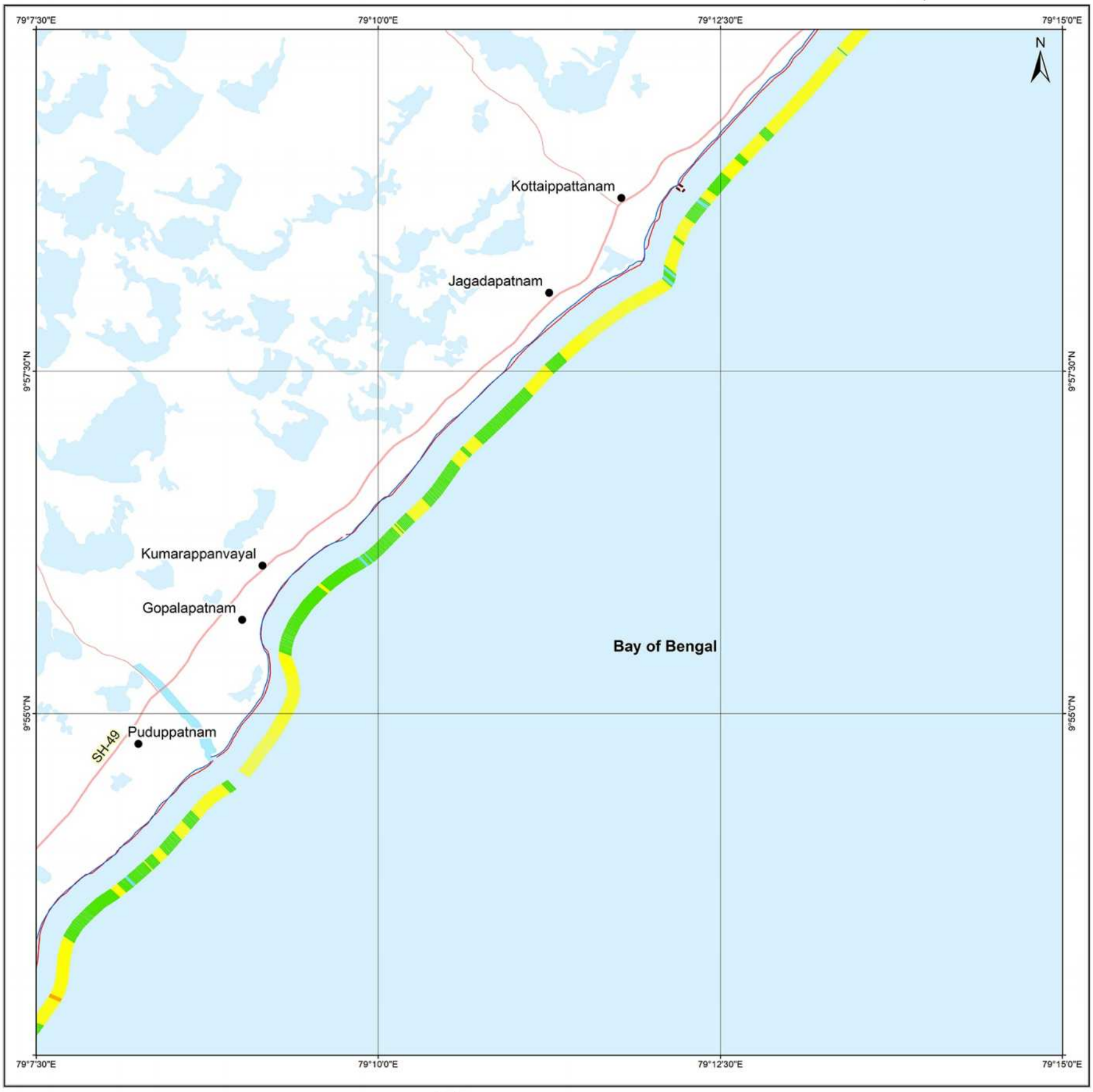
Map No. : NCCR/SCM/323



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

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- 08/02/2018

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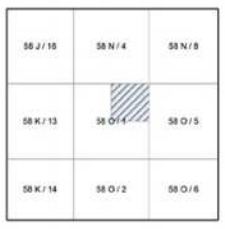


Scale

1000 m 500 0 1 2 km

1:25,000

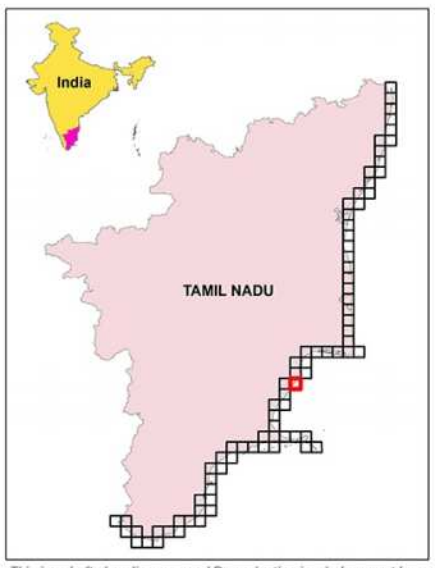
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	08/02/2018
LISS-IV	10/18/2017
LISS-IV	03/21/2016
LISS-IV	03/03/2015
LISS-IV	04/01/2014
LISS-IV	09/21/2013
LISS-IV	05/29/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
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- Lakes
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1990 - 2018

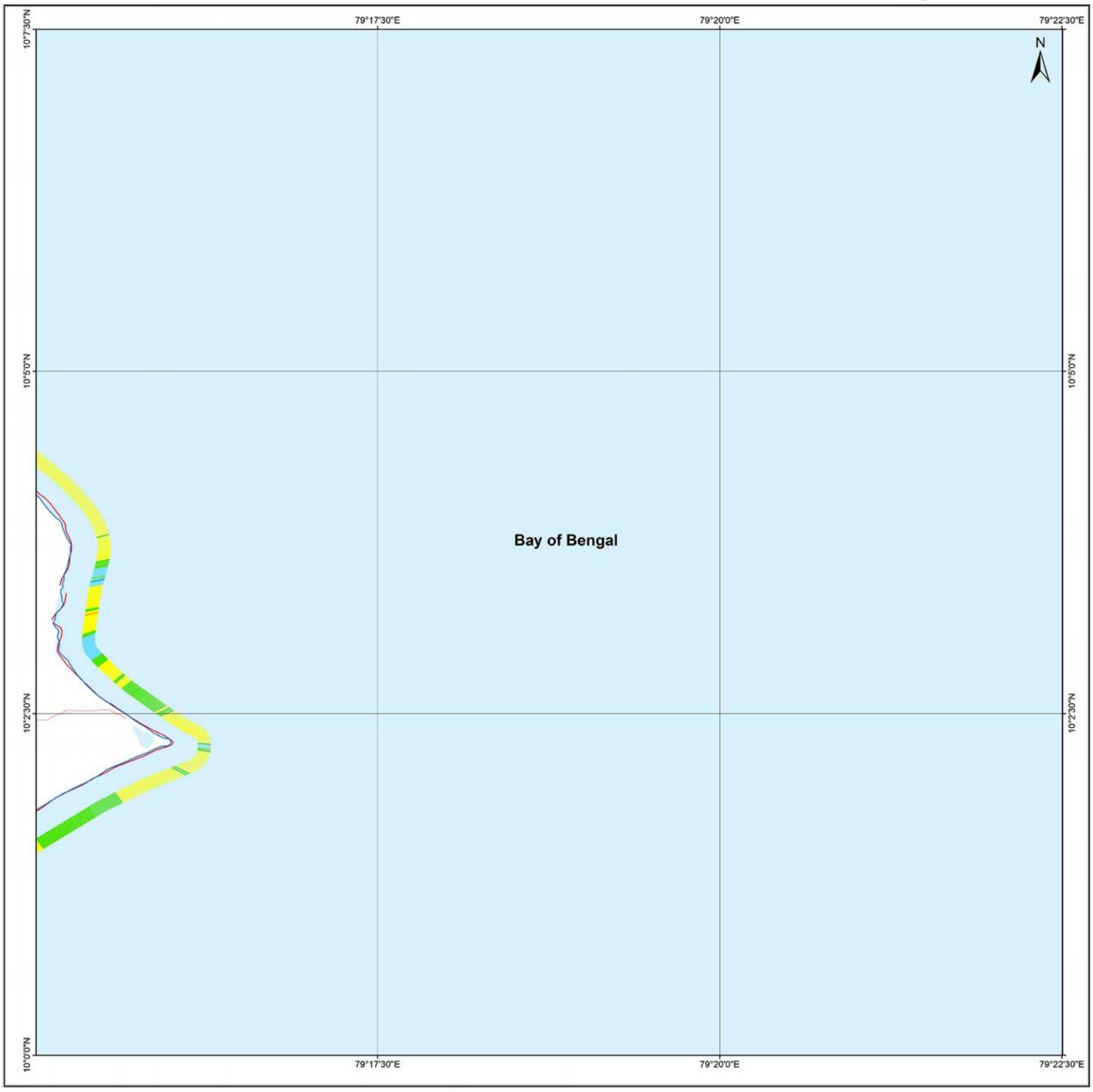
PUDUKKOTTAI

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 N / 8 / SW

Map No. : NCCR/SCM/324



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 02/23/2018

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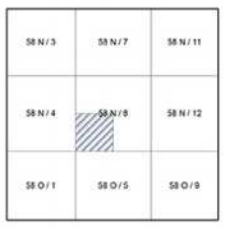


Scale

1000 m 500 0 1 2 km

1:25,000

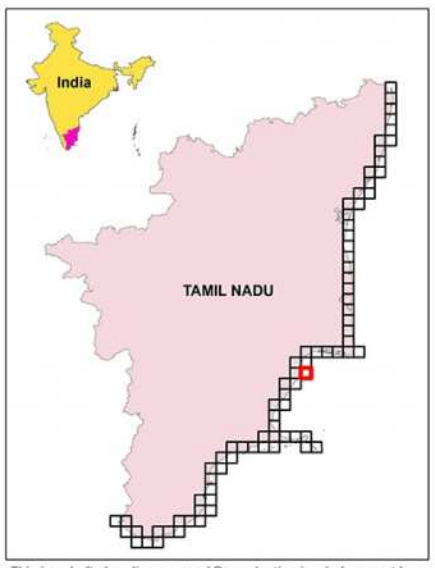
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/23/2018
LISS-IV	10/18/2017
LISS-IV	06/12/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	06/22/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
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- State Highways
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1990 - 2018

PUDUKKOTTAI

SHORELINE CHANGE MAP
TAMIL NADU

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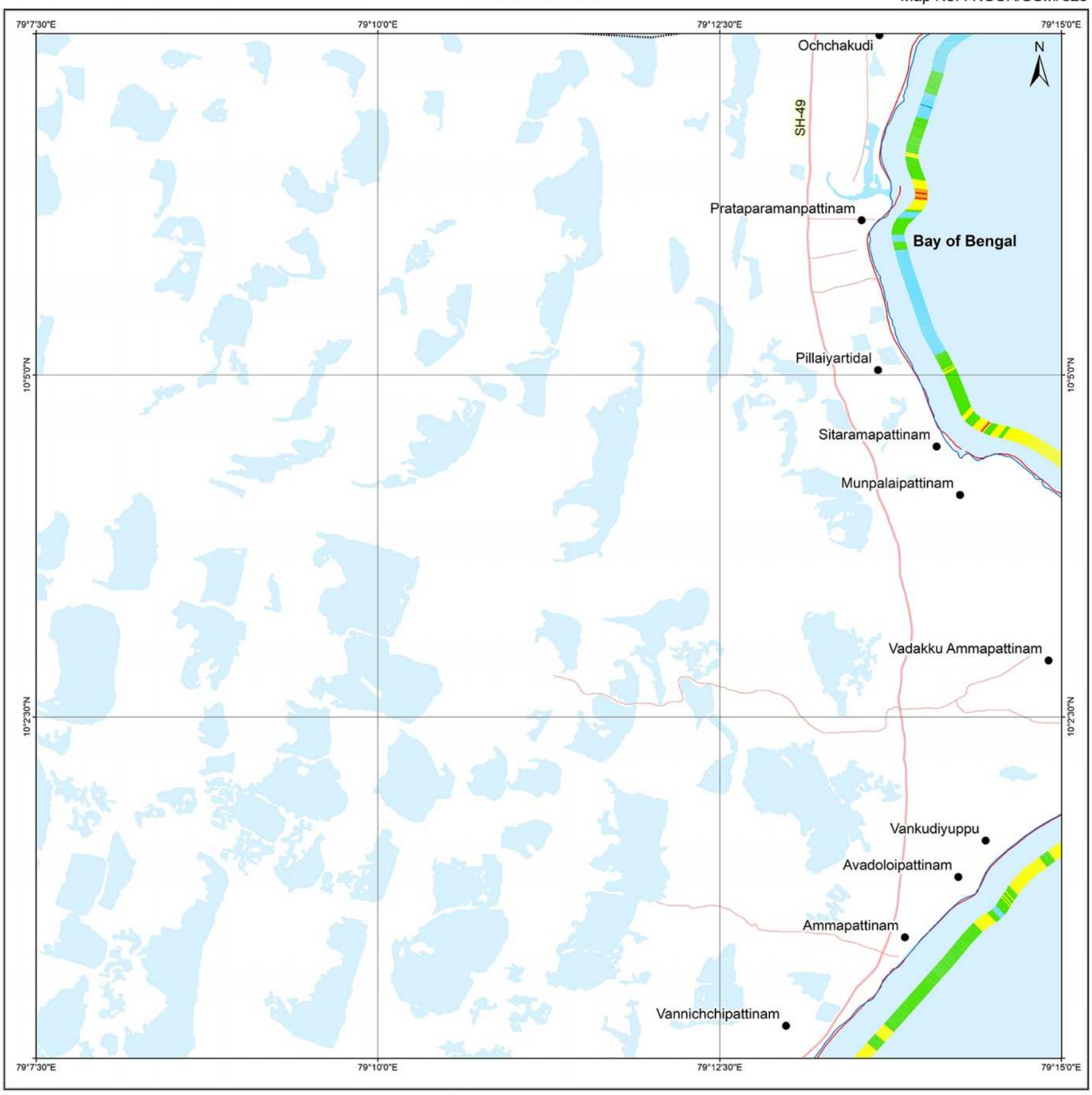
58 N / 4 / SE

Map No. : NCCR/SCM/325



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 02/23/2018 & 08/02/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

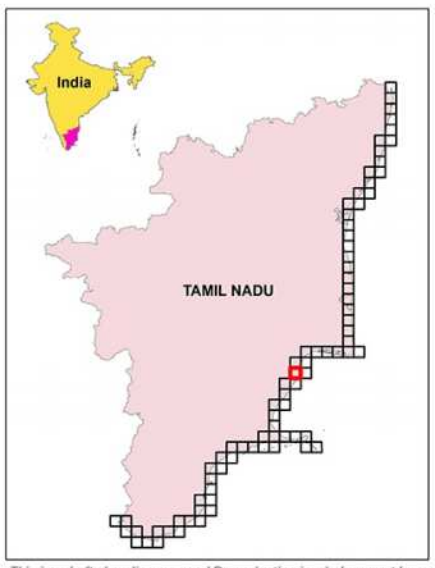
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/23/2018 & 08/02/2018
LISS-IV	10/18/2017
LISS-IV	03/21/2016
LISS-IV	03/03/2015
LISS-IV	04/01/2014
LISS-IV	09/21/2013
LISS-IV	05/29/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
- Port
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1990 - 2018

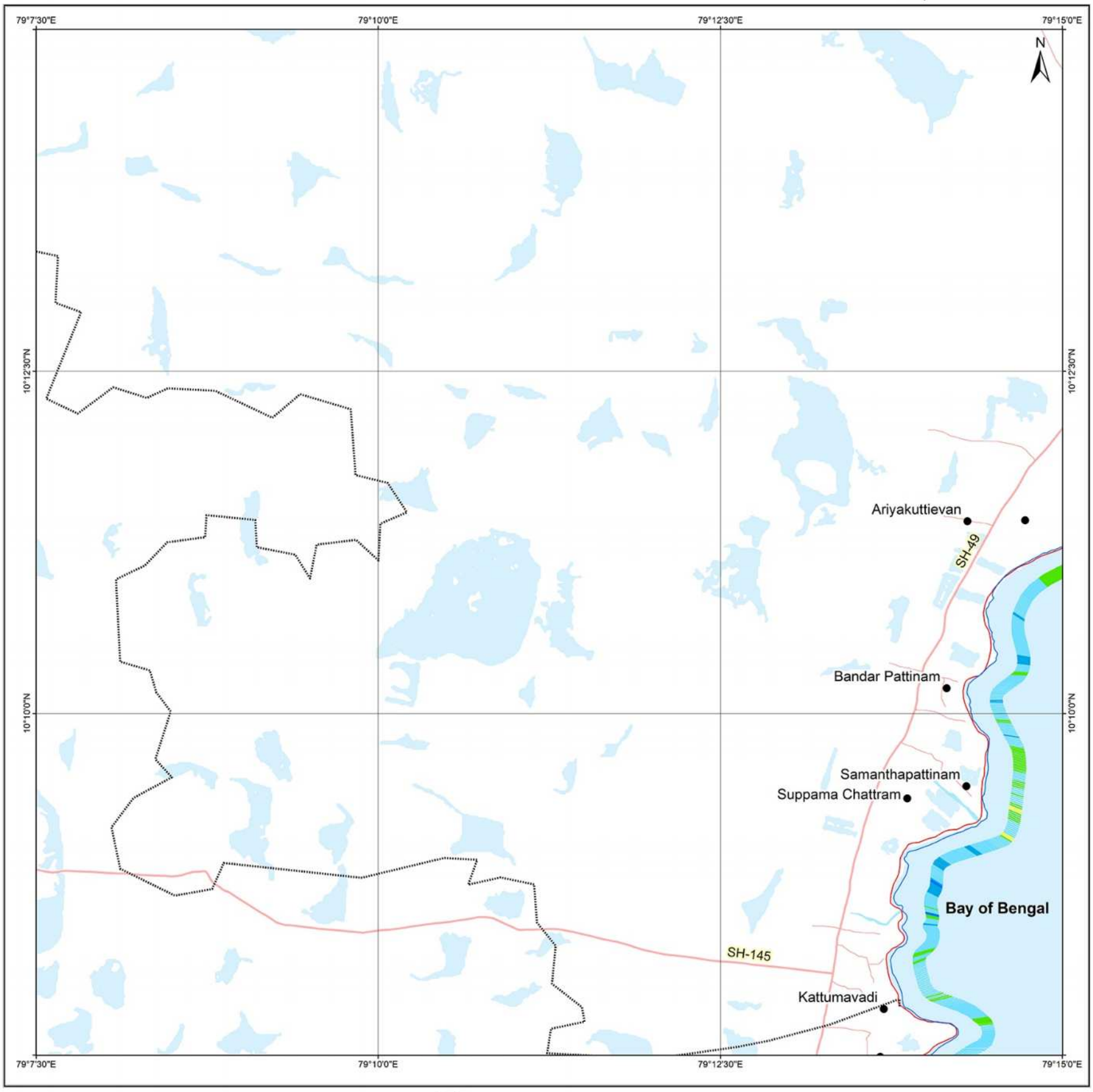
THANJAVUR

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 N / 4 / NE

Map No. : NCCR/SCM/326



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 02/23/2018

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Scale

1000 m 500 0 1 2 km

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UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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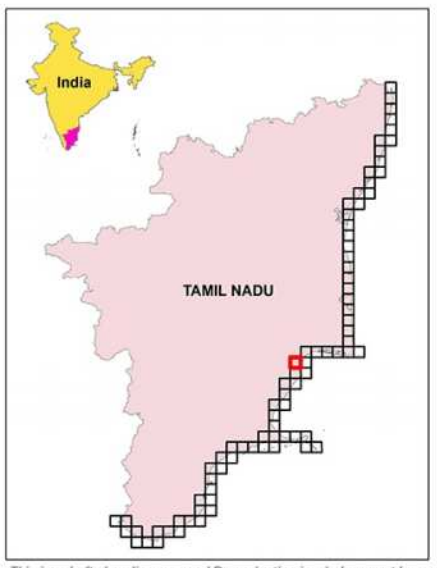
LISS-IV	06/22/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
- Port
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THANJAVUR

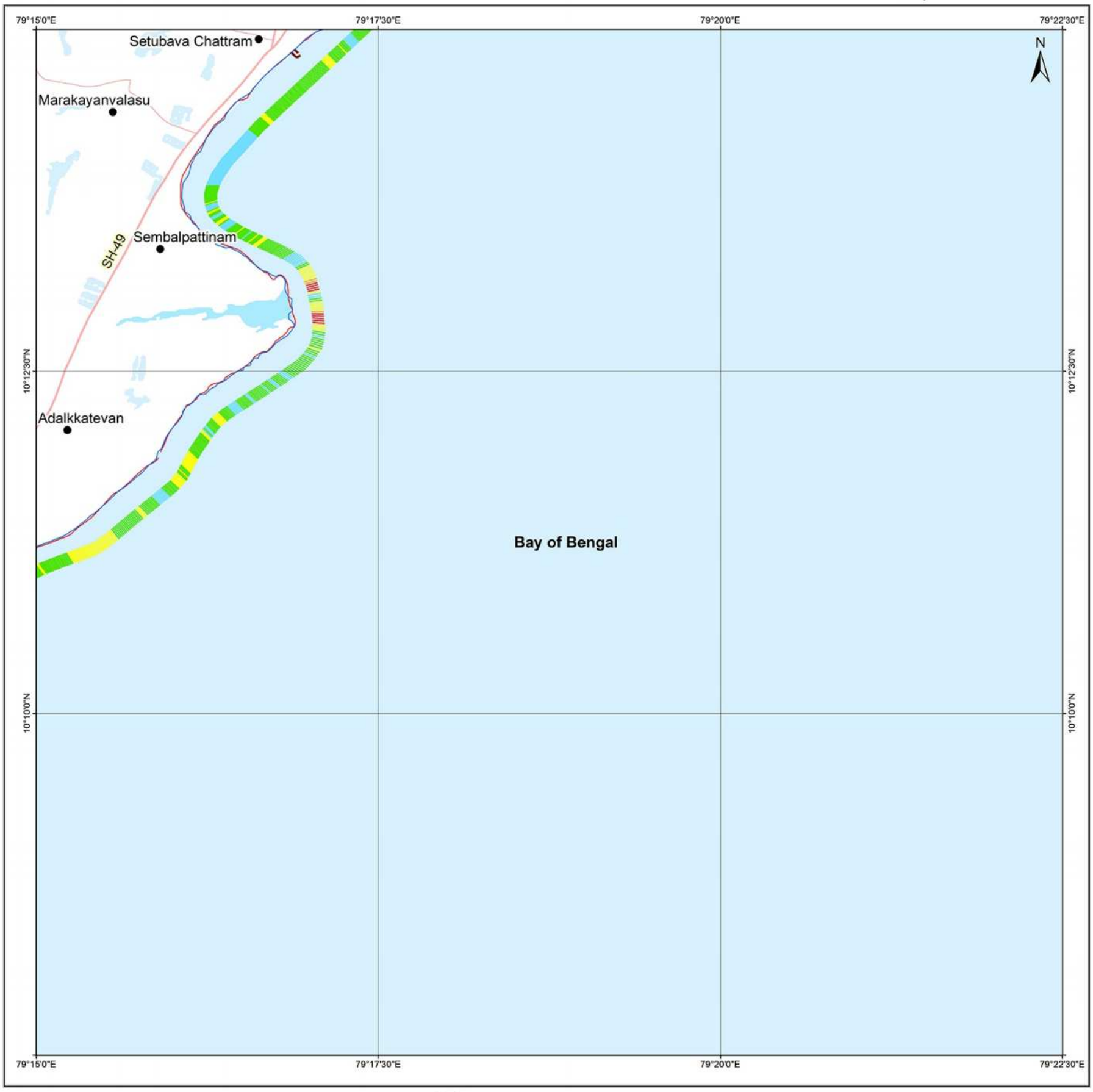
SHORELINE CHANGE MAP

TAMIL NADU

Restricted Use

58 N / 8 / NW

Map No. : NCCR/SCM/327



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 02/23/2018

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Scale

1000 m 500 0 1 2 km

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UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

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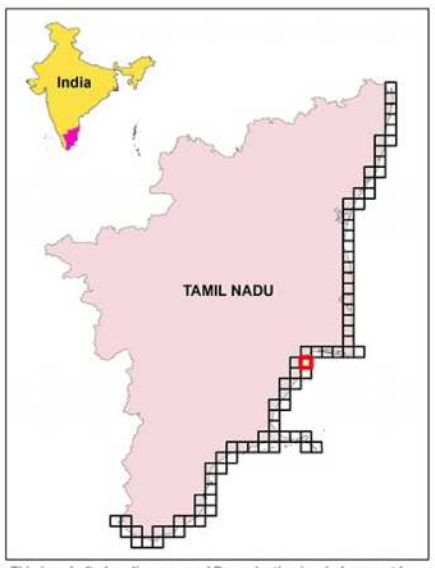
LISS-IV	06/22/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
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SHORELINE CHANGE MAP

TAMIL NADU

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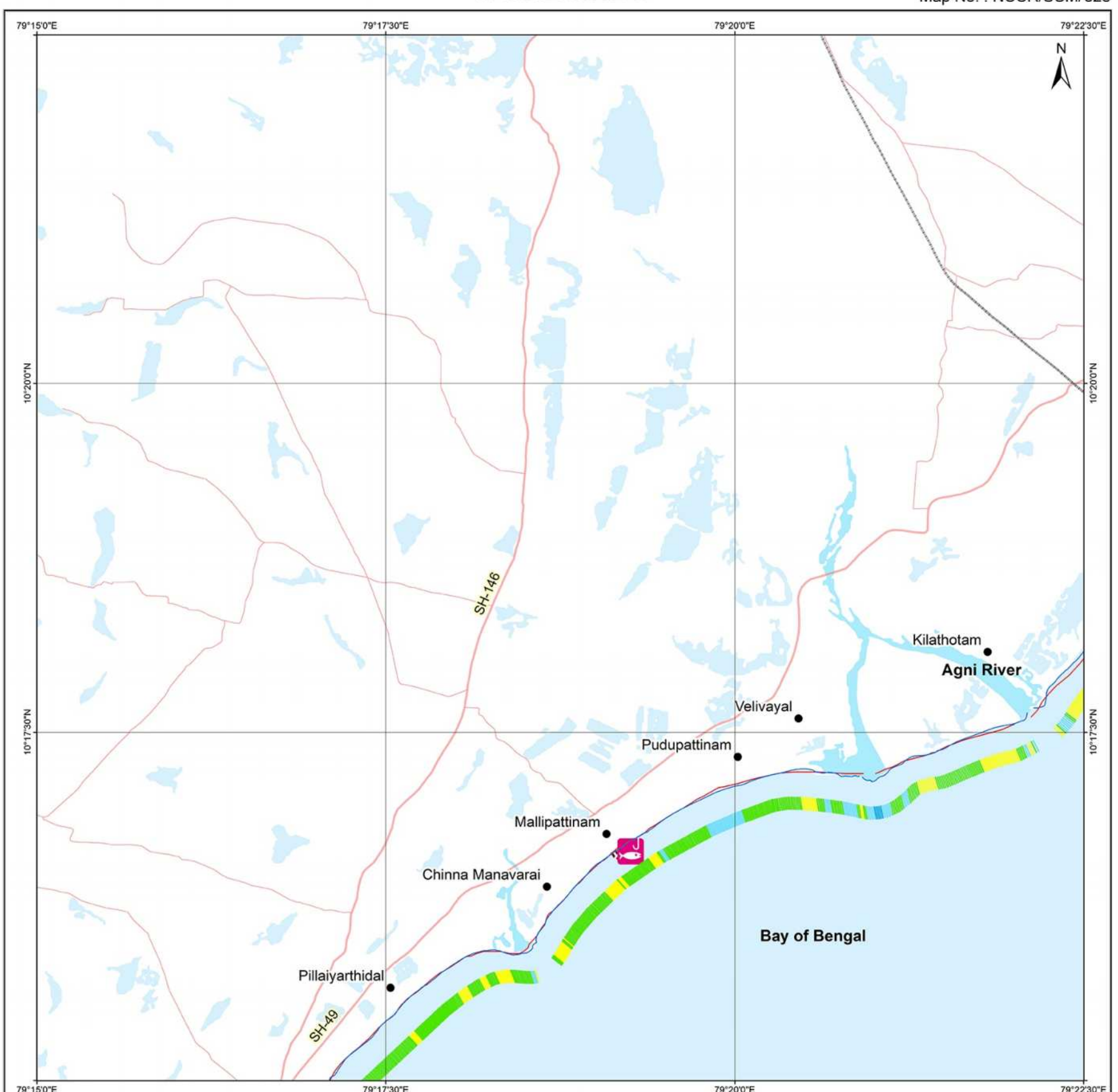

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 02/23/2018

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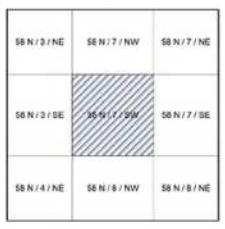
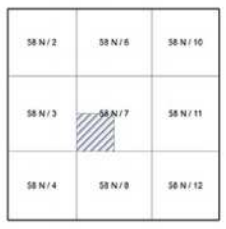


Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

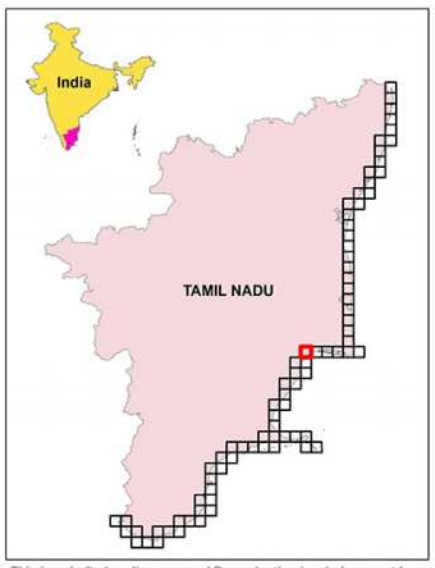
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/23/2018
LISS-IV	10/18/2017 & 02/06/2017
LISS-IV	06/12/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	06/22/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
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- Breakwater
- Seawall/Ripraps
- Rocky Coast
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- State Highways
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- Rivers

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1990 - 2018

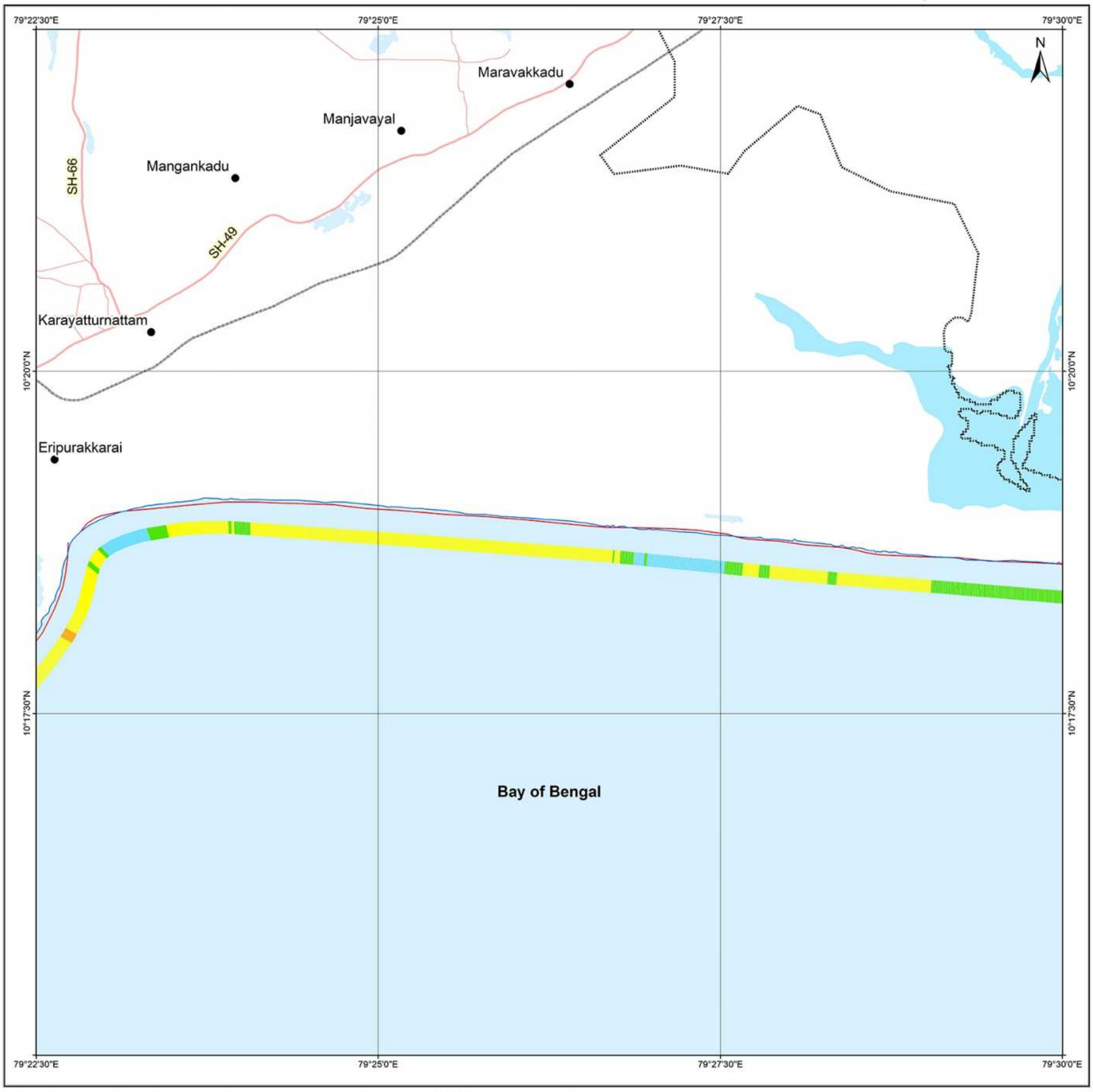
THIRUVARUR & THANJAVUR

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 N / 7 / SE

Map No. : NCCR/SCM/329



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 02/23/2018

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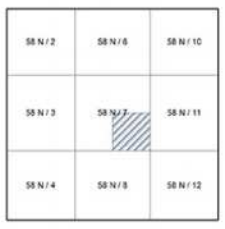
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

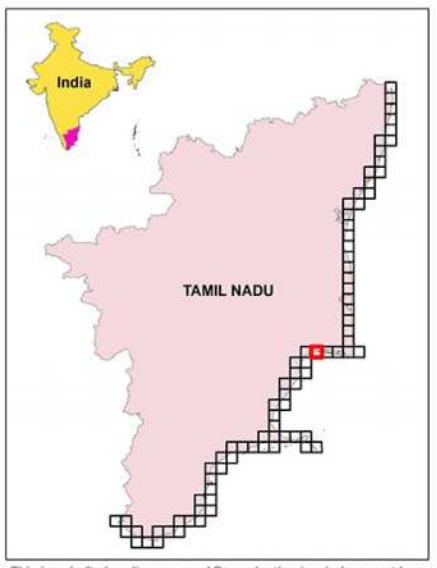
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/23/2018
LISS-IV	02/06/2017
LISS-IV	06/12/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	06/22/2012
LISS-III	10/29/2008 & 05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
- Port
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THIRUVARUR

SHORELINE CHANGE MAP
TAMIL NADU

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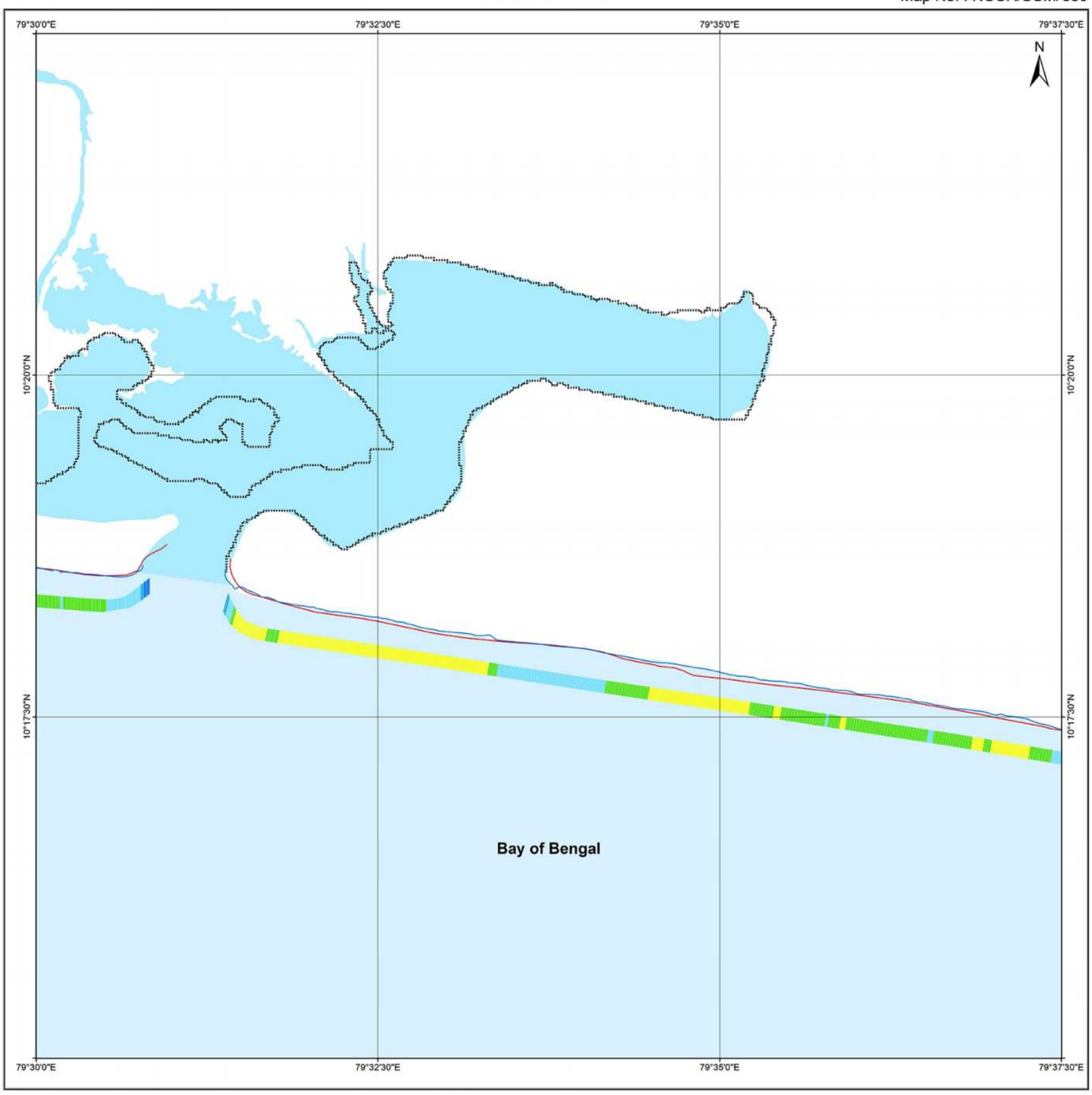
Map No. : NCCR/SCM/330



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 02/23/2018

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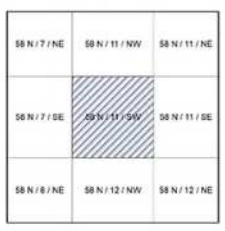
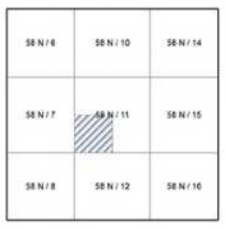


Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/23/2018
LISS-IV	02/06/2017
LISS-IV	06/12/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
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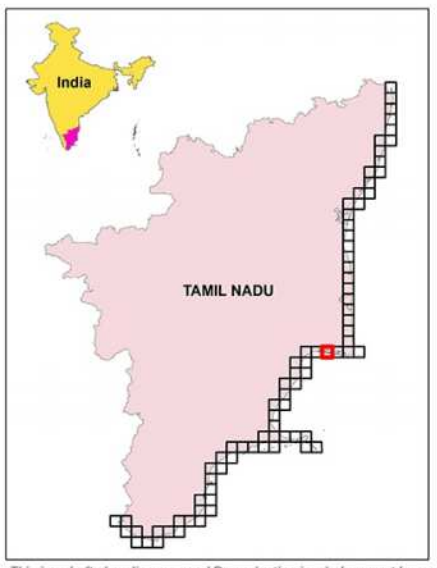

- Settlements
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1990 - 2018

SHORELINE CHANGE MAP

TAMIL NADU

NAGAPATTINAM & THIRUVARUR

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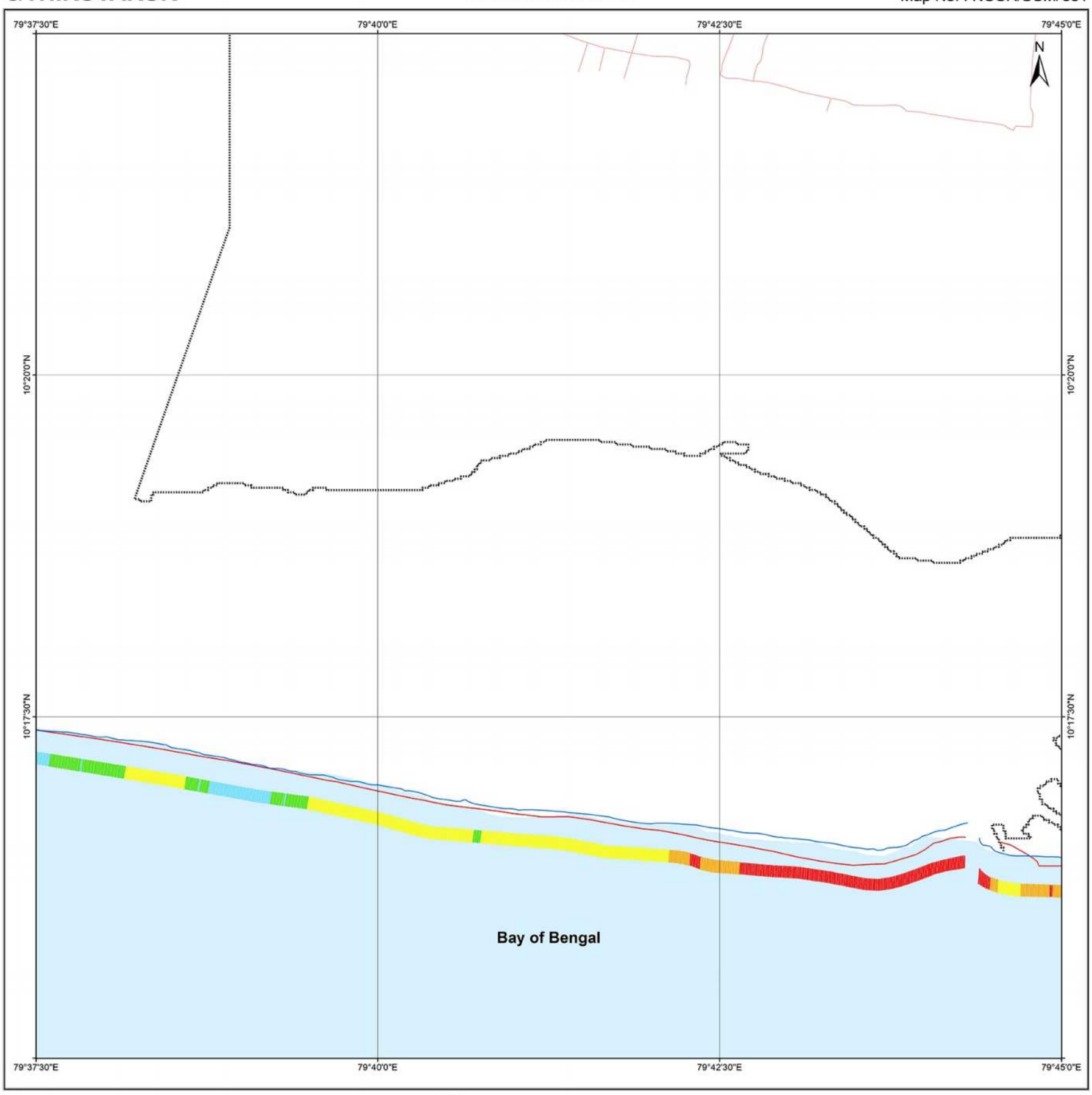
58 N / 11 / SE

Map No. : NCCR/SCM/331



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 02/23/2018

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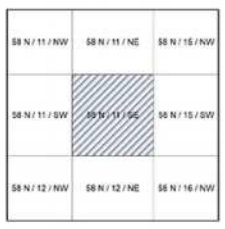

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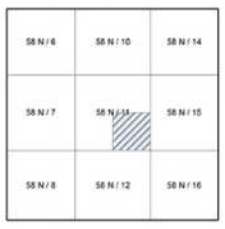

Scale

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1:25,000

UTM Coordinates Zone 44

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Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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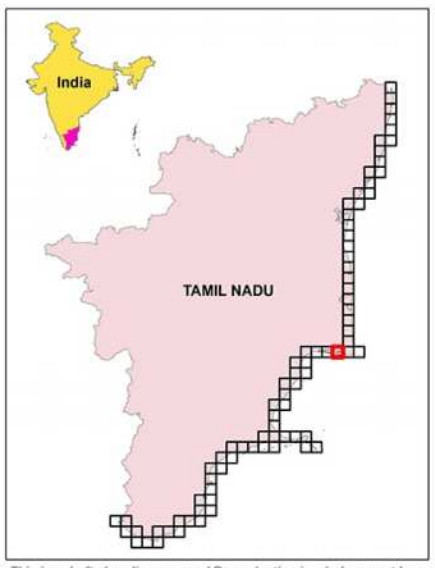

- Settlements
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NAGAPATTINAM

SHORELINE CHANGE MAP
TAMIL NADU

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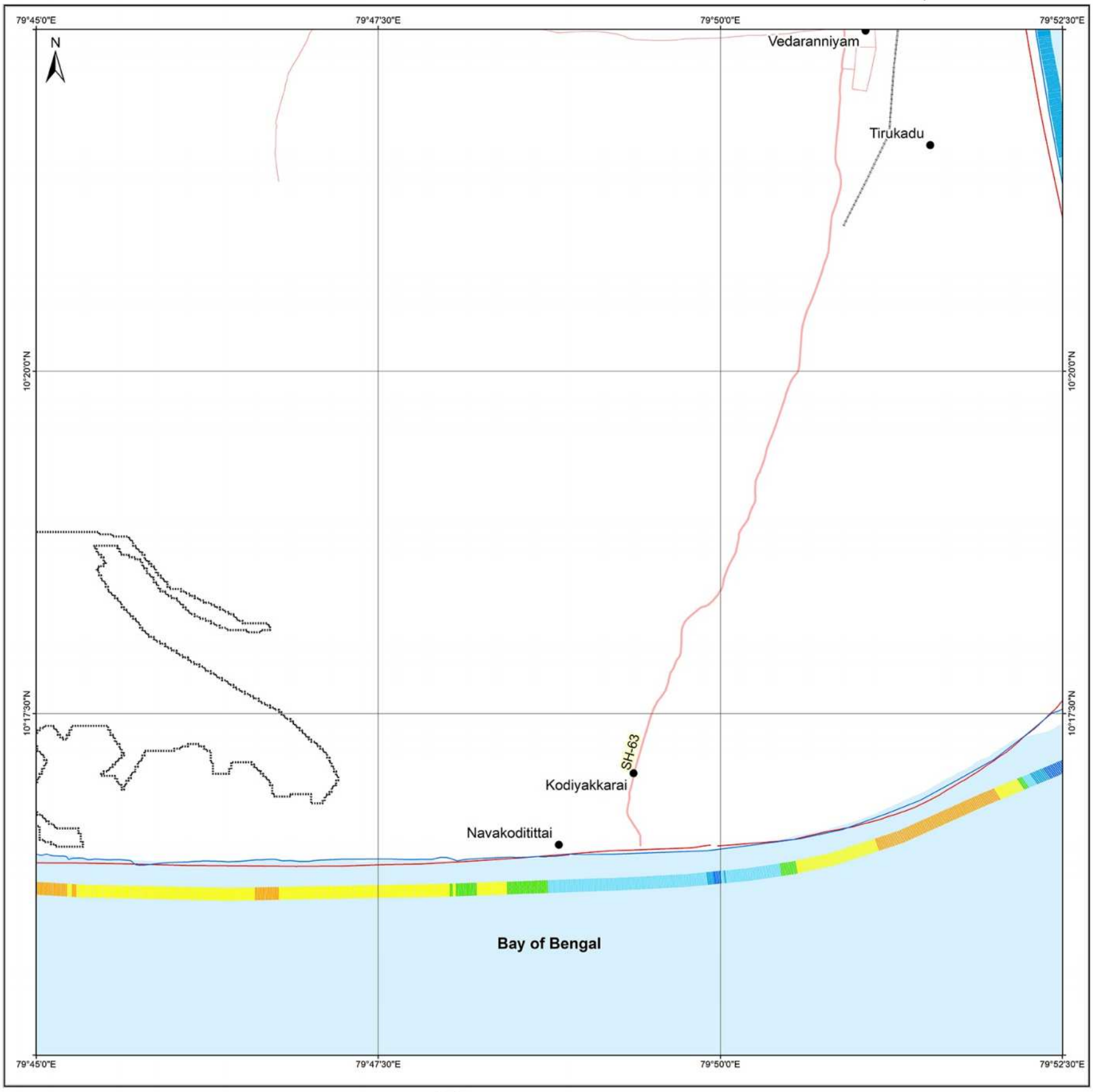
Map No. : NCCR/SCM/332



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 02/23/2018 & 10/29/2018

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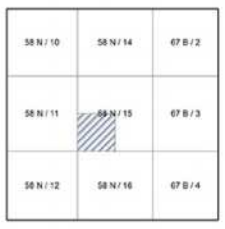

Scale

1000 m 500 0 1 2 km

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UTM Coordinates Zone 44

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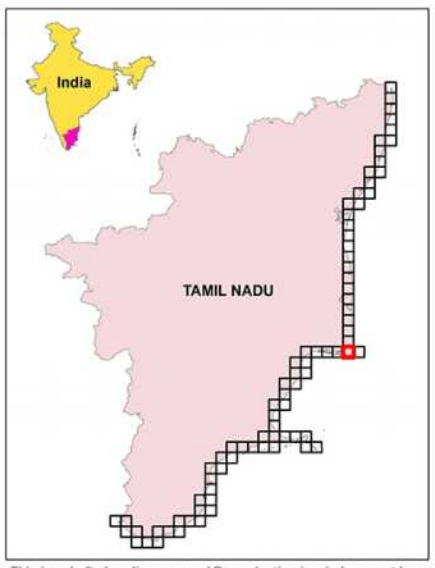
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	06/22/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
- Port
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- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
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1990 - 2018

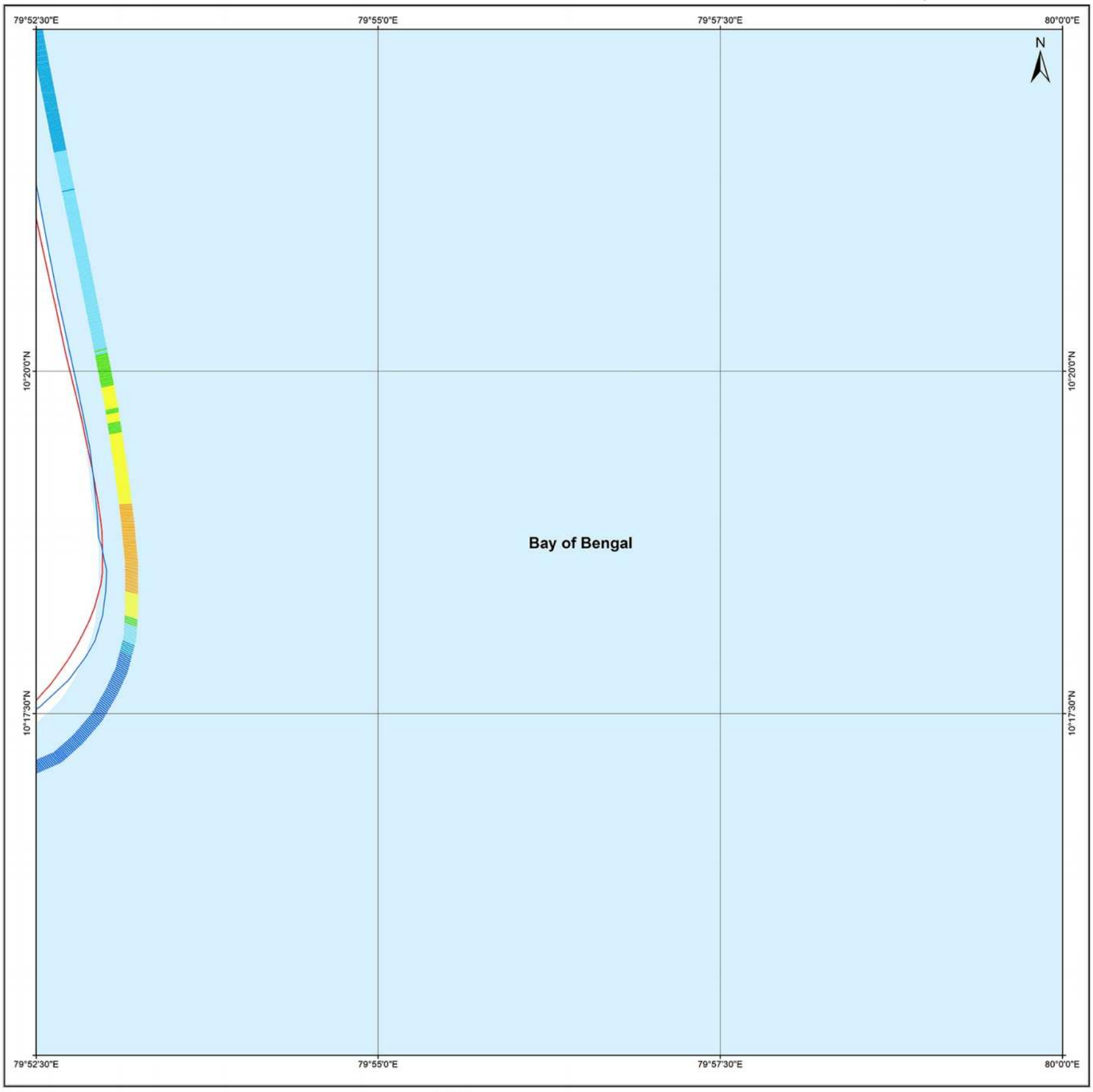
NAGAPATTINAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 N / 15 / SE

Map No. : NCCR/SCM/333



Shoreline Change Trend for Period 1990 - 2018

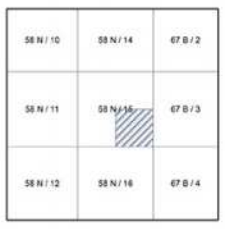
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 10/29/2018

Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

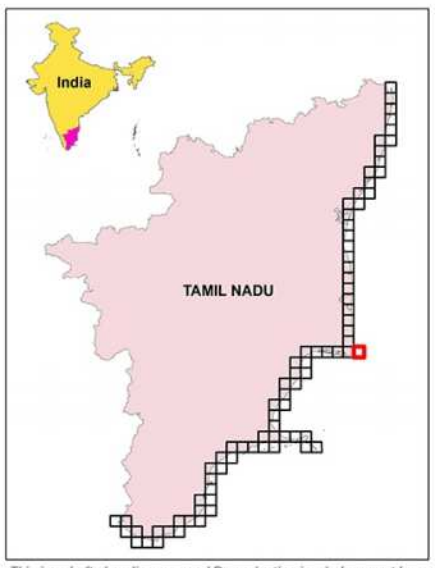
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/29/2018
LISS-IV	02/06/2017
LISS-IV	06/12/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	06/22/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
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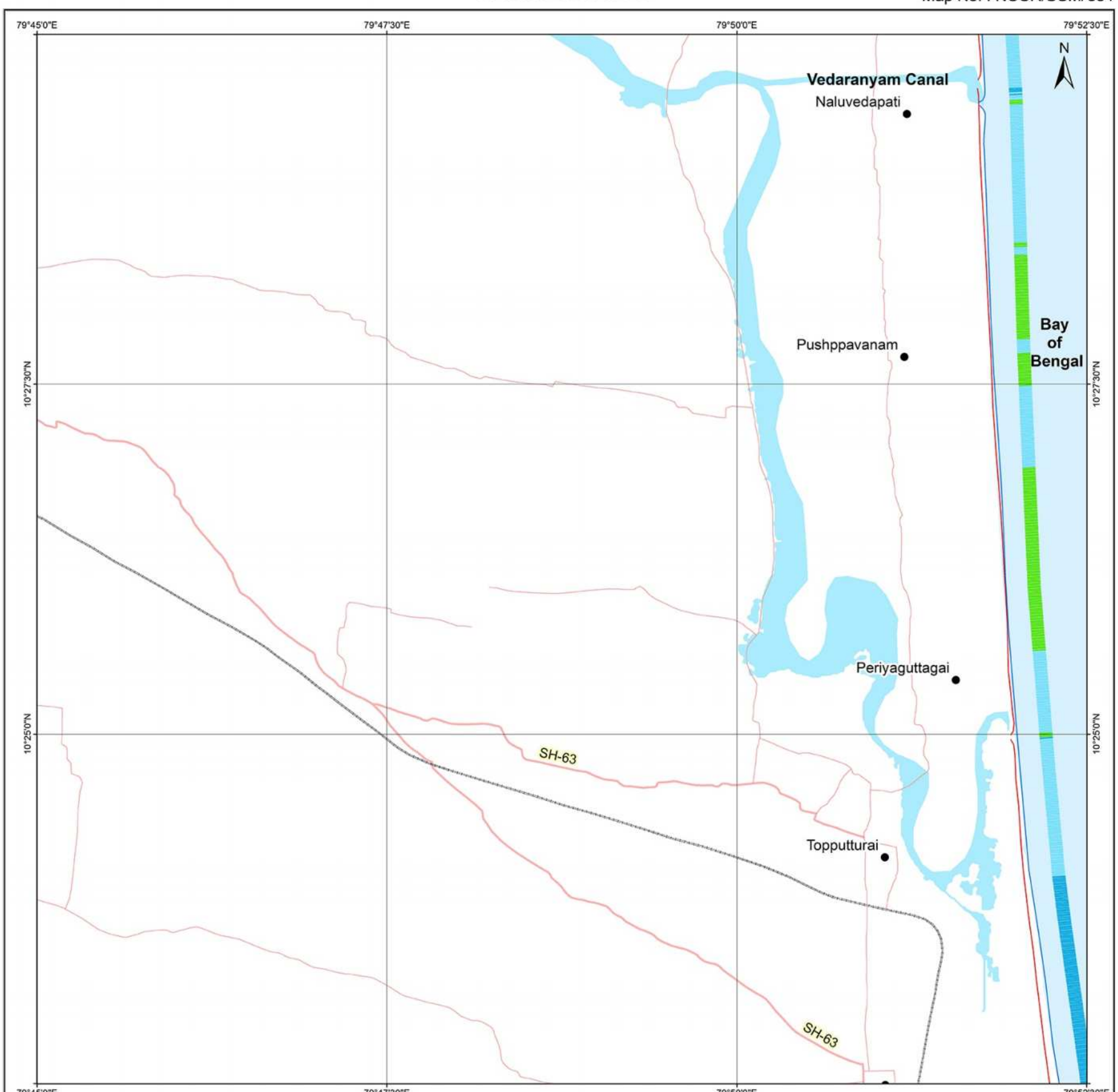
NAGAPATTINAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 N / 15 / NW

Map No. : NCCR/SCM/334



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 10/29/2018 & 03/23/2018

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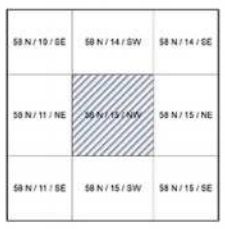


Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

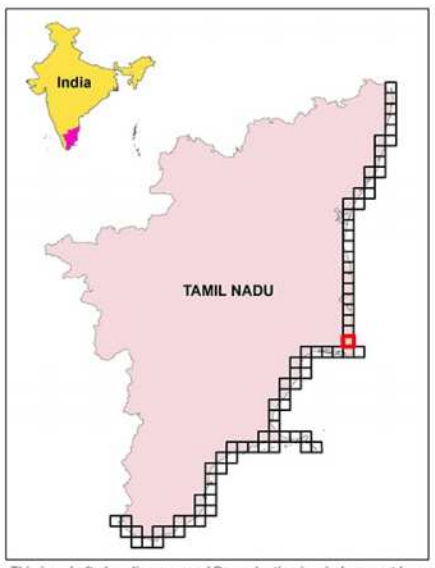
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/29/2018 & 03/23/2018
LISS-IV	02/06/2017
LISS-IV	06/12/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	06/22/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
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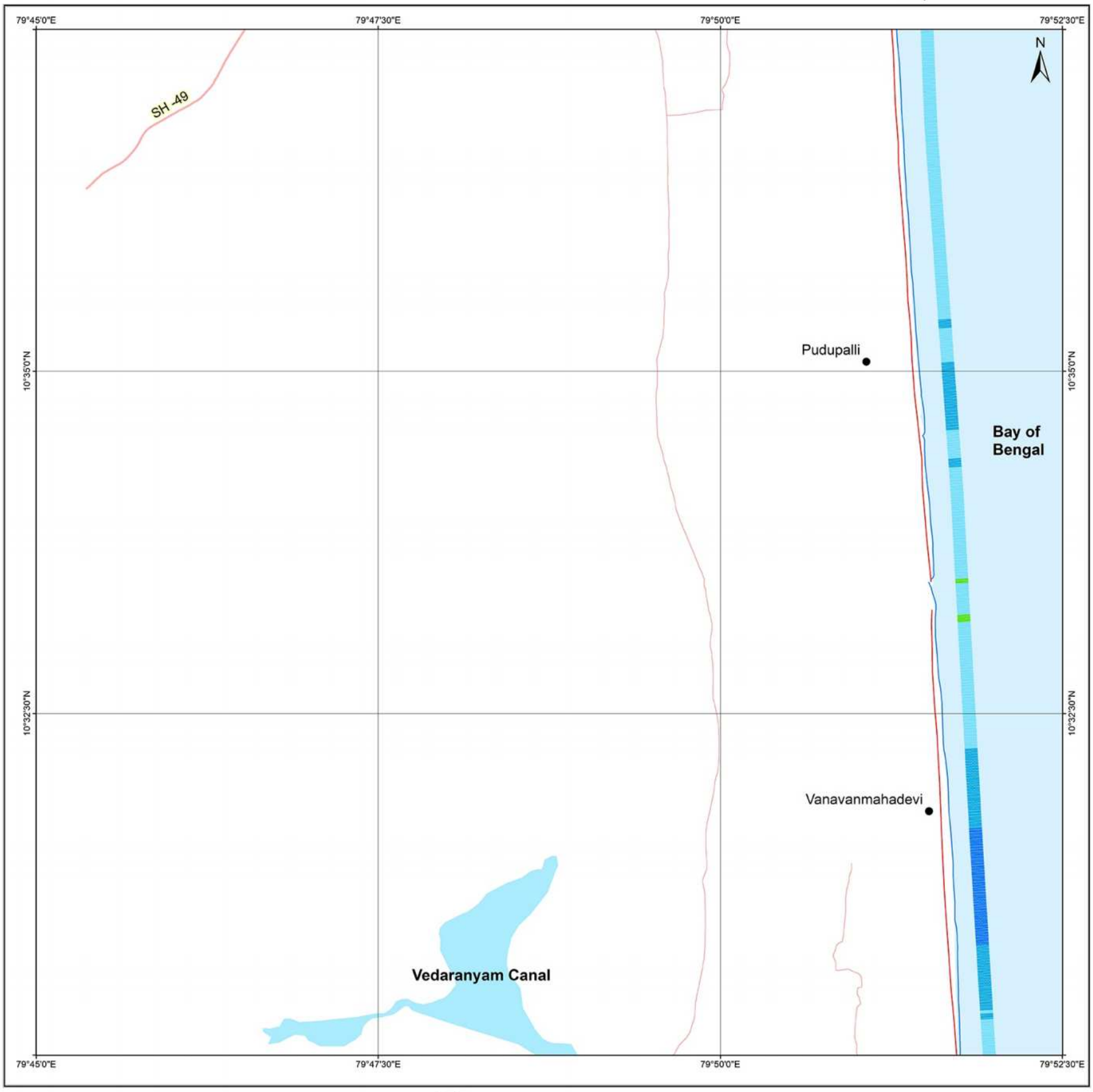
NAGAPATTINAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 N / 14 / SW

Map No. : NCCR/SCM/335



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 03/23/2018

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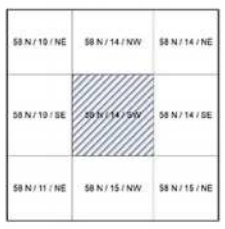
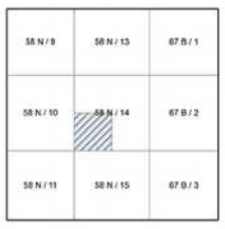


Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

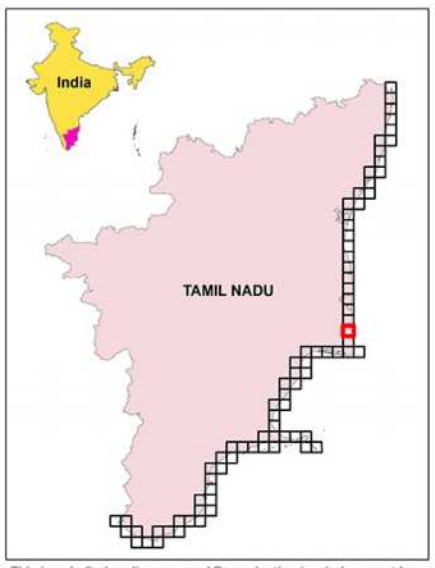
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/23/2018
LISS-IV	02/06/2017 & 07/26/2017
LISS-IV	06/12/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	06/22/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
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NAGAPATTINAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 N / 14 / NW

Map No. : NCCR/SCM/336

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 03/23/2018

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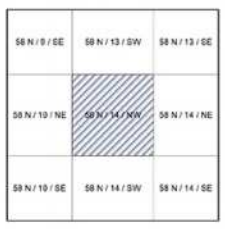


Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

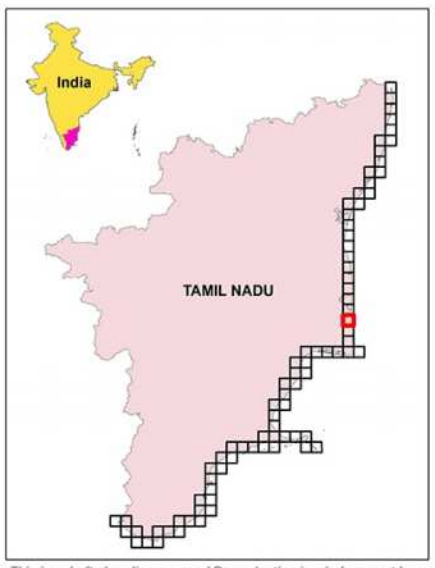
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/23/2018
LISS-IV	07/26/2017
LISS-IV	06/12/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	06/22/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



- Settlements
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- Breakwater
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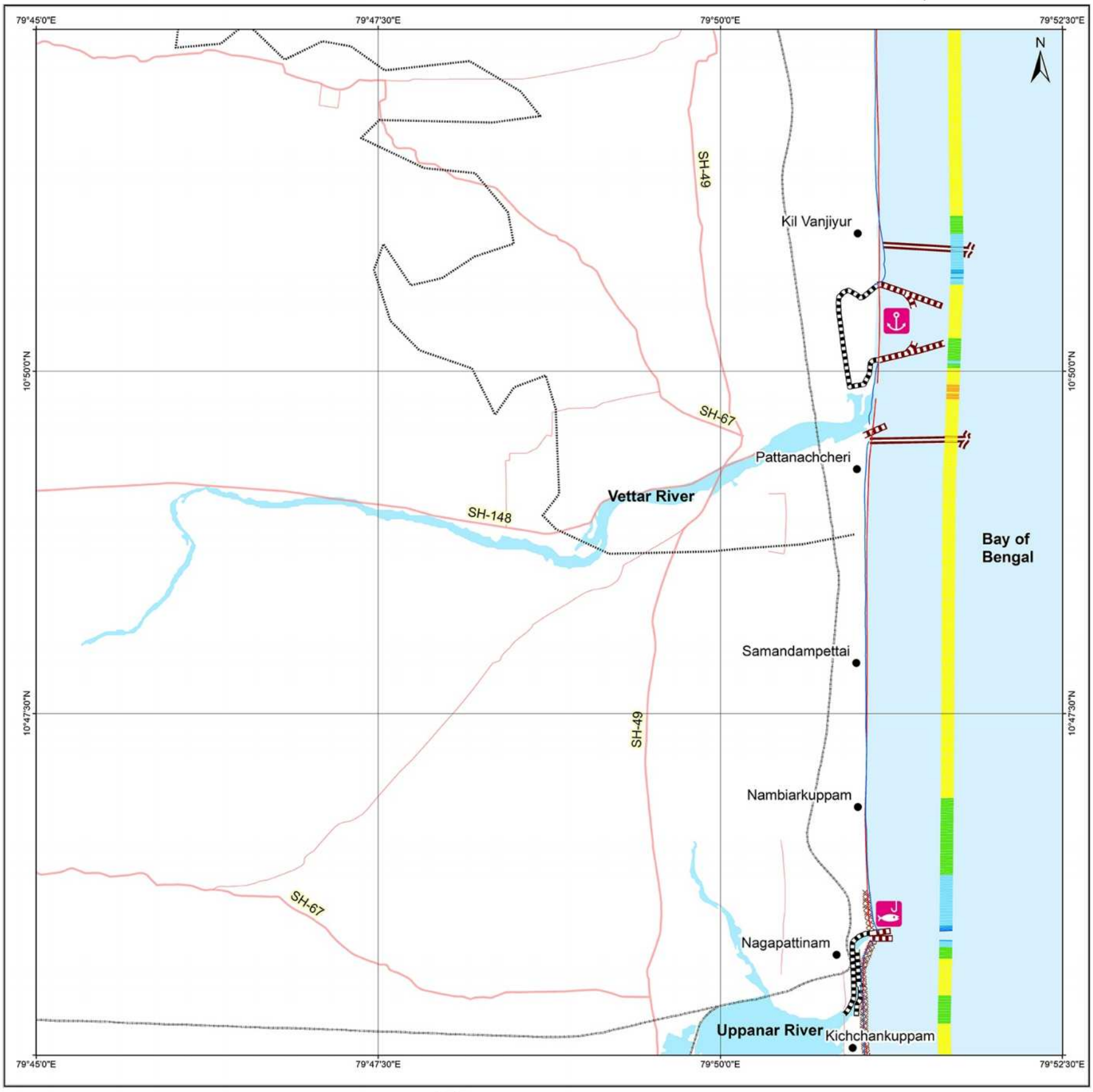
NAGAPATTINAM &KARAIKAL

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 N / 13 / SW

Map No. : NCCR/SCM/337



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/29/1990
- 03/23/2018

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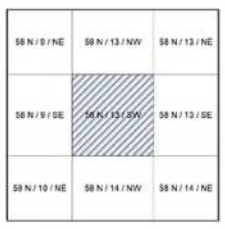
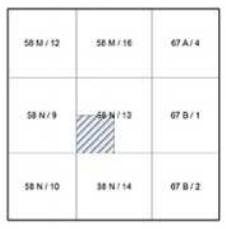


Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

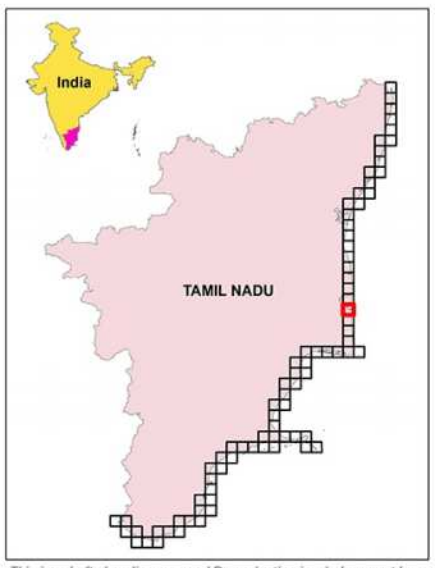
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/23/2018
LISS-IV	07/26/2017
LISS-IV	06/01/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	06/22/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	01/29/1990



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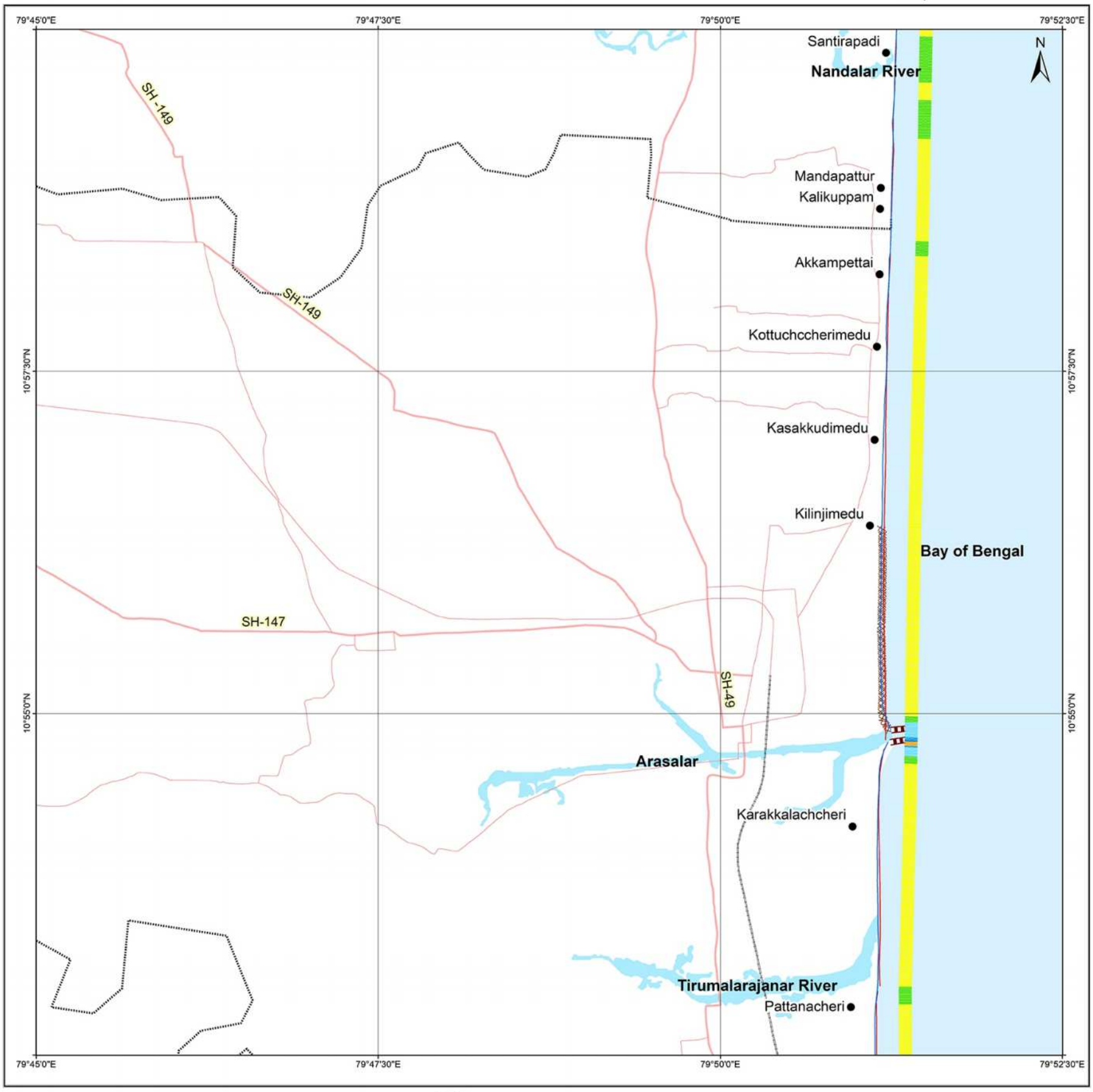
KARAIKAL

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 N / 13 / NW

Map No. : NCCR/SCM/338



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 03/23/2018

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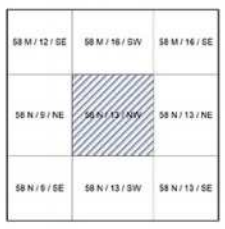
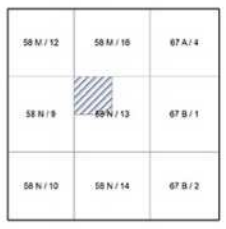


Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

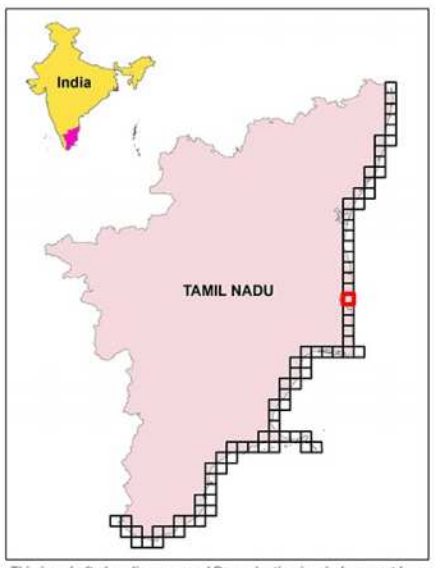
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/23/2018
LISS-IV	07/26/2017
LISS-IV	06/01/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	06/22/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	07/25/1990



- Settlements
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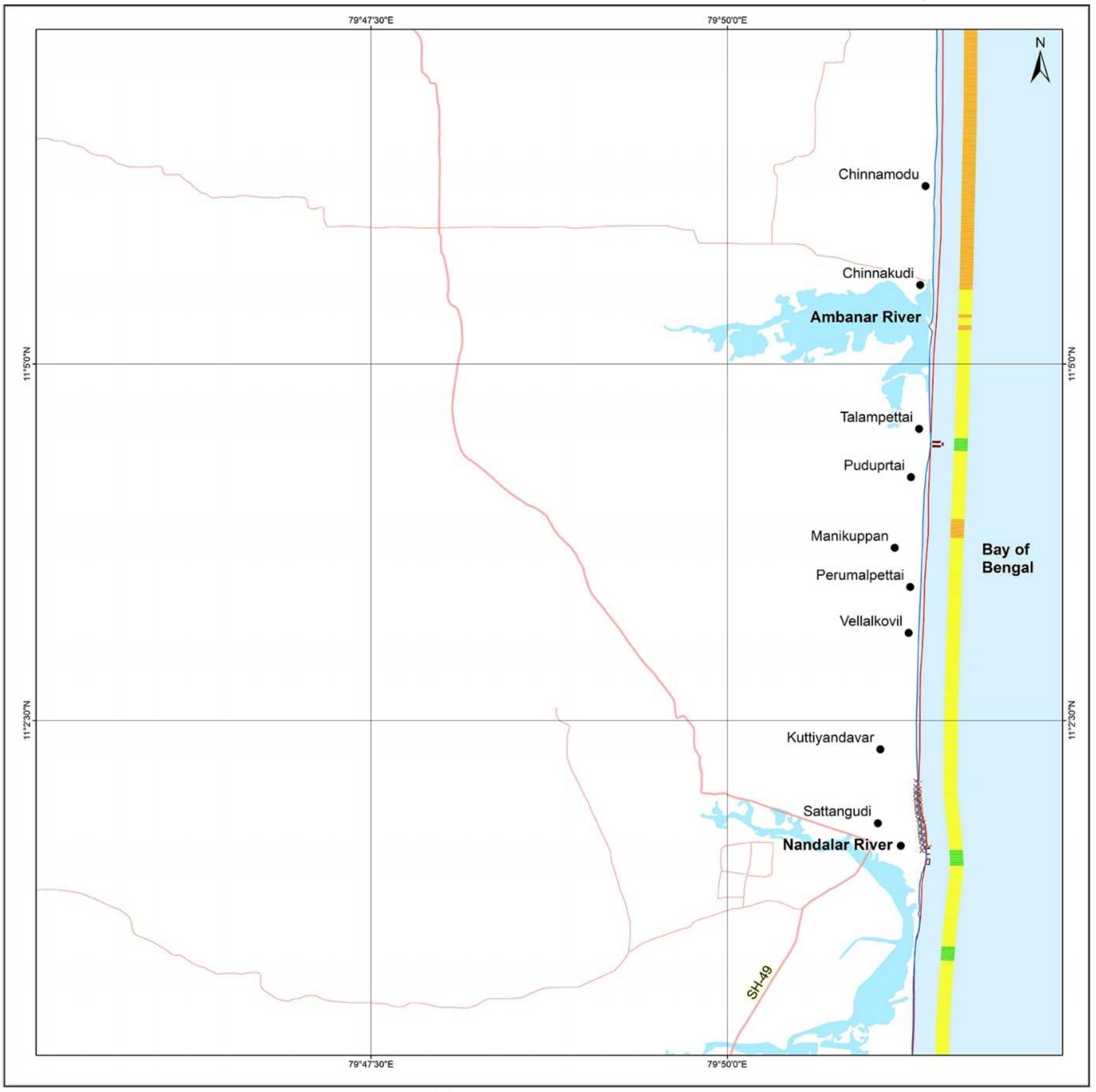
NAGAPATTINAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 M / 16 / SW

Map No. : NCCR/SCM/339



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 03/23/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:24,000

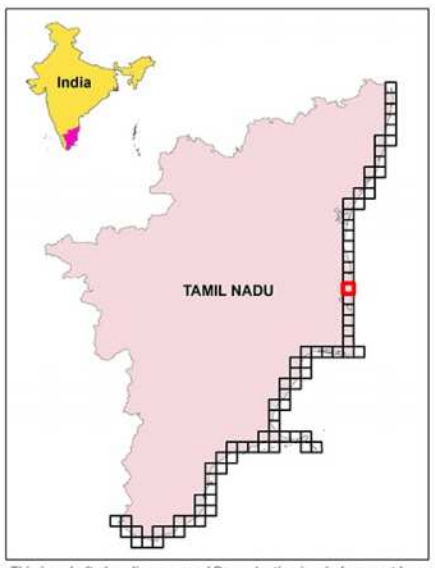
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/23/2018
LISS-IV	07/26/2017
LISS-IV	06/01/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	06/22/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	07/25/1990



- Settlements
- Port
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- Jetty
- Breakwater
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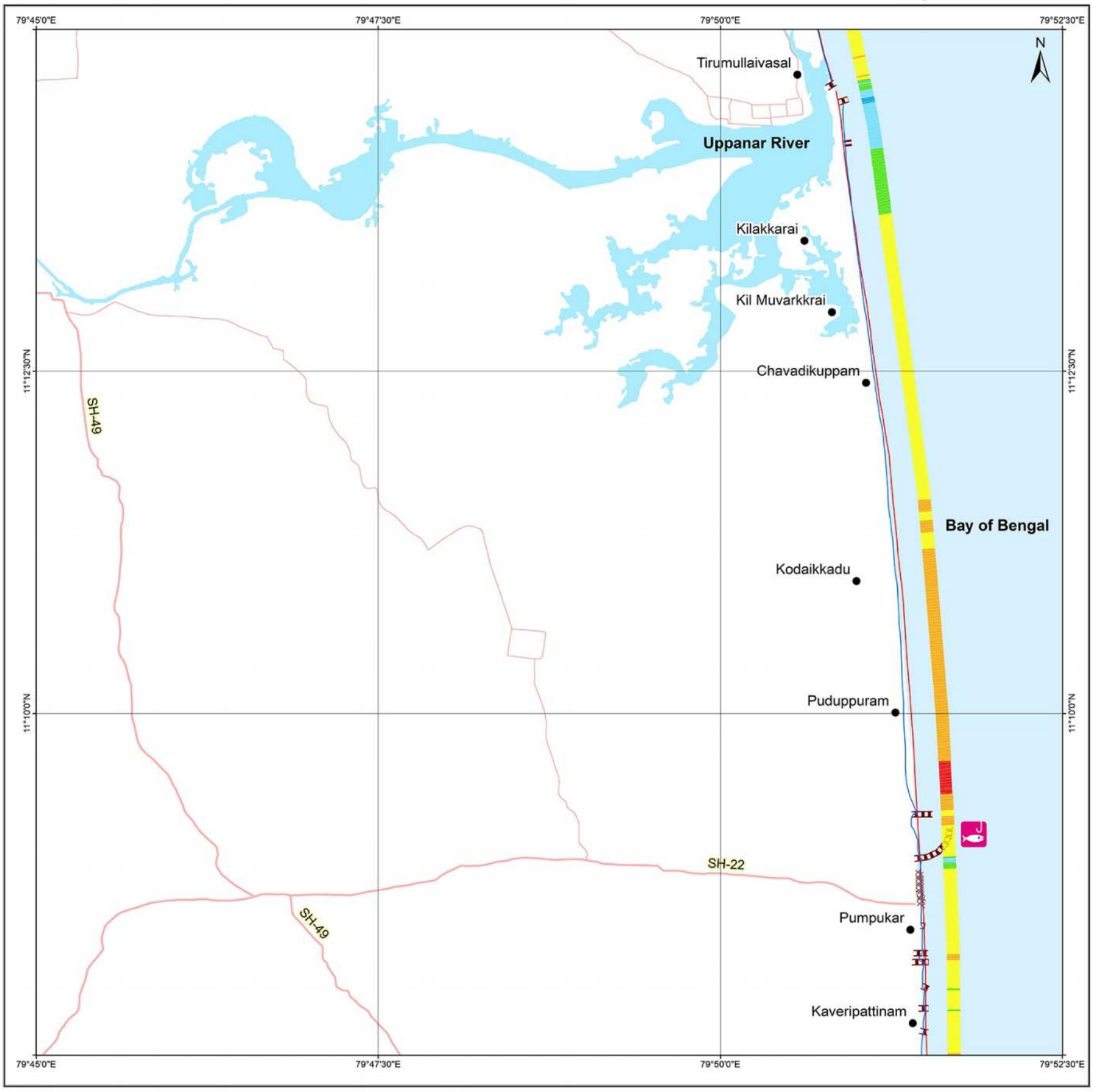
NAGAPATTINAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 M / 16 / NW

Map No. : NCCR/SCM/340



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 03/23/2018

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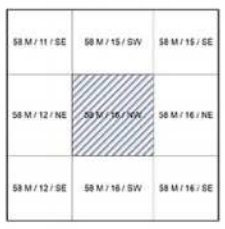
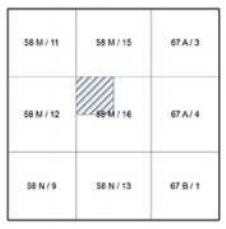


Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

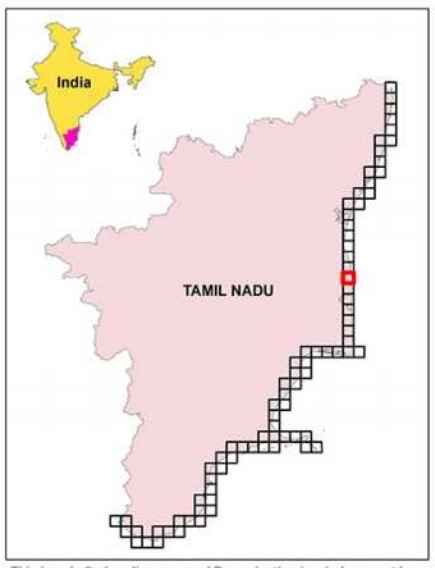
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/23/2018
LISS-IV	07/26/2017 & 02/06/2017
LISS-IV	06/01/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	06/22/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	07/25/1990



- Settlements
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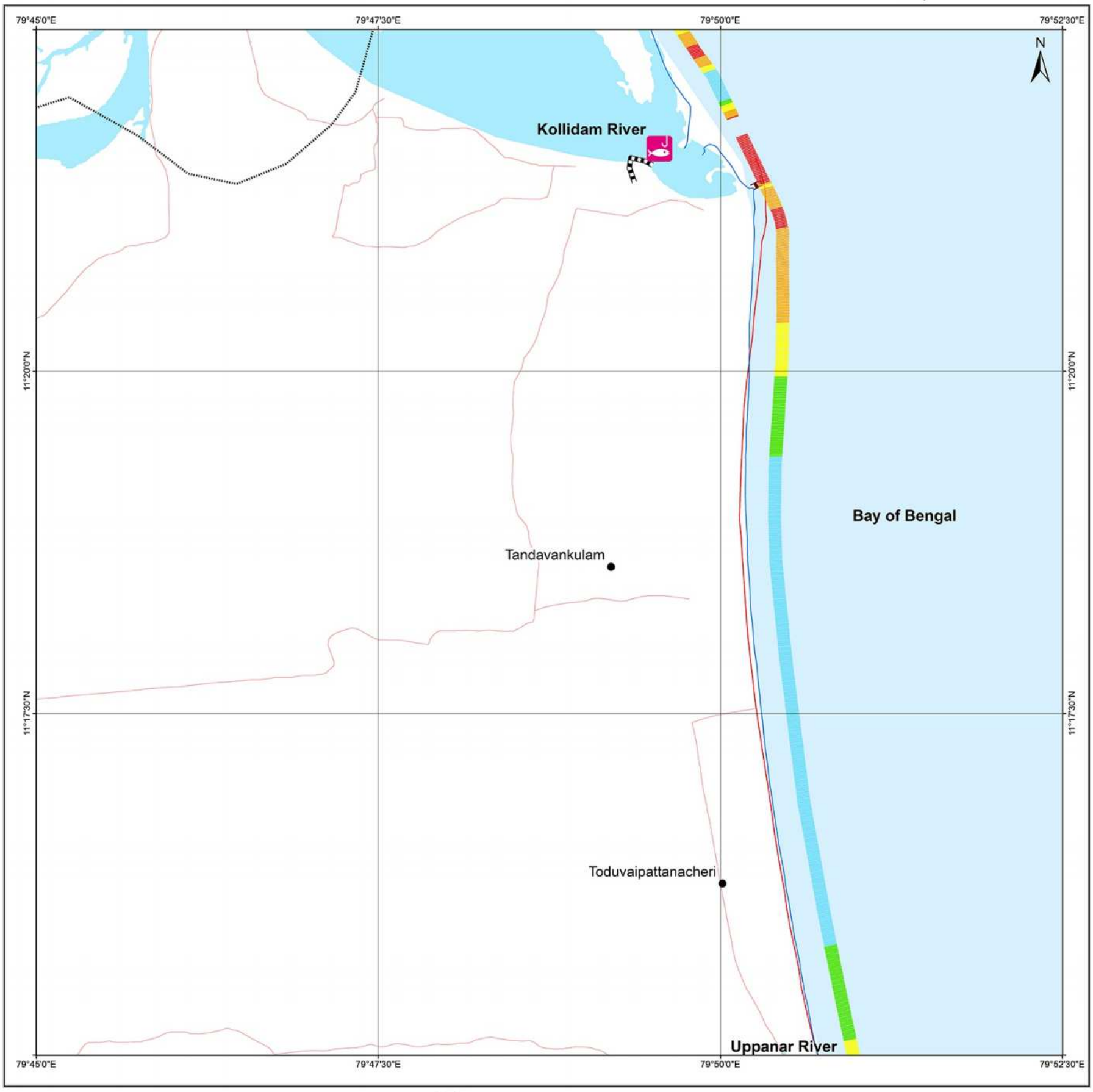
NAGAPATTINAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 M / 15 / SW

Map No. : NCCR/SCM/341



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 03/23/2018 & 04/04/2018

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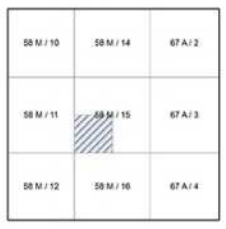
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

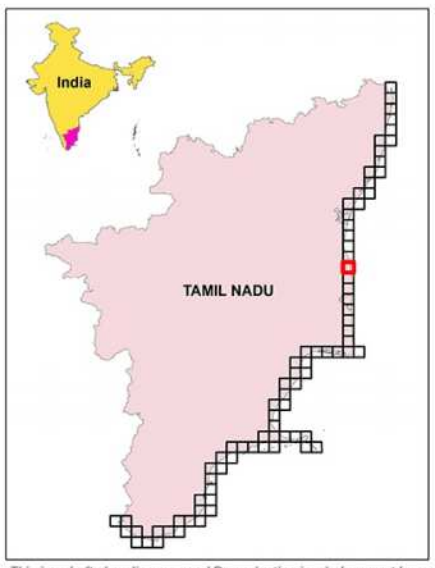
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/23/2018 & 04/04/2018
LISS-IV	02/06/2017
LISS-IV	06/01/2016
LISS-IV	07/01/2015
LISS-IV	04/01/2014 & 06/12/2014
LISS-IV	05/24/2013
LISS-IV	03/18/2012 & 06/22/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	07/25/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
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- Lakes
- Rivers

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1990 - 2018

CUDDALORE

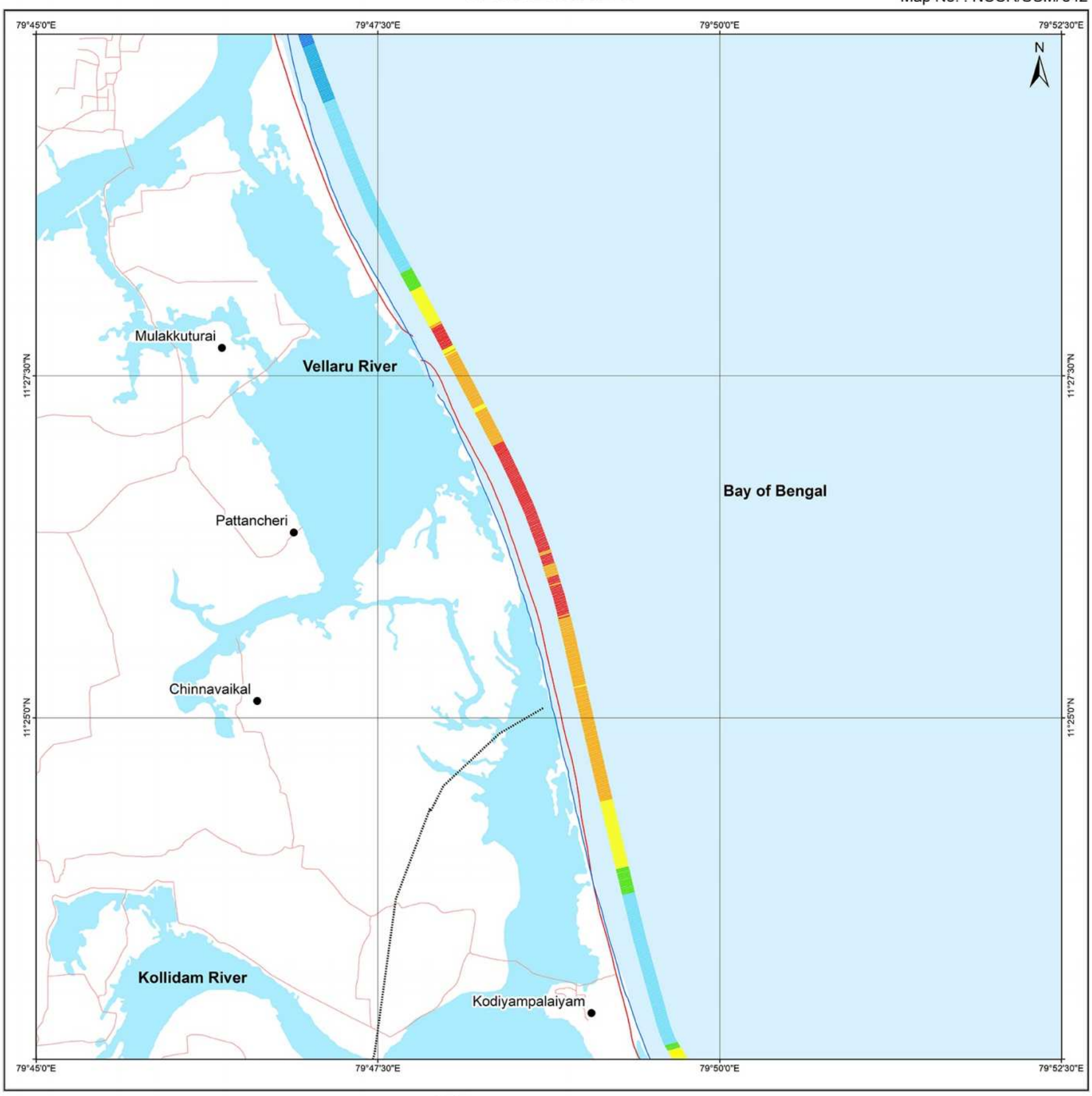
SHORELINE CHANGE MAP

TAMIL NADU

Restricted Use

58 M / 15 / NW

Map No. : NCCR/SCM/342



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 04/04/2018

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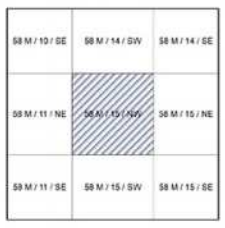
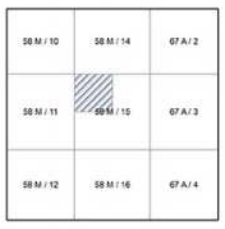


Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

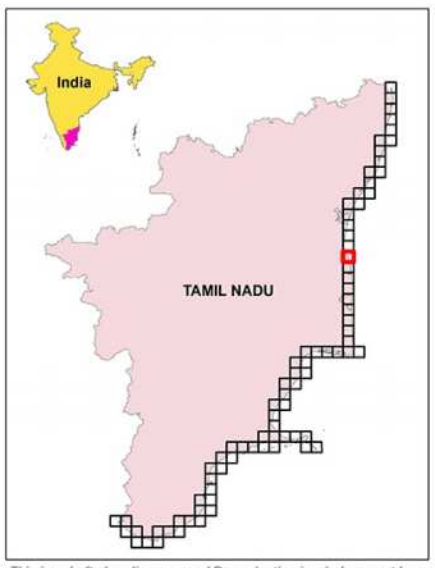
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
LISS-IV	02/06/2017
LISS-IV	06/01/2016
LISS-IV	07/01/2015
LISS-IV	04/01/2014 & 06/12/2014
LISS-IV	05/24/2013
LISS-IV	03/18/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	07/25/1990



- Settlements
- Port
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- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
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- State Highways
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1990 - 2018

CUDDALORE

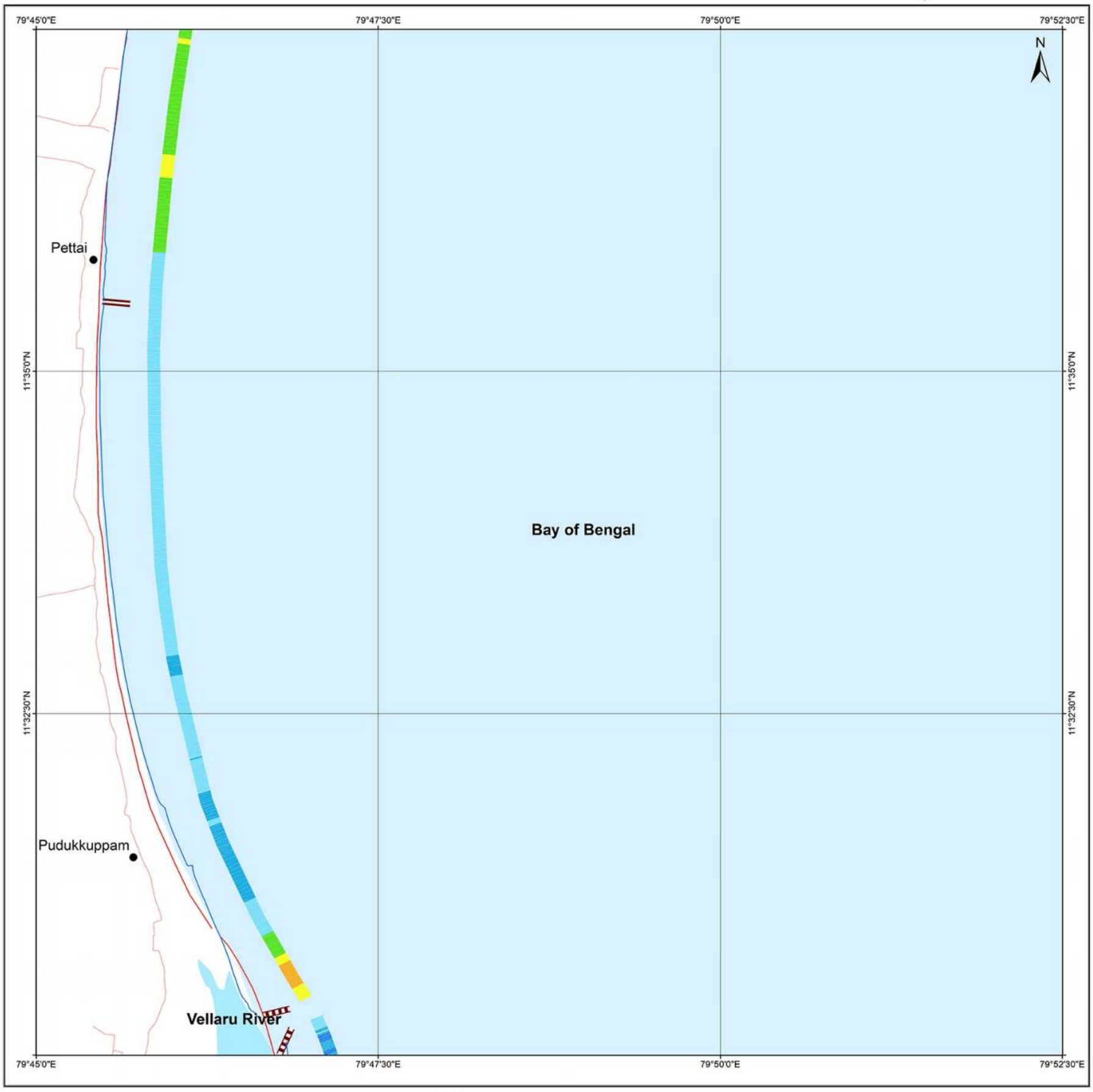
SHORELINE CHANGE MAP

TAMIL NADU

Restricted Use

58 M / 14 / SW

Map No. : NCCR/SCM/343



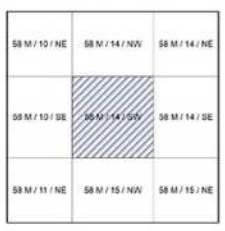
Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

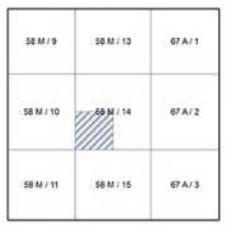
Shoreline date

- 07/25/1990
- 04/04/2018

Index to sheets



Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
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LISS-IV	03/18/2012
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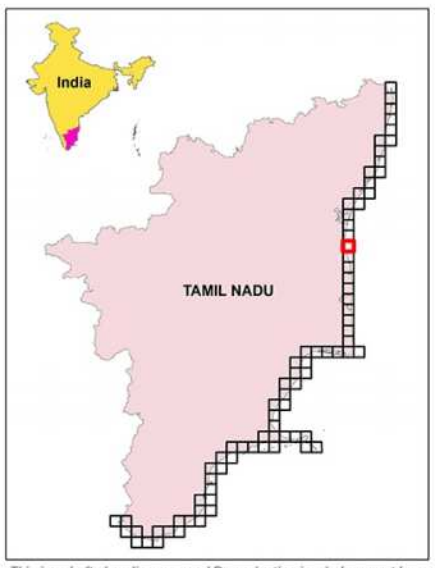
TM	07/25/1990



- Settlements
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- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
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- State Highways
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- Lakes
- Rivers

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1990 - 2018

CUDDALORE

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

58 M / 14 / NW

Map No. : NCCR/SCM/344

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 04/04/2018

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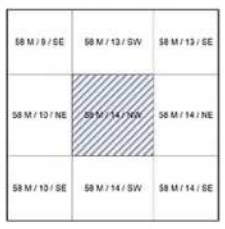
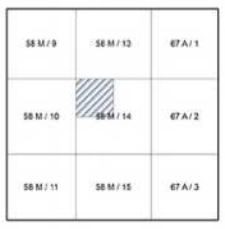


Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

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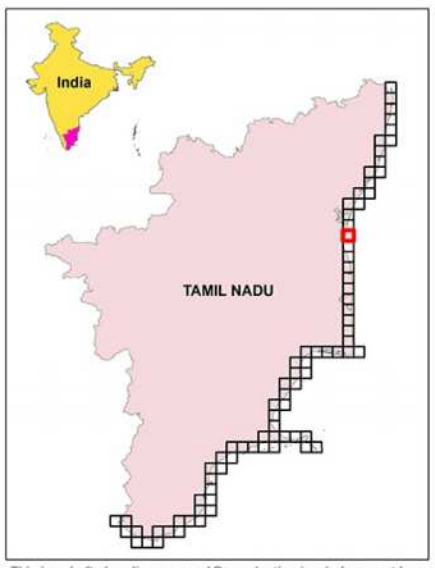
LISS-IV	03/18/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	07/25/1990



- Settlements
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1990 - 2018

CUDDALORE &PUDUCHERRY

SHORELINE CHANGE MAP
TAMIL NADU & PUDUCHERRY

Restricted Use

58 M / 13 / SW

Map No. : NCCR/SCM/345

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 04/04/2018

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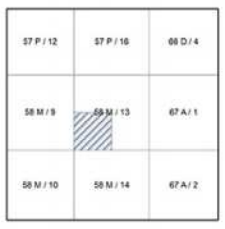
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
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LISS-IV	07/01/2015
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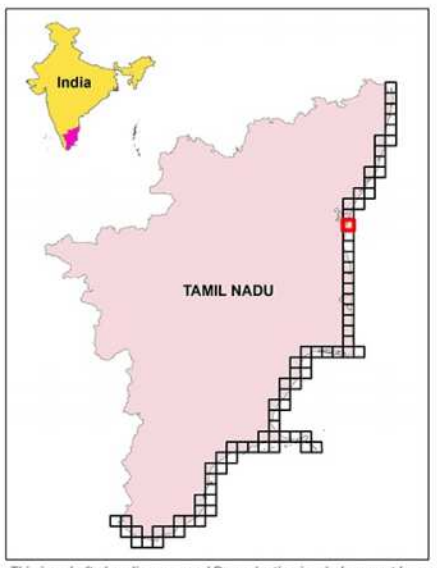
LISS-IV	03/18/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	07/25/1990



- Settlements
- Port
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- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
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- Administrative Boundary
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- State Highways
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- Rivers

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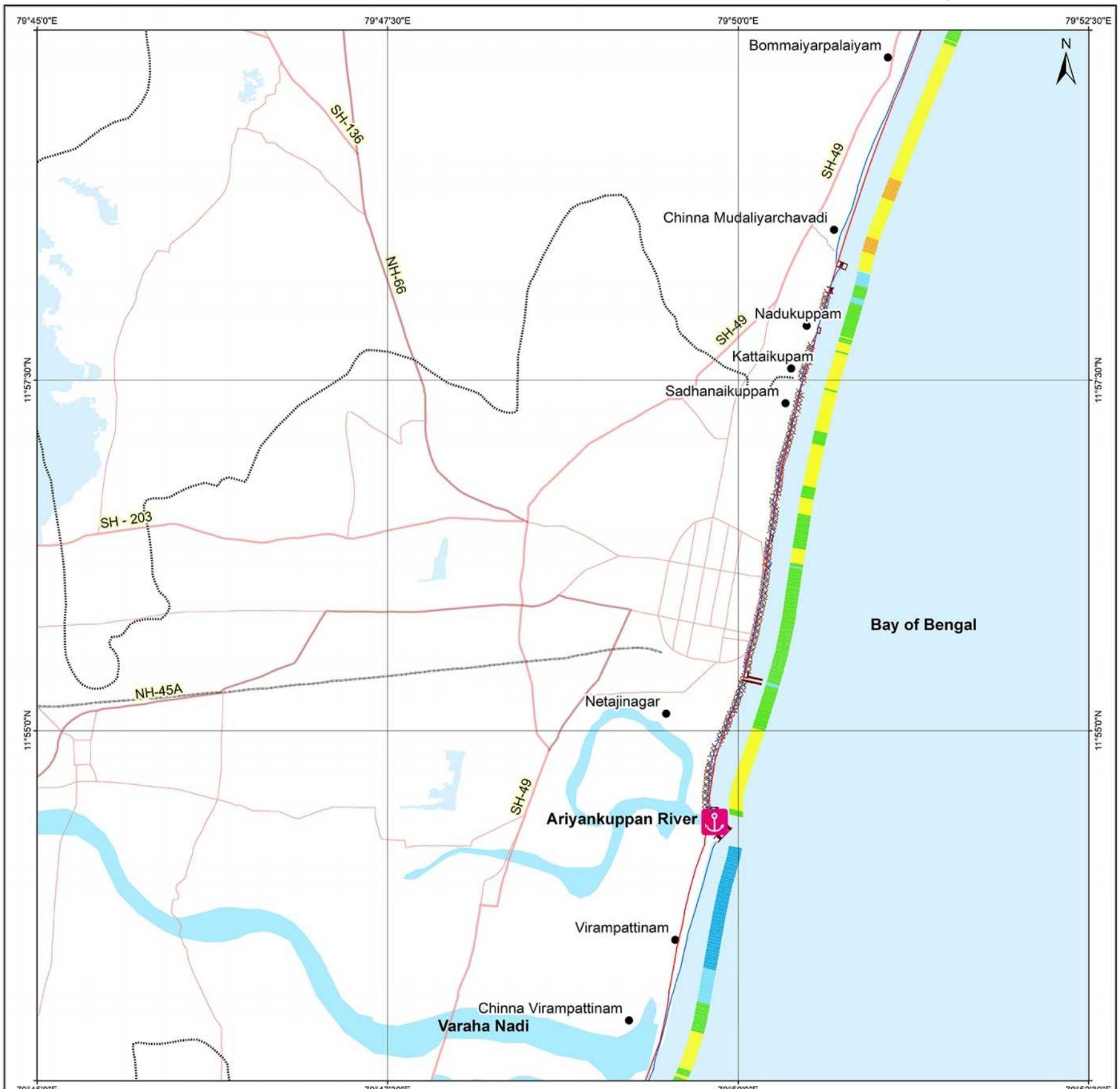
PUDUCHERRY &VILLUPURAM

SHORELINE CHANGE MAP
TAMIL NADU & PUDUCHERRY

Restricted Use

58 M / 13 / NW

Map No. : NCCR/SCM/346



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 04/04/2018

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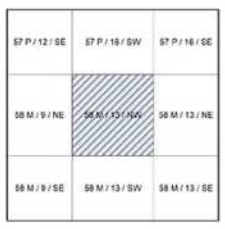
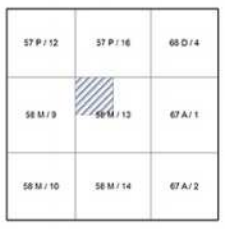


Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

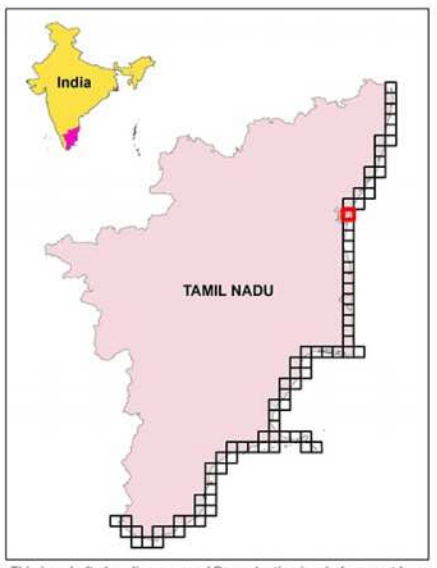
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
LISS-IV	02/06/2017
LISS-IV	06/01/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	03/18/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	07/25/1990



- Settlements
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- Breakwater
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1990 - 2018

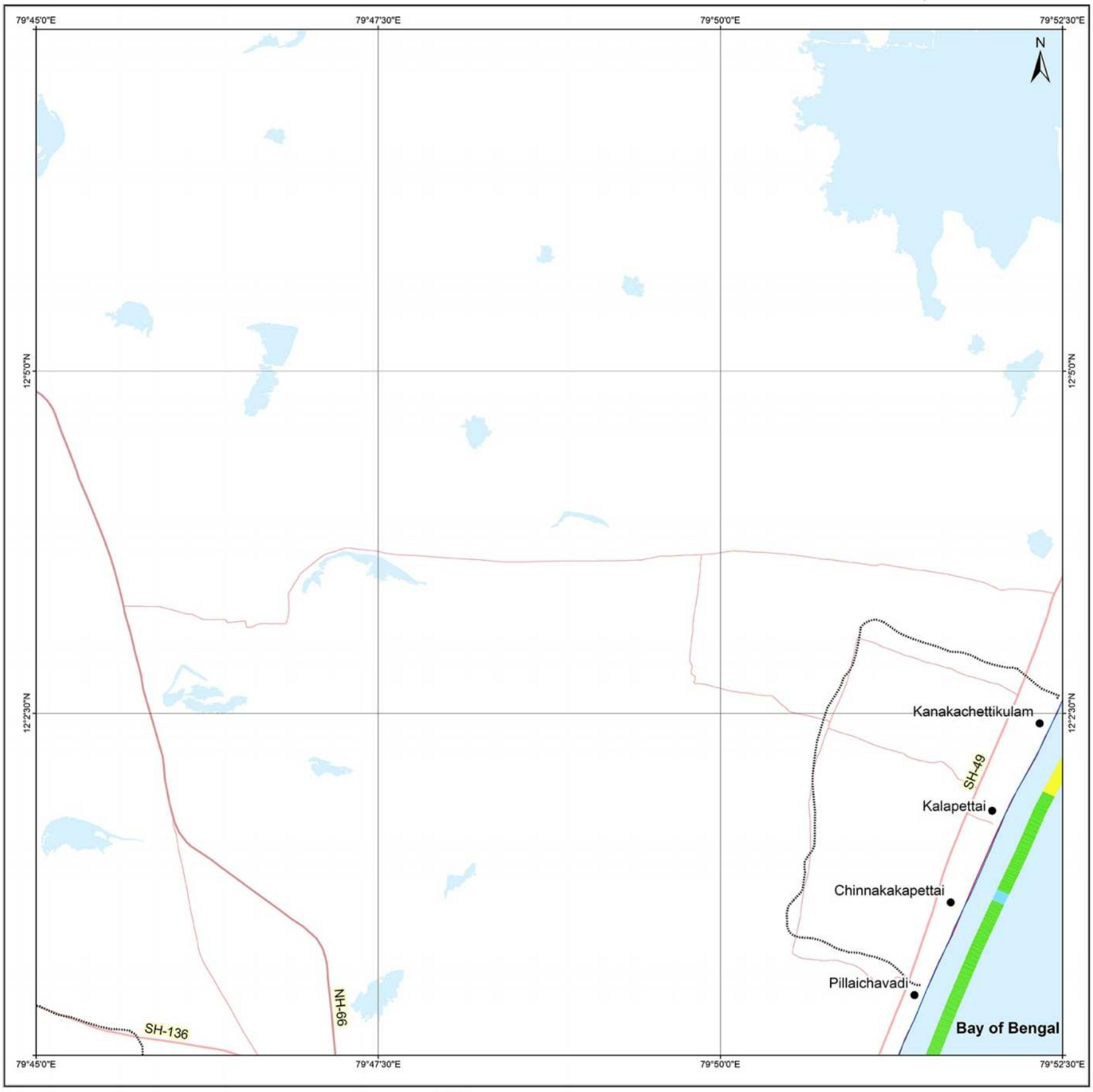
VILLUPURAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

57 P / 16 / SW

Map No. : NCCR/SCM/347



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 04/04/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
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LISS-IV	03/18/2012
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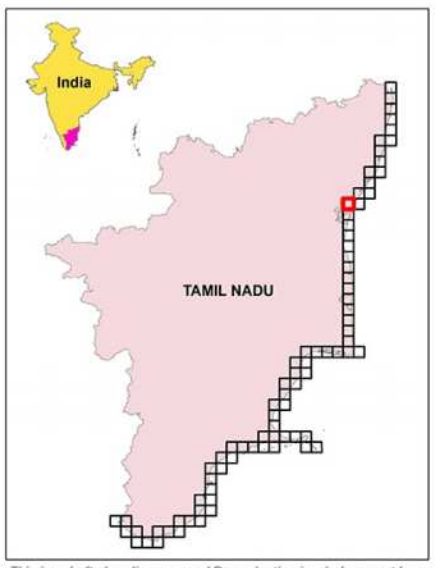

- Settlements
- Port
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- Breakwater
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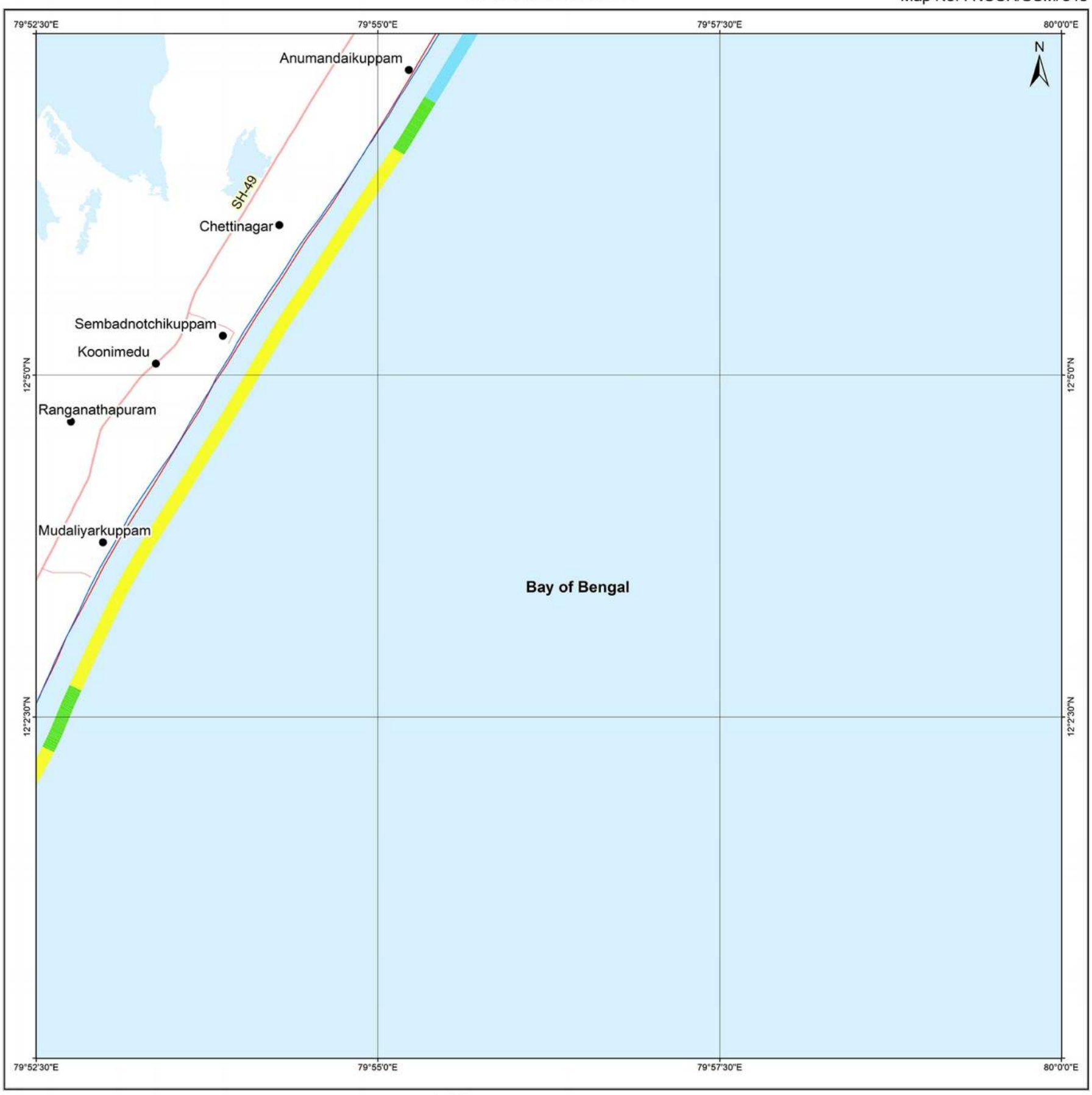
KANCHEEPURAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

57 P / 16 / SE

Map No. : NCCR/SCM/348



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 04/04/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

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LISS-IV	03/18/2012
LISS-III	10/29/2008
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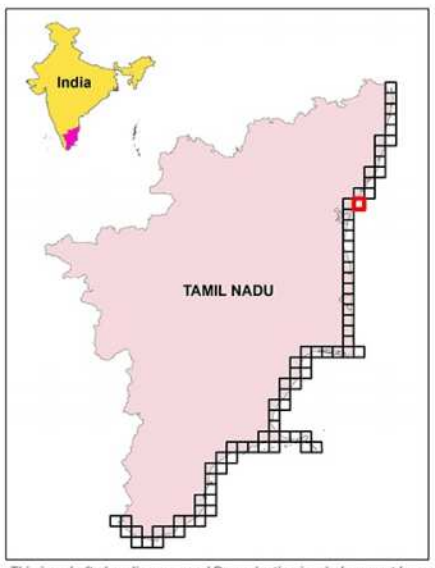
ETM+	10/28/2000
TM	07/25/1990



- Settlements
- Port
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- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
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VILLUPURAM &KANCHEEPURAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

57 P / 16 / NE

Map No. : NCCR/SCM/349

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 04/04/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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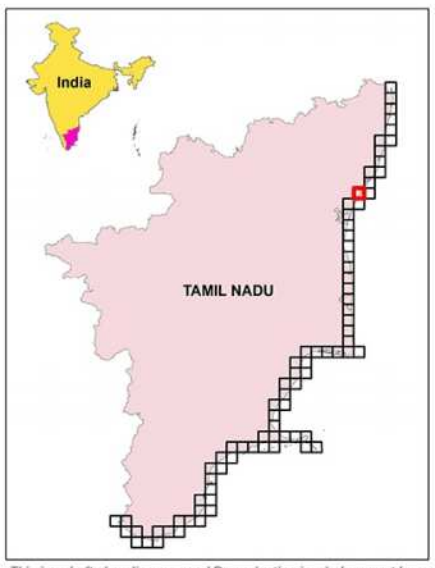
LISS-IV	03/18/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	07/25/1990



- Settlements
- Port
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- Groynes
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1990 - 2018

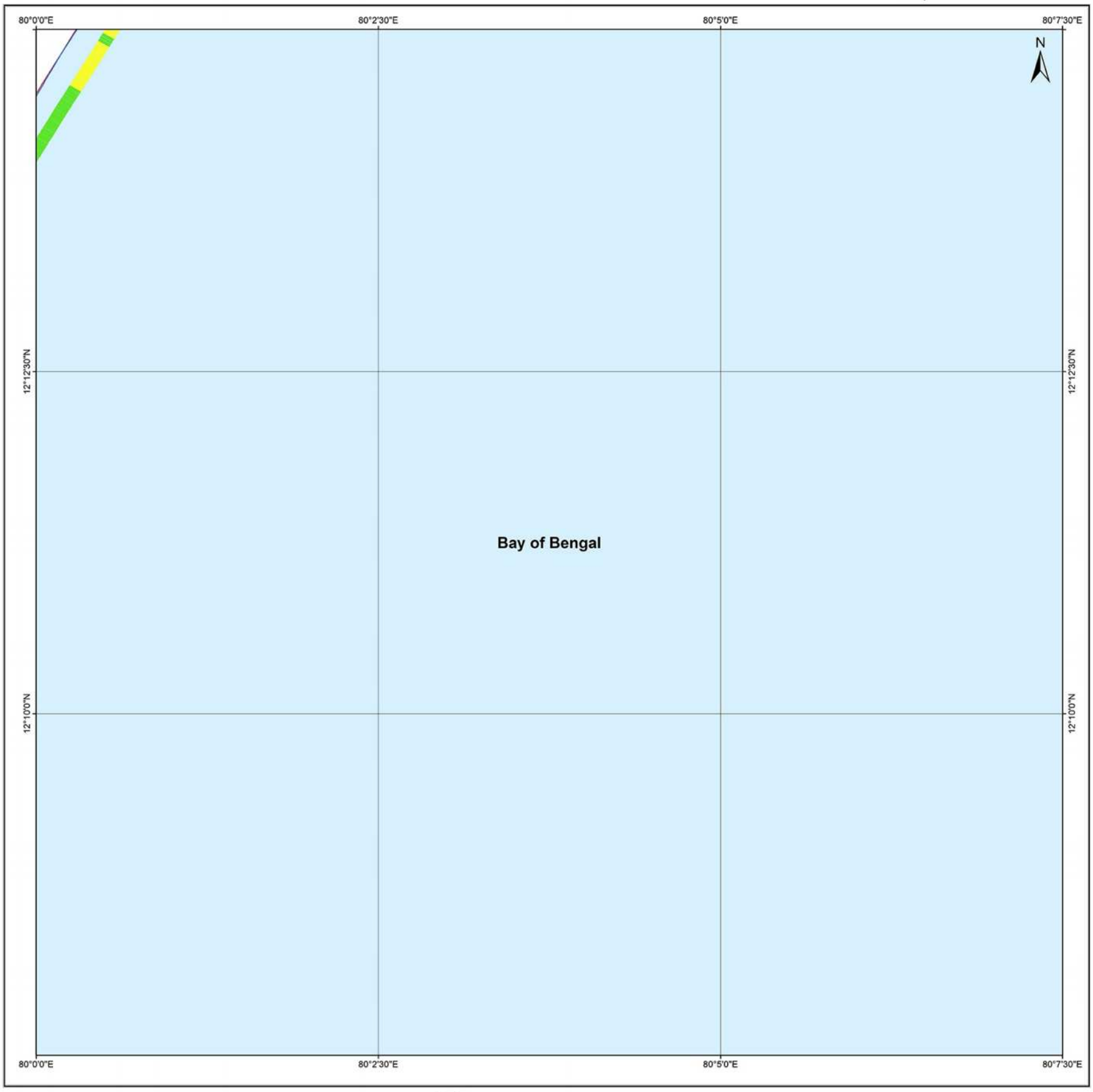
KANCHEEPURAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

66 D / 4 / NW

Map No. : NCCR/SCM/350



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

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Data Sources: Satellite Data

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LISS-IV	05/24/2013
LISS-IV	03/18/2012
LISS-III	10/29/2008
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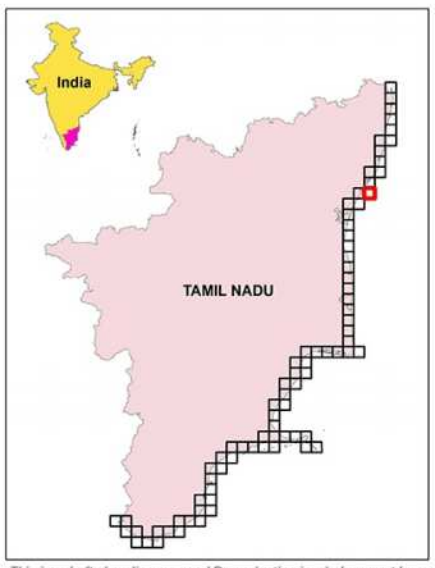
ETM+	10/28/2000
TM	07/25/1990



- Settlements
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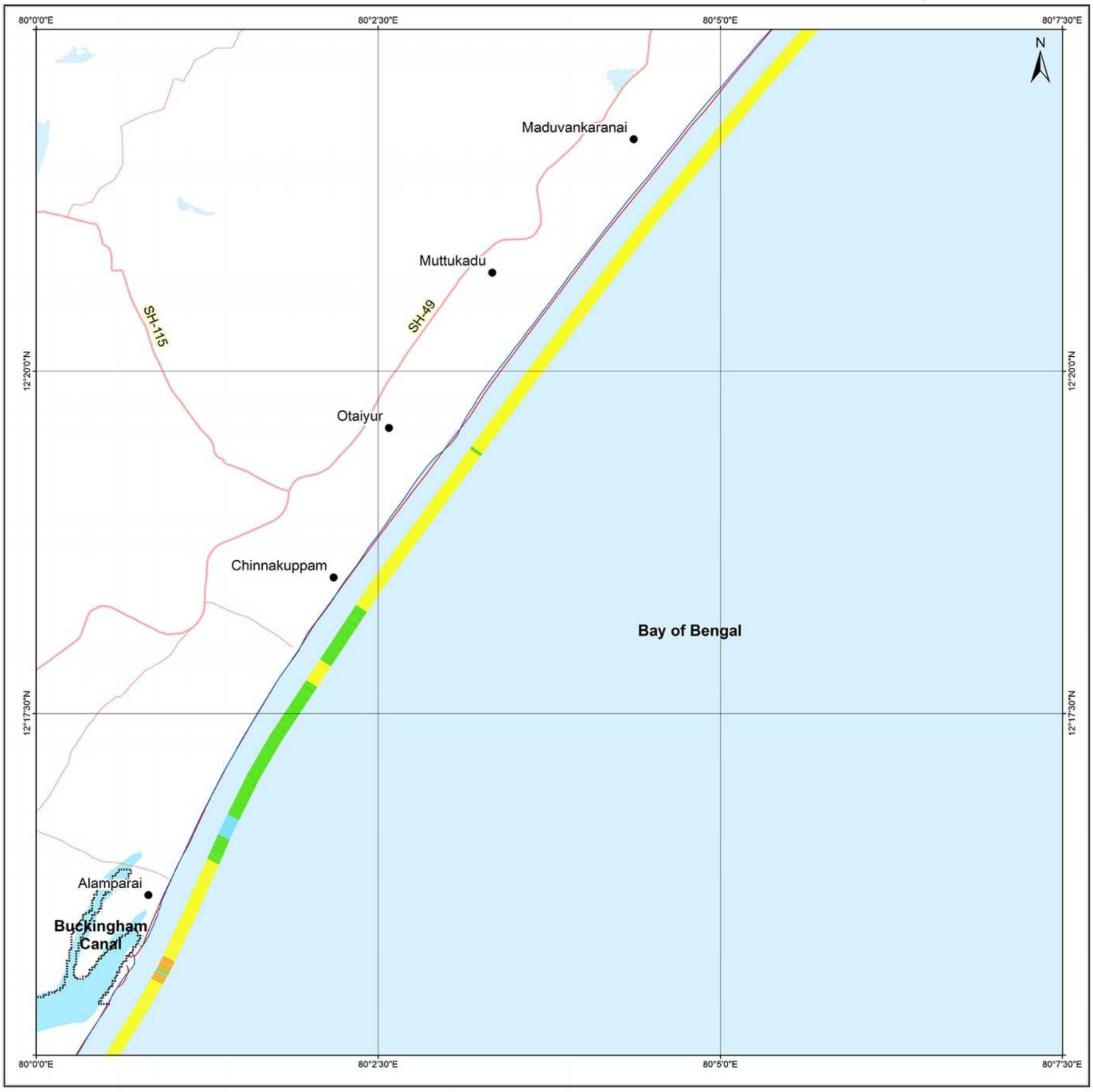
KANCHEEPURAM

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

66 D / 3 / SW

Map No. : NCCR/SCM/351



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 04/04/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

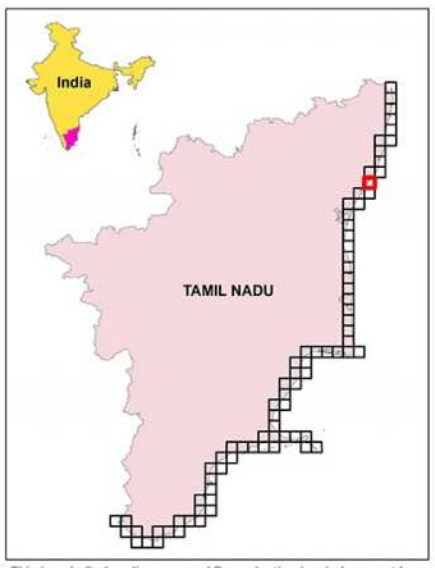
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
LISS-IV	02/06/2017
LISS-IV	04/14/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	03/18/2012
LISS-III	10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	07/25/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
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1990 - 2018

KANCHEEPURAM

SHORELINE CHANGE MAP
TAMIL NADU

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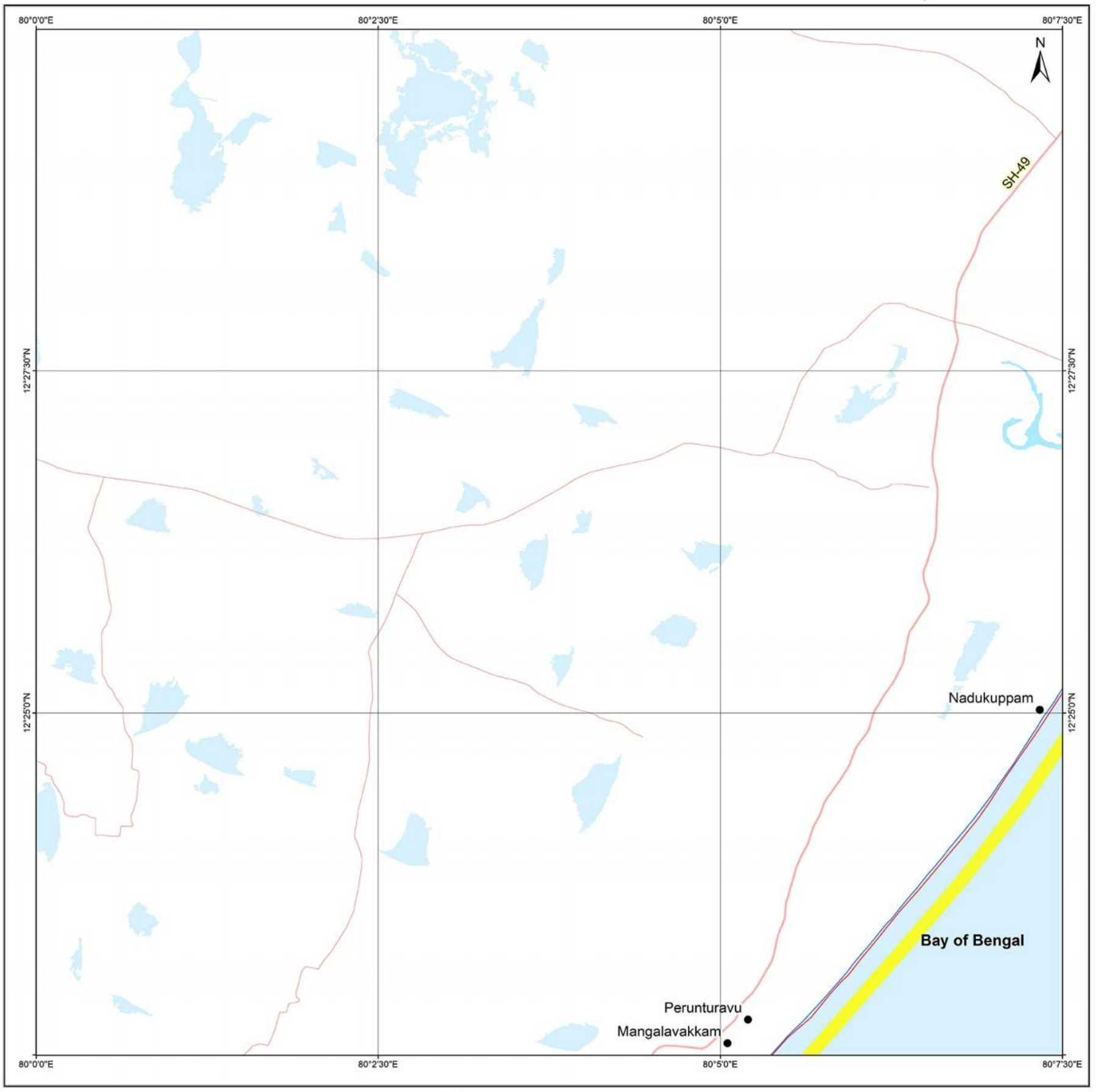
Map No. : NCCR/SCM/352



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 04/04/2018

Index to sheets

Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

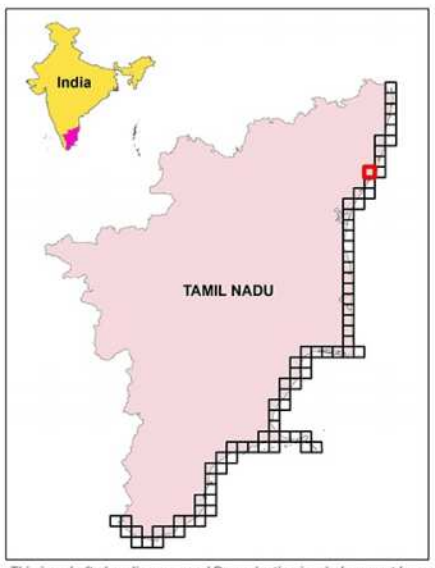
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
LISS-IV	02/06/2017
LISS-IV	04/14/2016
LISS-IV	07/01/2015
LISS-IV	06/12/2014
LISS-IV	05/24/2013
LISS-IV	03/18/2012
LISS-III	05/14/2008 & 10/29/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000
TM	07/25/1990



- Settlements
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- Breakwater
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SHORELINE CHANGE MAP
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Map No. : NCCR/SCM/353

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 04/04/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
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LISS-IV	06/12/2014
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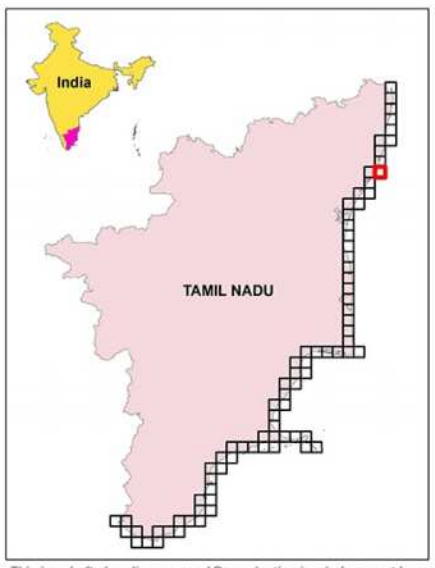
LISS-IV	03/18/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	10/28/2000 & 08/28/2000
TM	07/25/1990



- Settlements
- Port
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- Breakwater
- Seawall/Ripraps
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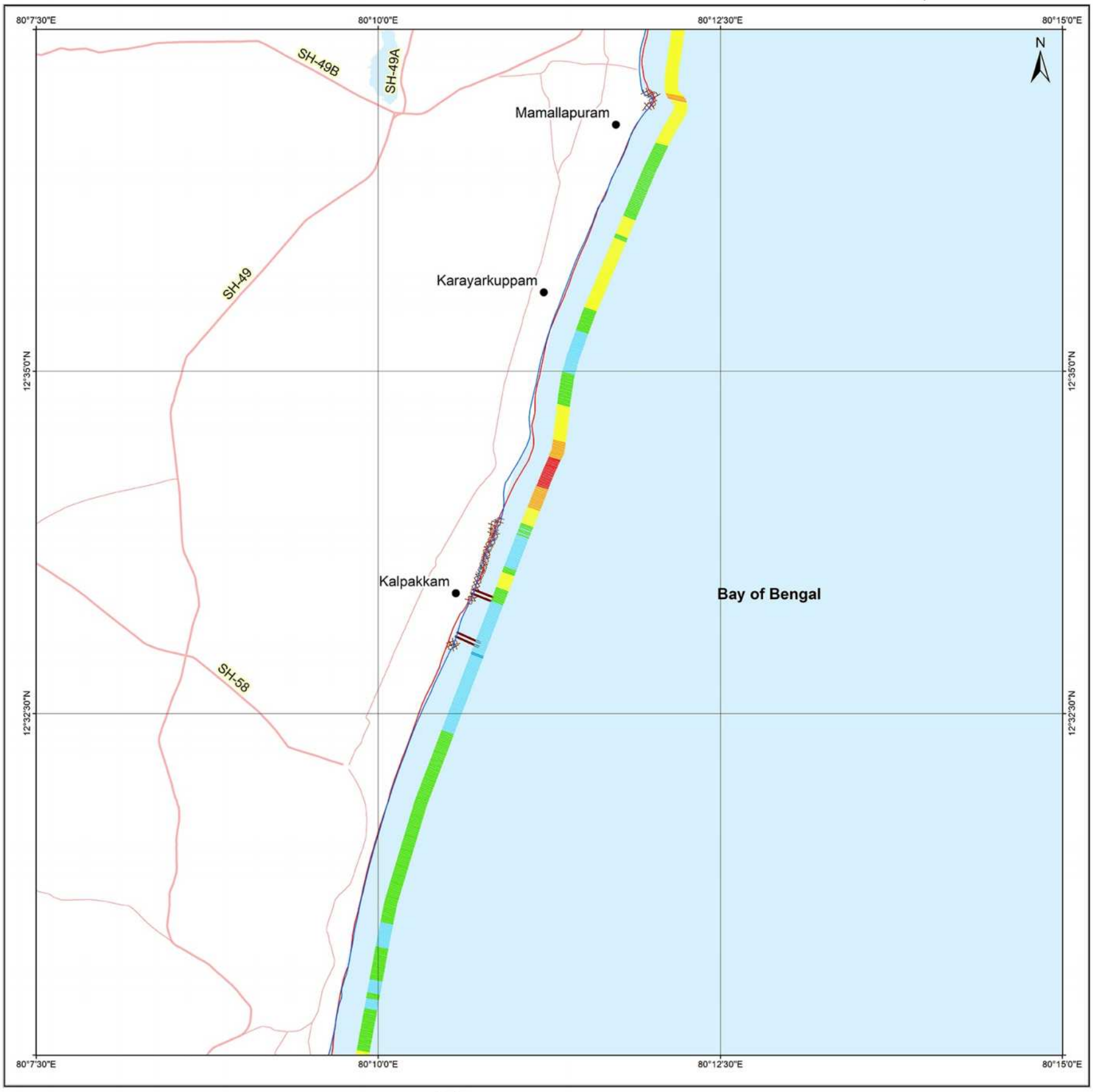
Map No. : NCCR/SCM/354



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 04/04/2018 & 08/26/2018

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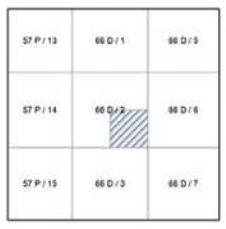


Scale

1000 m 500 0 1 2 km

1:25,000

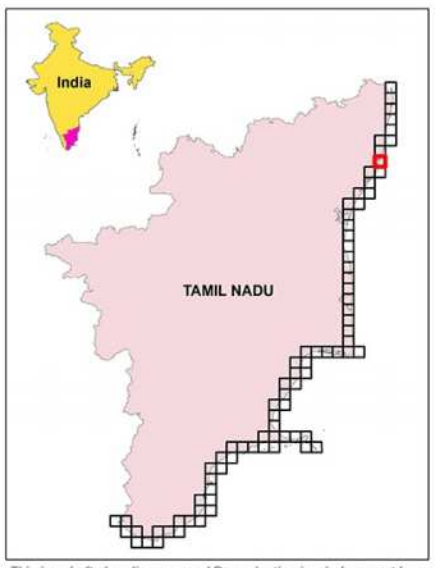
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018 & 08/26/2018
LISS-IV	02/06/2017
LISS-IV	04/14/2016
LISS-IV	07/01/2015
LISS-IV	04/25/2014
LISS-IV	04/06/2013
LISS-IV	03/18/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	08/28/2000
TM	07/25/1990



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SHORELINE CHANGE MAP
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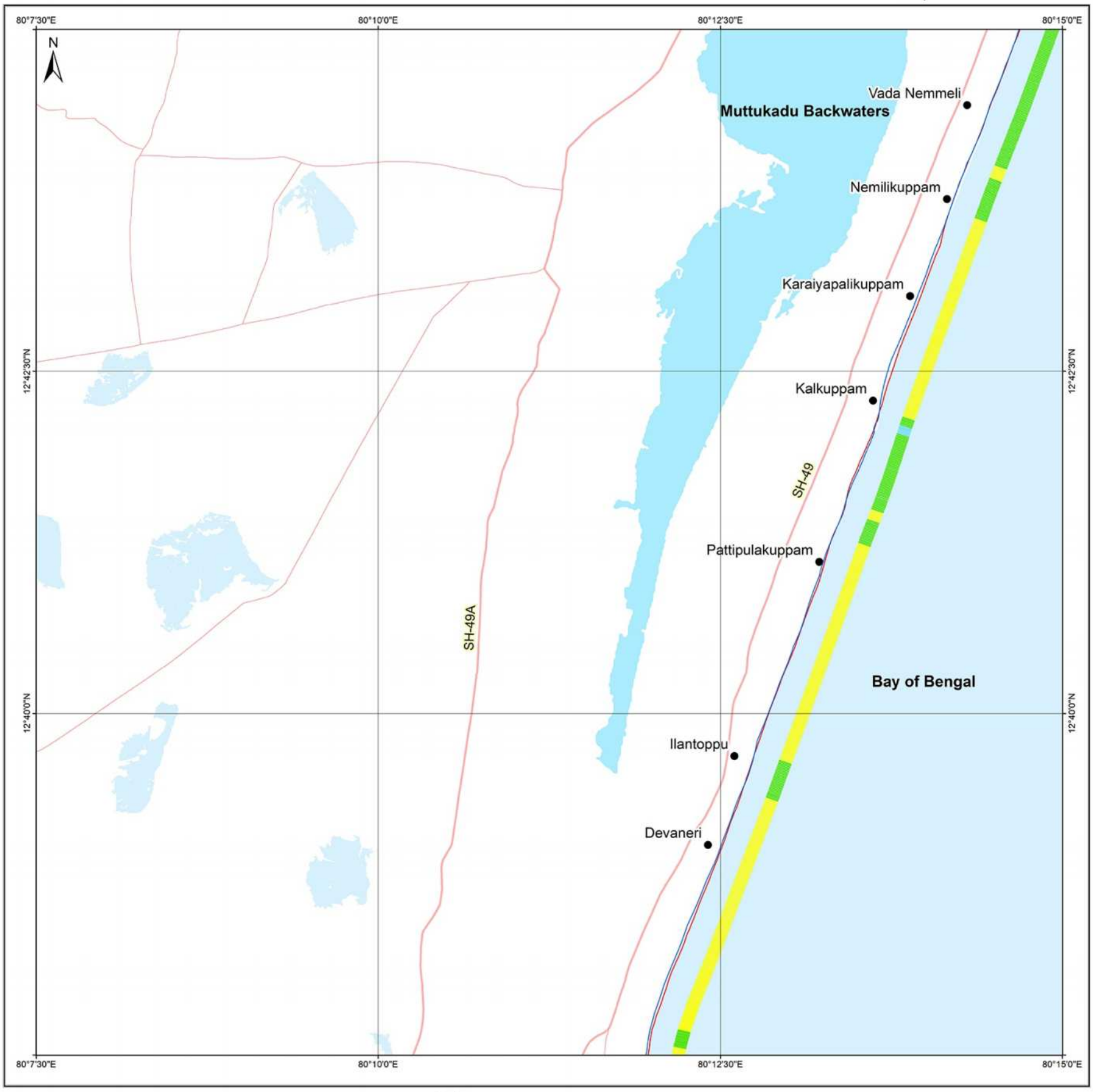
Map No. : NCCR/SCM/355



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 08/26/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	08/26/2018
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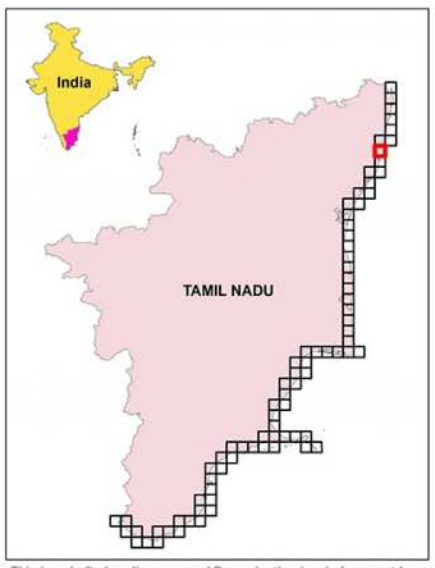
LISS-IV	03/18/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	08/28/2000
TM	07/25/1990



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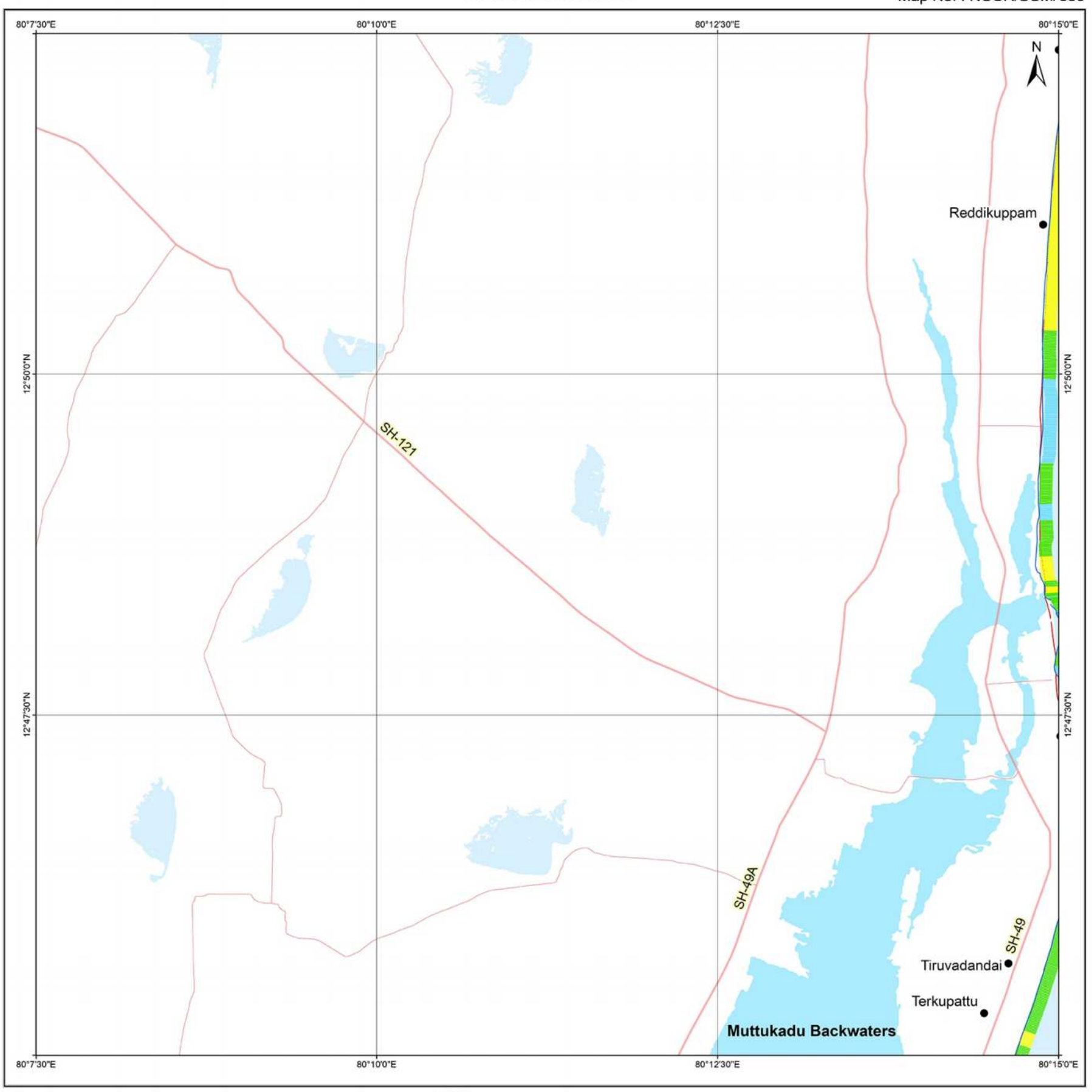
Map No. : NCCR/SCM/356



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 08/26/2018

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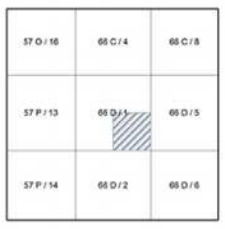

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

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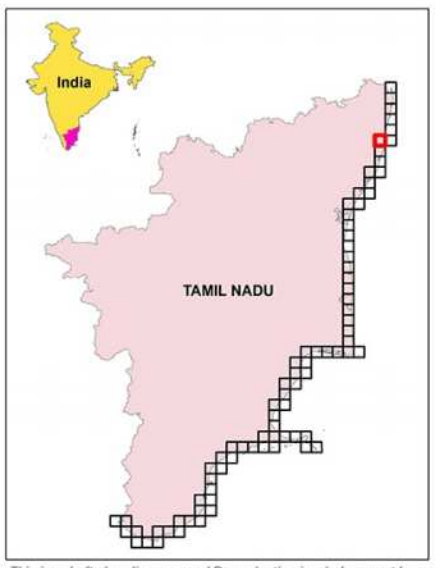

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SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

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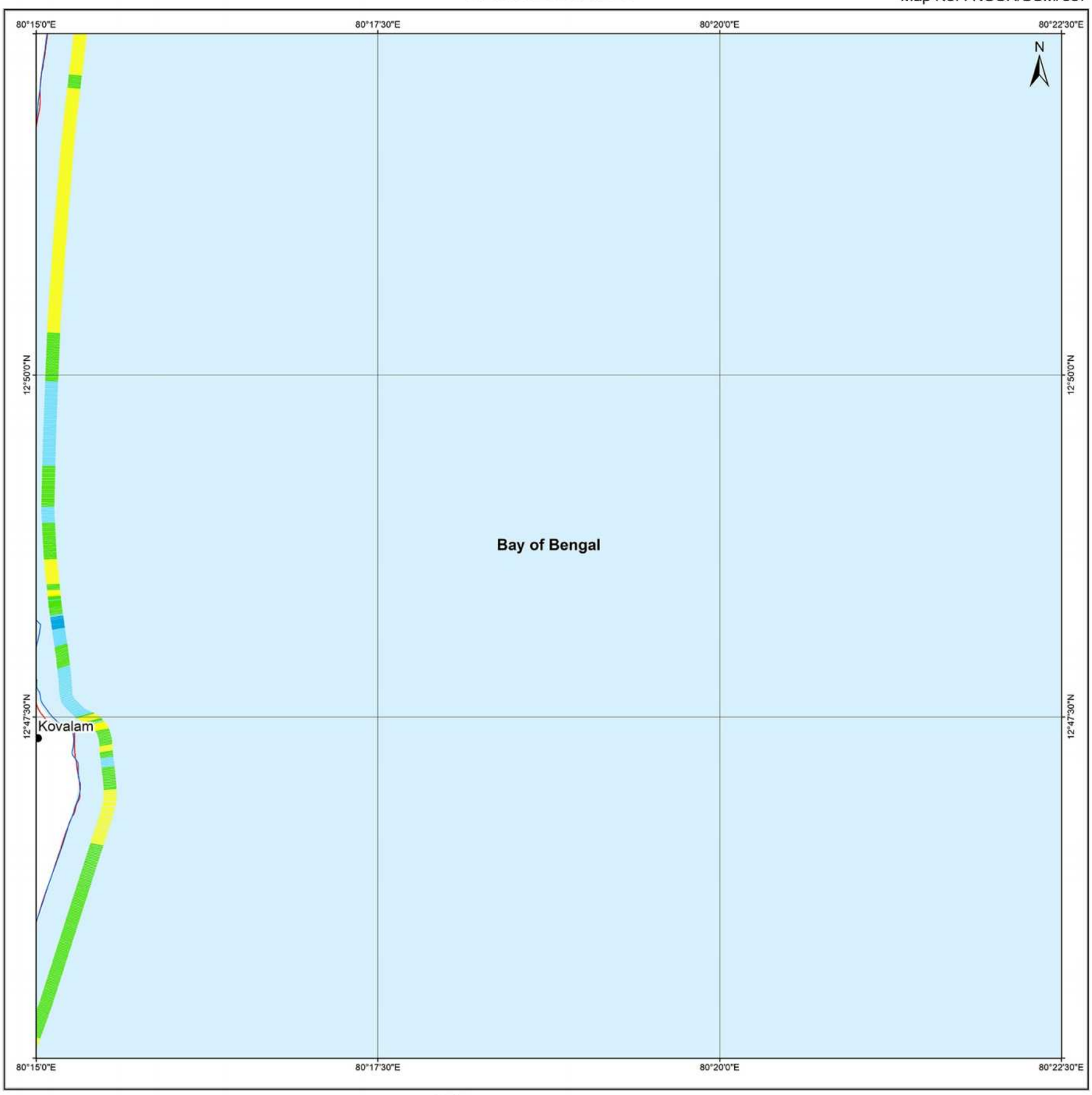
Map No. : NCCR/SCM/357



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
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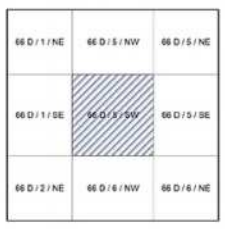

Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	08/26/2018
LISS-IV	02/06/2017
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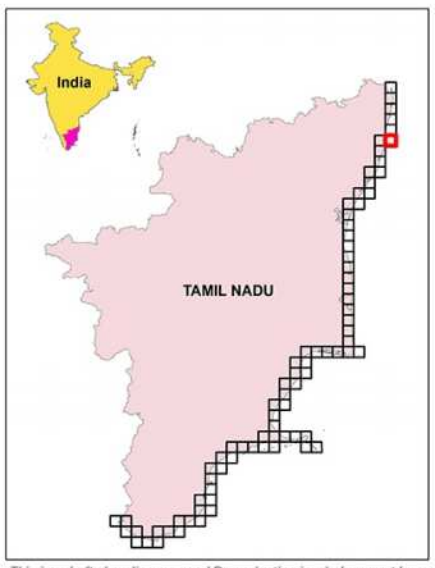
LISS-IV	07/01/2015
LISS-IV	04/25/2014
LISS-IV	04/06/2013
LISS-IV	03/18/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	08/28/2000
TM	07/25/1990



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SHORELINE CHANGE MAP
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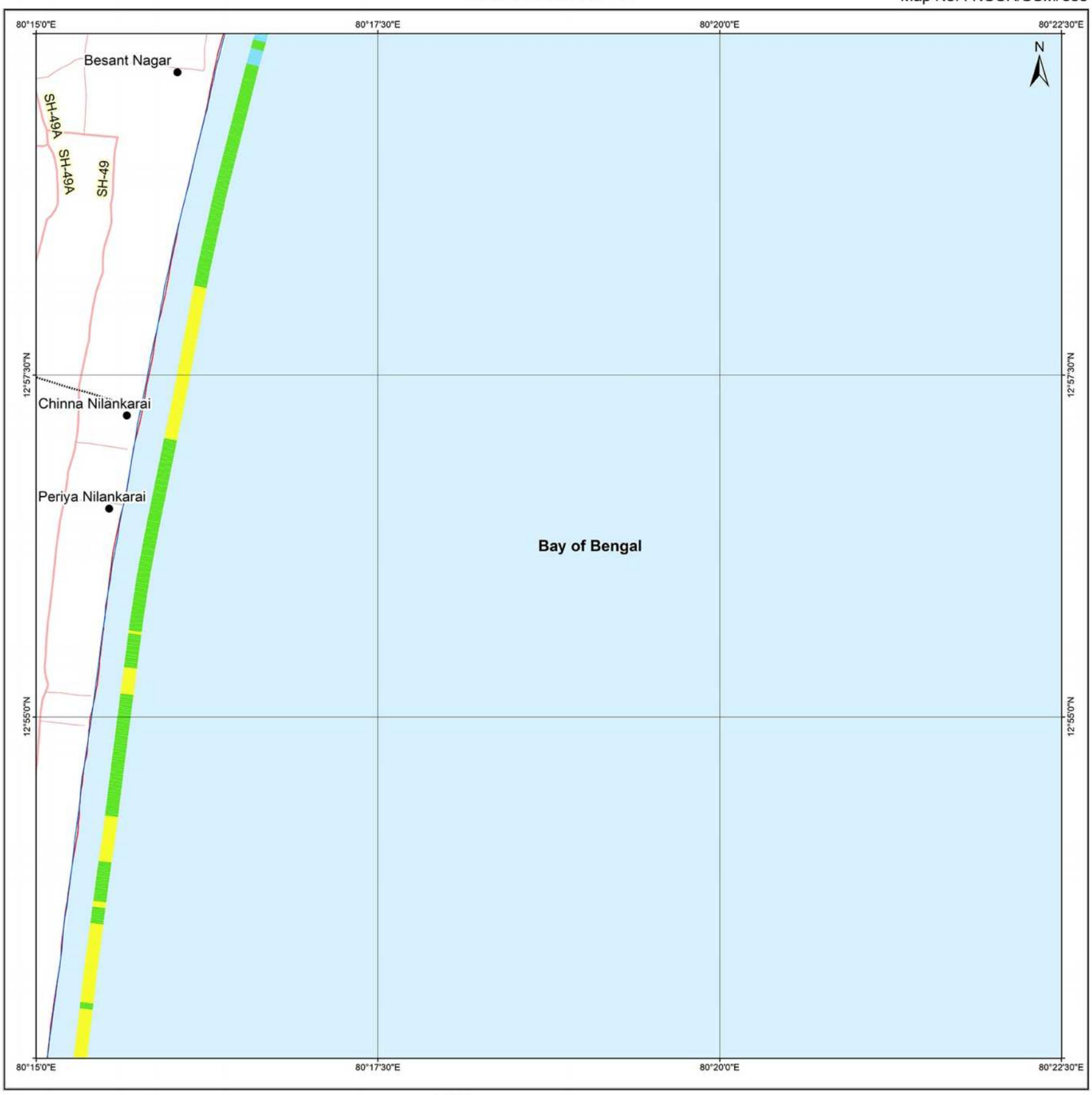
Map No. : NCCR/SCM/358



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
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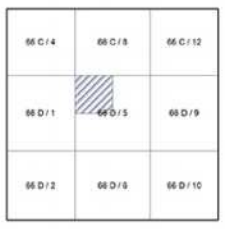

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	08/26/2018
LISS-IV	02/06/2017 & 01/03/2017
LISS-IV	04/14/2016
LISS-IV	07/01/2015
LISS-IV	04/25/2014
LISS-IV	04/06/2013
LISS-IV	03/18/2012
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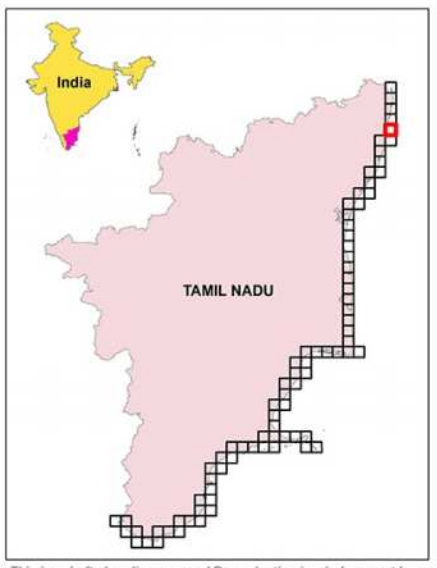
ETM+	08/28/2000
TM	07/25/1990



- Settlements
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THIRUVALLUR

SHORELINE CHANGE MAP
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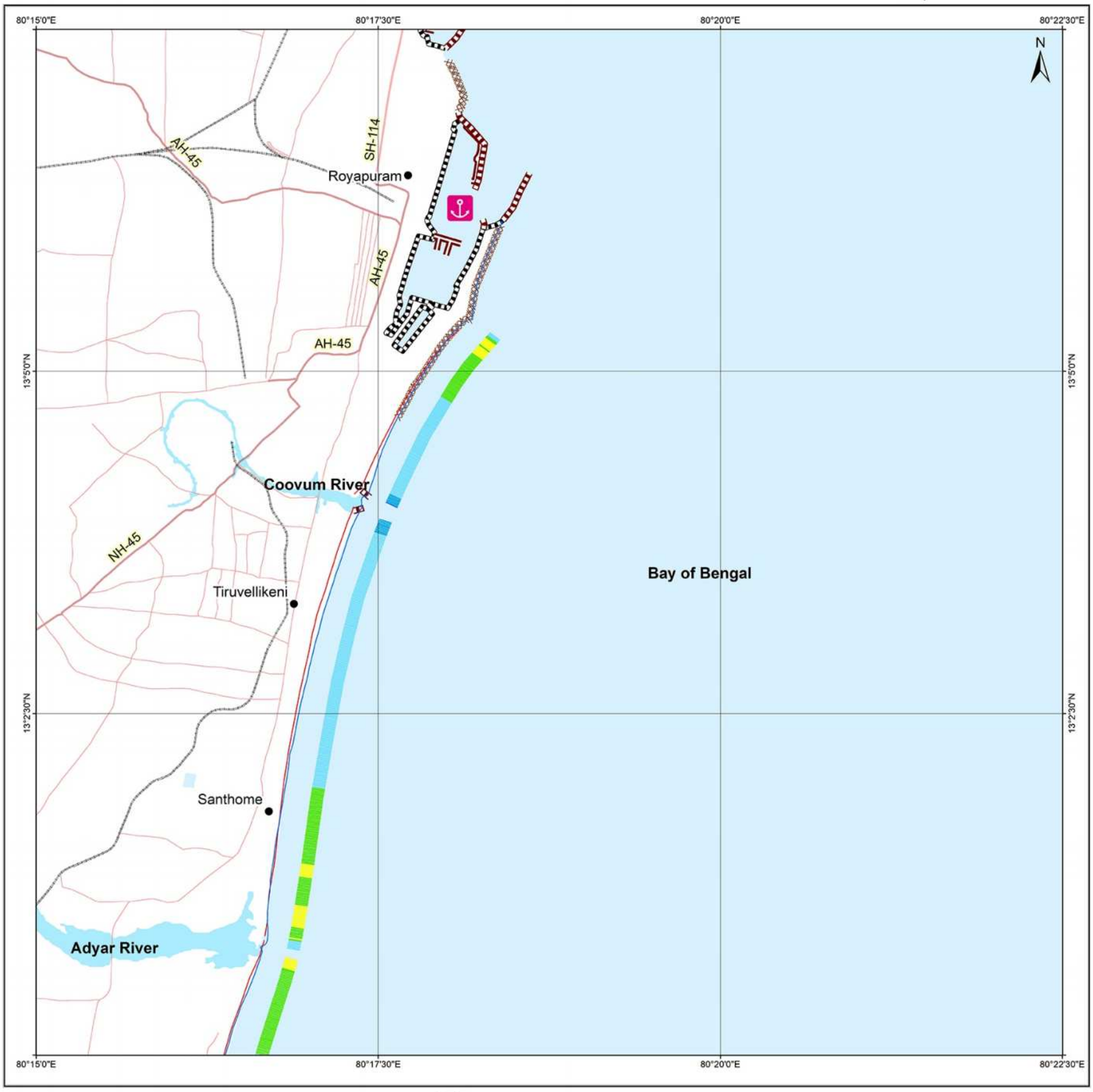
Map No. : NCCR/SCM/359



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

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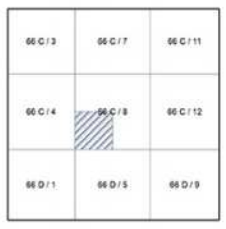

Scale

1000 m 500 0 1 2 km

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LISS-IV	04/25/2014
LISS-IV	04/06/2013
LISS-IV	03/18/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
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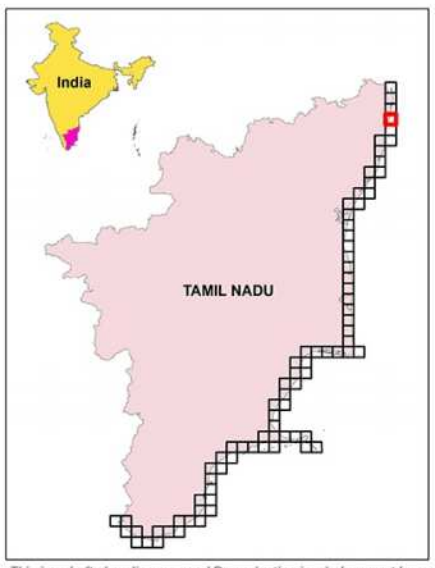
TM	07/25/1990



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SHORELINE CHANGE MAP
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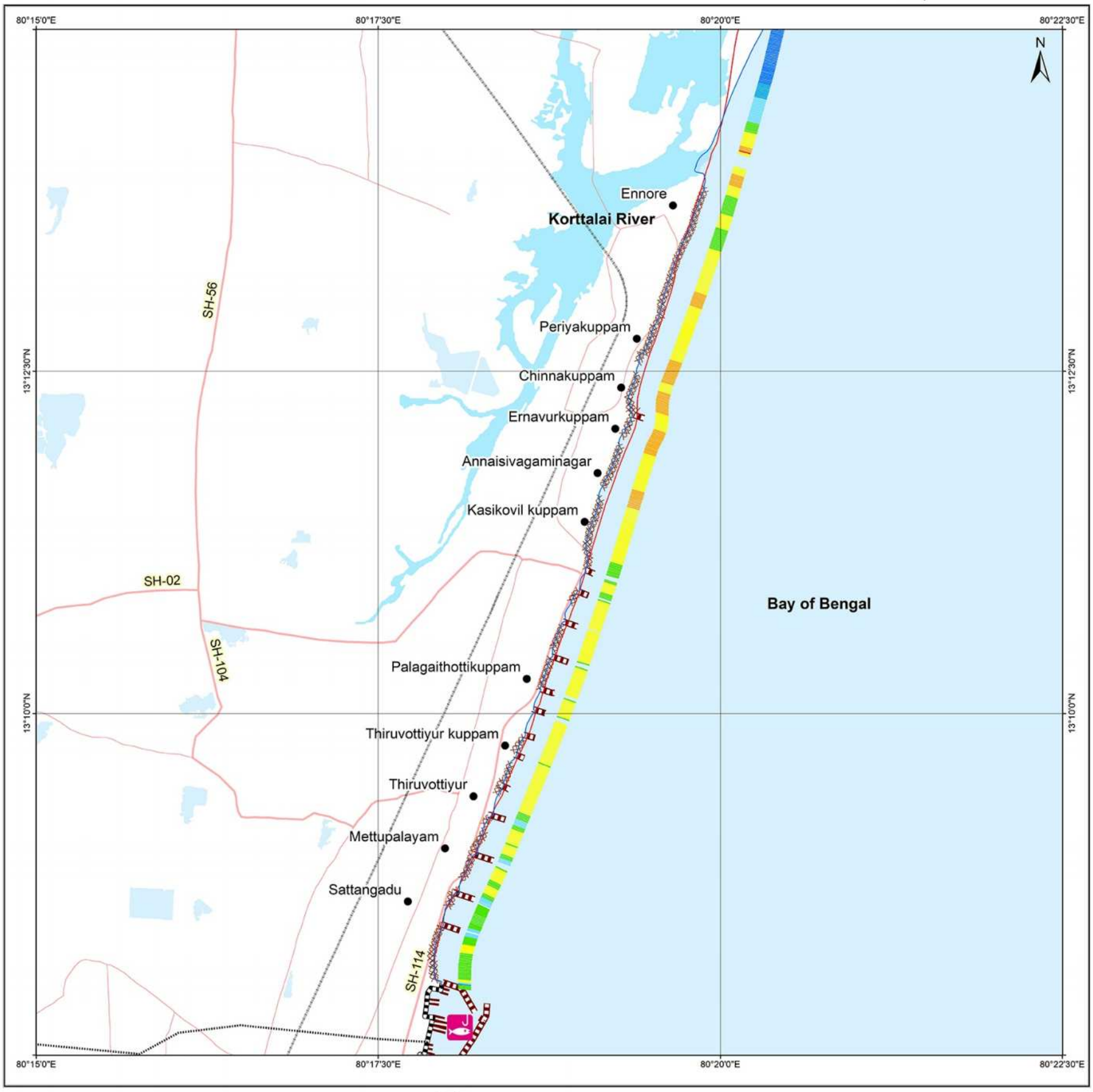
Map No. : NCCR/SCM/360



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

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LISS-IV	01/09/2016
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LISS-IV	04/06/2013
LISS-IV	03/18/2012
LISS-III	05/14/2008
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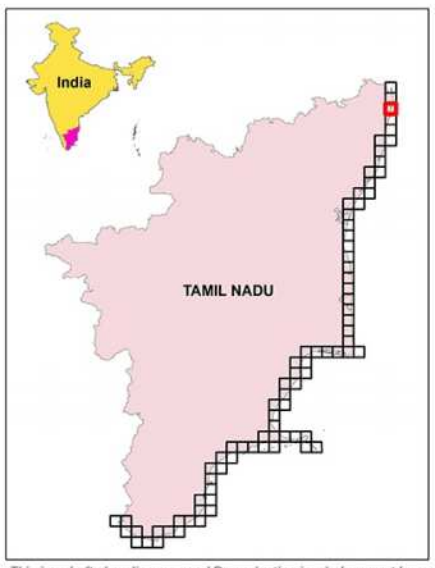
ETM+	08/28/2000
TM	07/25/1990



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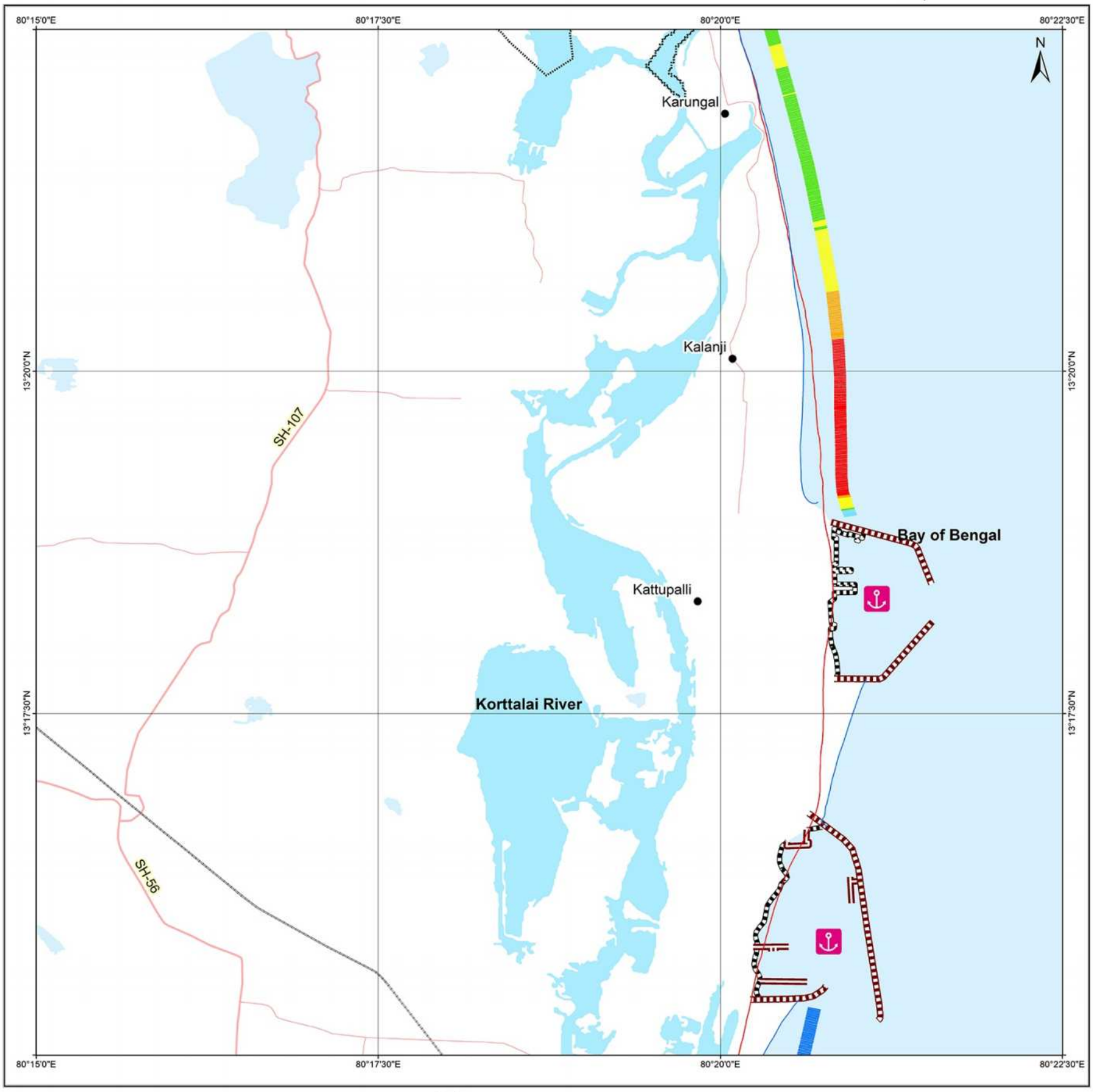
Map No. : NCCR/SCM/361



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 07/25/1990
- 04/04/2018

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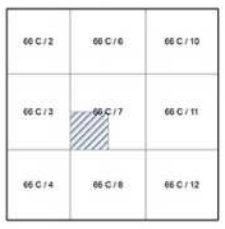
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

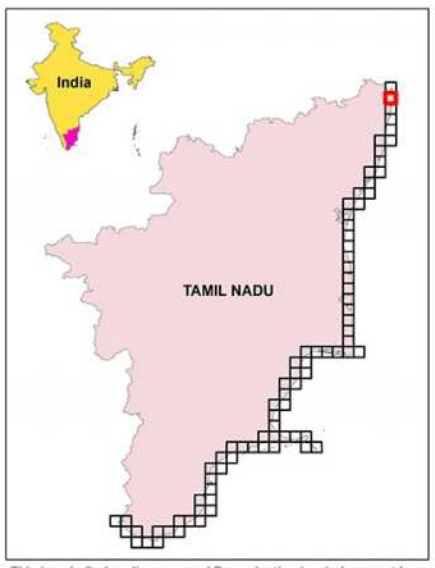
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
LISS-IV	01/03/2017
LISS-IV	01/09/2016
LISS-IV	07/01/2015
LISS-IV	04/25/2014
LISS-IV	04/06/2013
LISS-IV	03/18/2012
LISS-III	05/14/2008
PAN (Cartosat-1)	07/01/2006
ETM+	08/28/2000
TM	07/25/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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1990 - 2018

THIRUVALLUR

SHORELINE CHANGE MAP
TAMIL NADU

Restricted Use

66 C / 7 / NW

Map No. : NCCR/SCM/362

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 08/25/1991
- 04/04/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

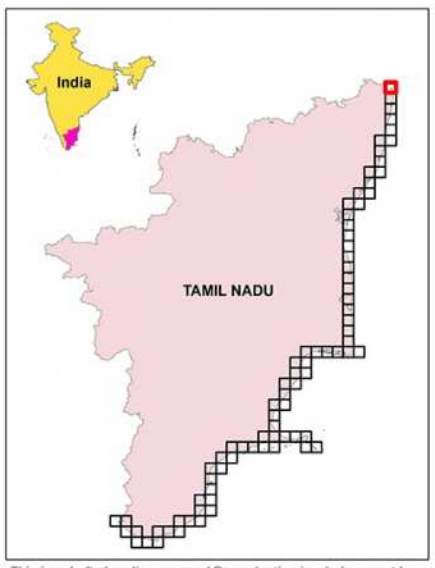
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
LISS-IV	01/03/2017
LISS-IV	01/09/2016 & 04/14/2016
LISS-IV	07/01/2015 & 02/07/2015
LISS-IV	04/25/2014 & 06/12/2014
LISS-IV	04/06/2013
LISS-IV	03/18/2012
LISS-III	05/14/2008 & 05/05/2008
PAN (Cartosat-1)	07/01/2006
ETM+	08/28/2000 & 10/28/2000
TM	08/25/1991



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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Andhra Pradesh

1990 - 2018
NELLORE

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use
66 C / 6 / SW
Map No. : NCCR/SCM/363

Shoreline Change Trend for Period 1990 - 2018
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date
- 25/08/1990
- 04/04/2018

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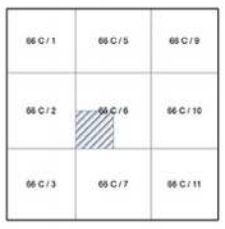
Incidence on 1:50,000 Sheets

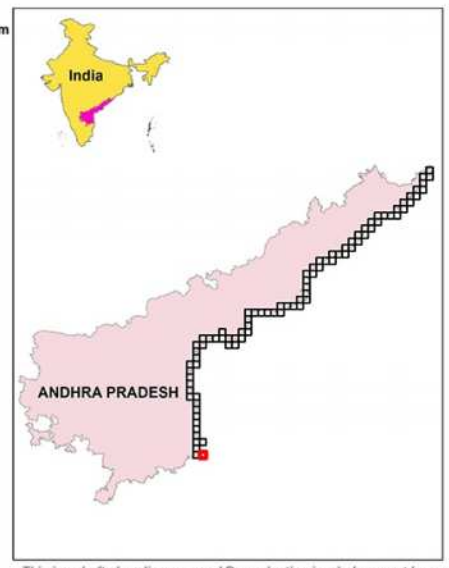


Scale
1000 m 500 0 1 2 km
1:25,000

UTM Coordinates Zone 44
Datum : The World Geodetic System 1984 (WGS84)
Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
LISS-IV	01/03/2017 &05/03/2017
LISS-IV	04/14/2016
LISS-IV	02/07/2015
LISS-IV	12/06/2014
LISS-IV	06/04/2013
LISS-IV	03/21/2012
LISS-III	05/05/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
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1990 - 2018

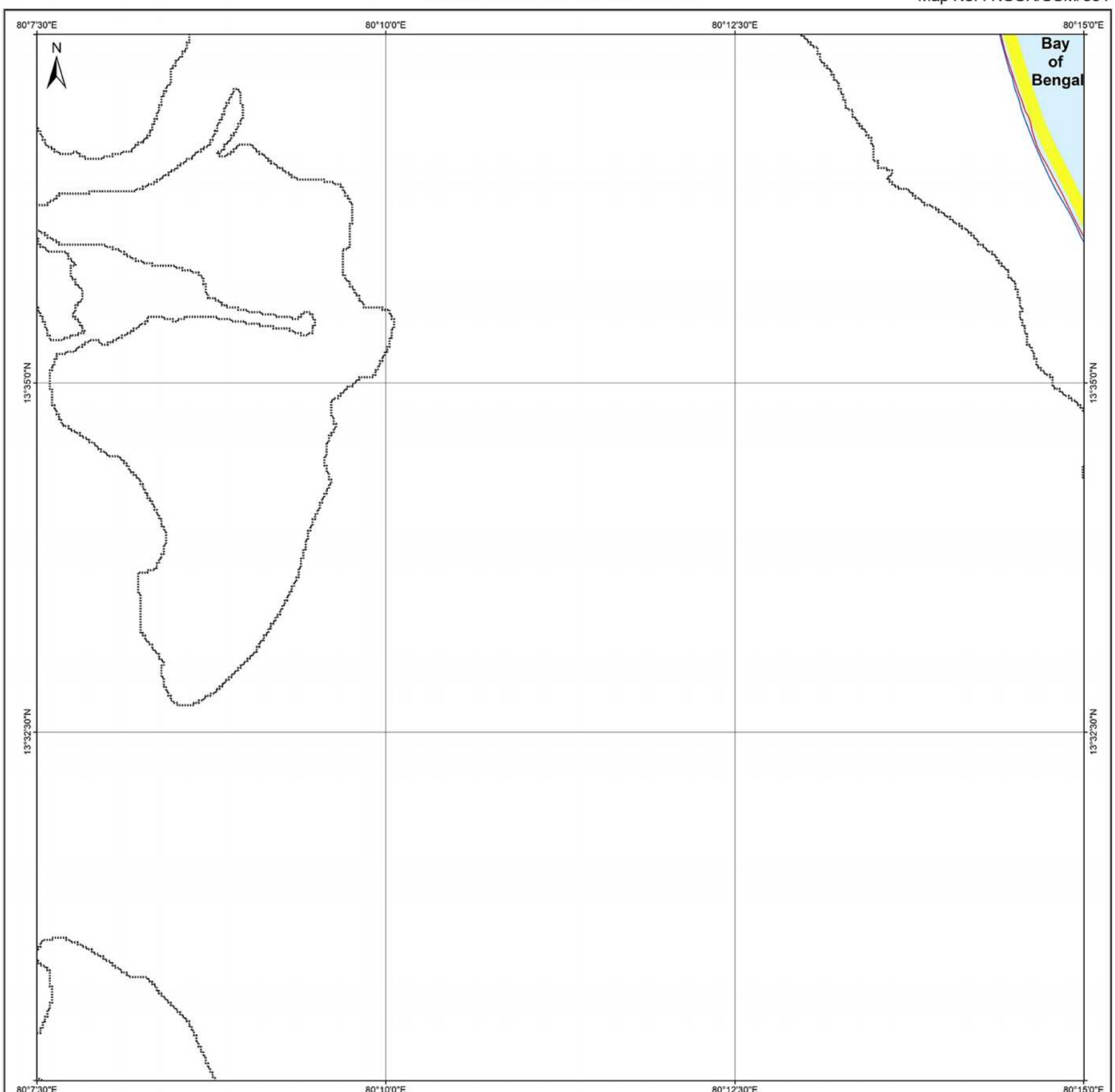
NELLORE

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

66 C / 2 / SE

Map No. : NCCR/SCM/364



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/04/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

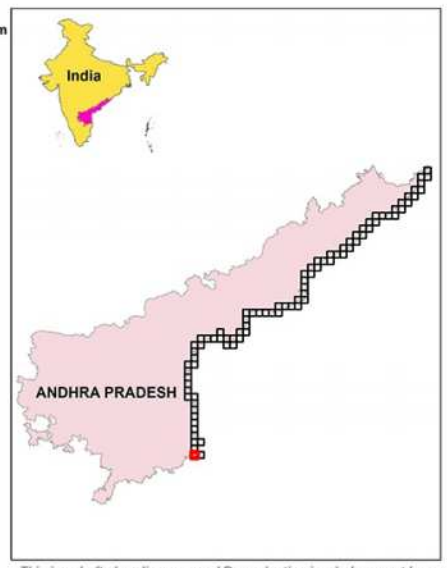
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
LISS-IV	05/03/2017
LISS-IV	04/14/2016
LISS-IV	02/07/2015
LISS-IV	12/06/2014
LISS-IV	06/04/2013
LISS-IV	03/21/2012
LISS-III	05/05/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
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SHORELINE CHANGE MAP
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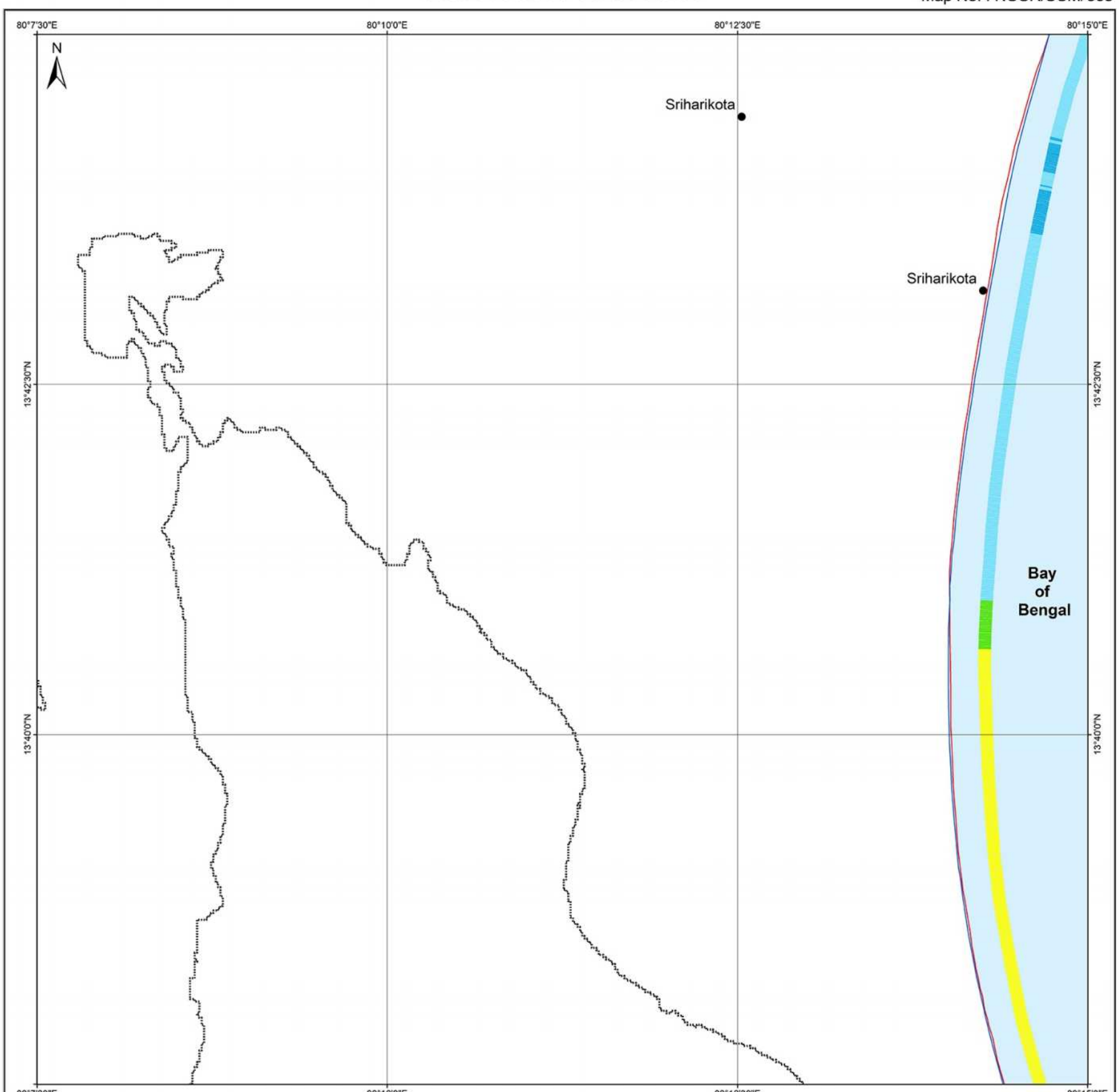
66 C / 2 / NE

Map No. : NCCR/SCM/365



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/04/2018

Index to sheets

Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

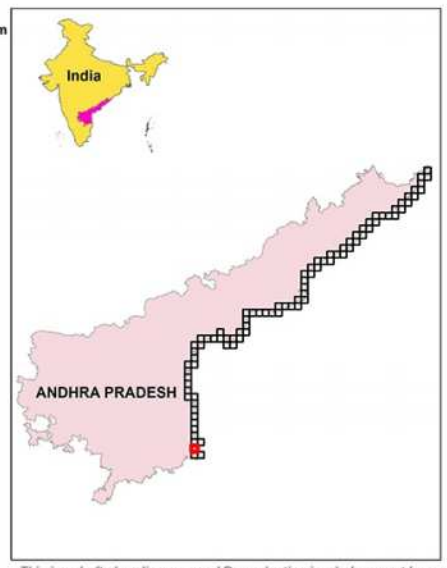
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
LISS-IV	05/03/2017
LISS-IV	04/14/2016
LISS-IV	02/07/2015
LISS-IV	12/06/2014
LISS-IV	06/04/2013
LISS-IV	05/21/2012
LISS-III	05/05/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
- Port
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SHORELINE CHANGE MAP
ANDHRA PRADESH

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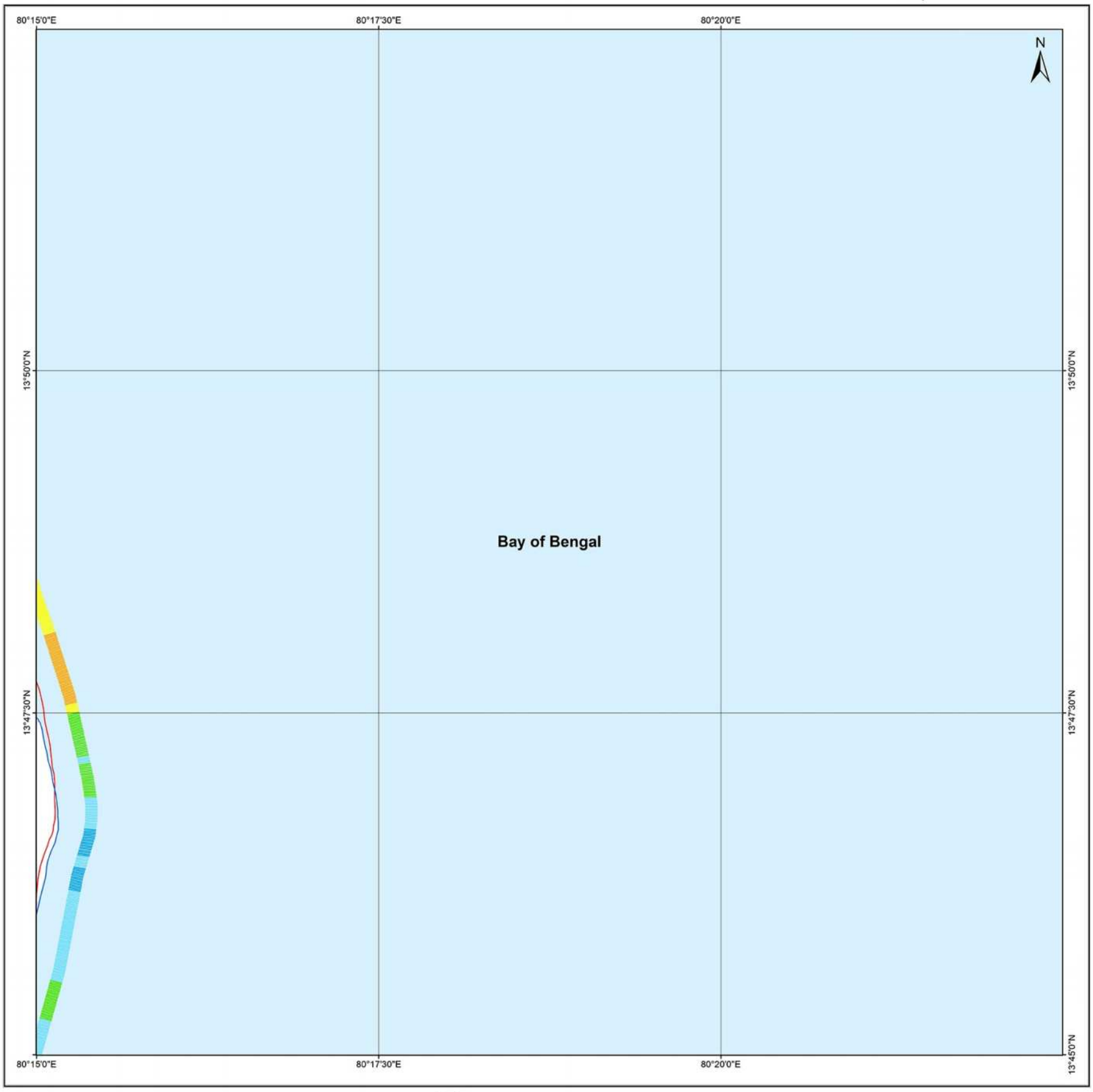
66 C / 5 / SW

Map No. : NCCR/SCM/366



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/04/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

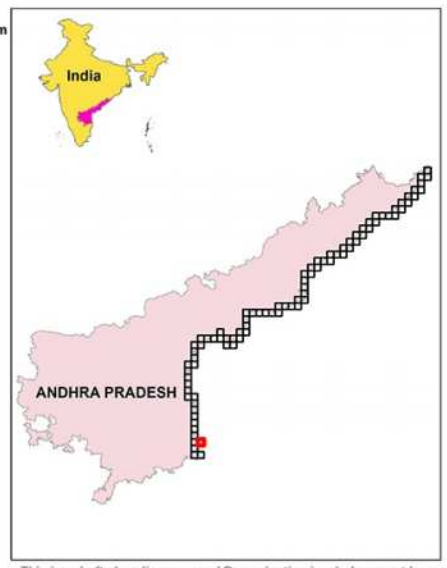
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
LISS-IV	05/03/2017
LISS-IV	04/14/2016
LISS-IV	02/07/2015
LISS-IV	12/06/2014
LISS-IV	06/04/2013
LISS-IV	05/21/2012
LISS-III	05/05/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
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1990 - 2018

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SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

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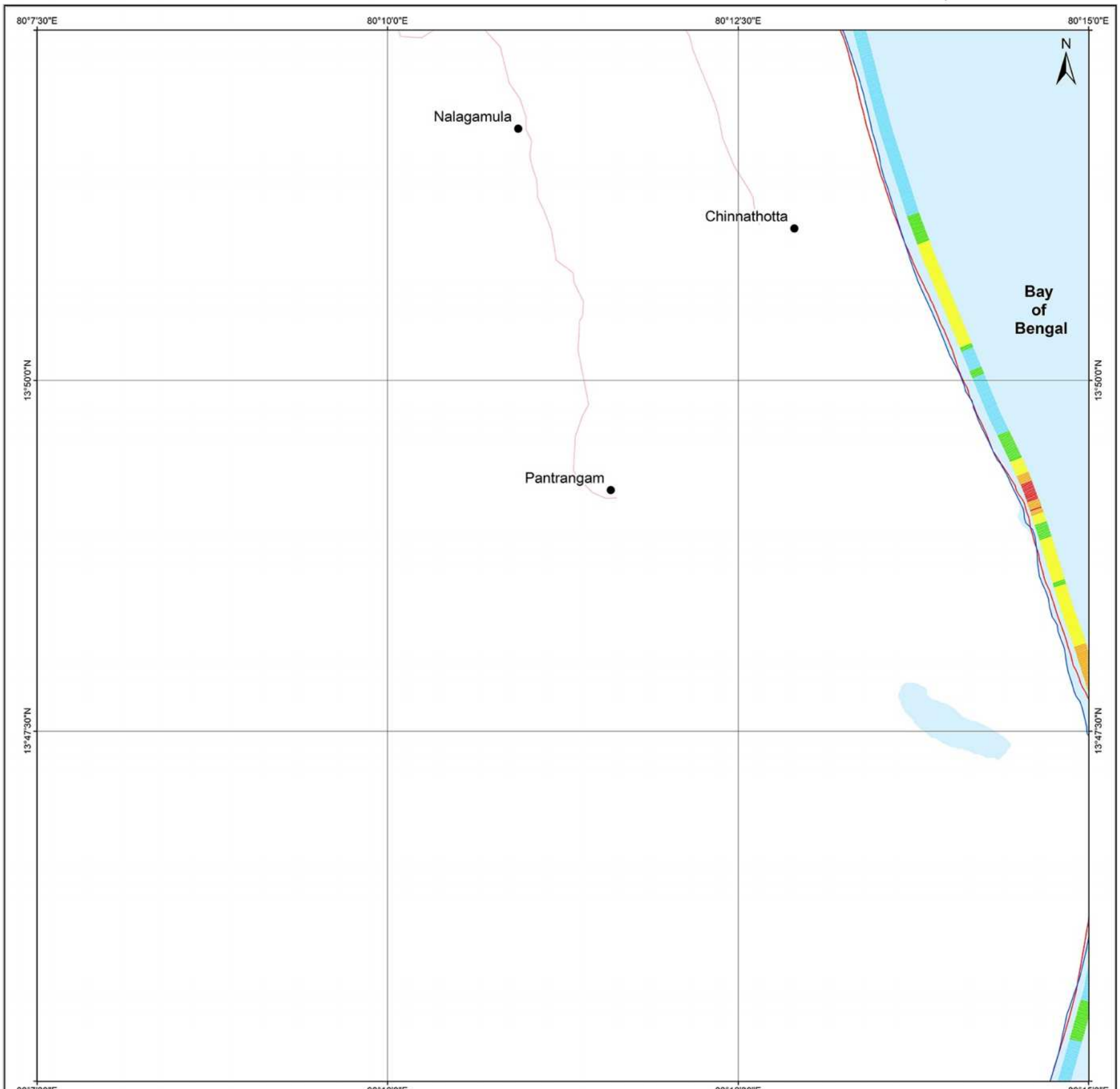
Map No. : NCCR/SCM/367



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/04/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

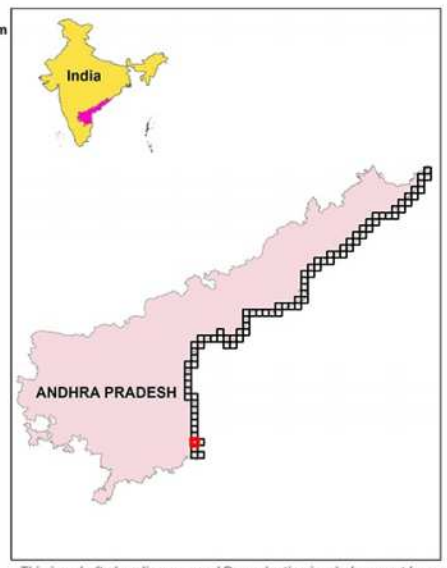
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
LISS-IV	05/03/2017
LISS-IV	04/14/2016
LISS-IV	02/07/2015
LISS-IV	12/06/2014
LISS-IV	06/04/2013
LISS-IV	05/21/2012
LISS-III	05/05/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
- Port
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- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
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- State Highways
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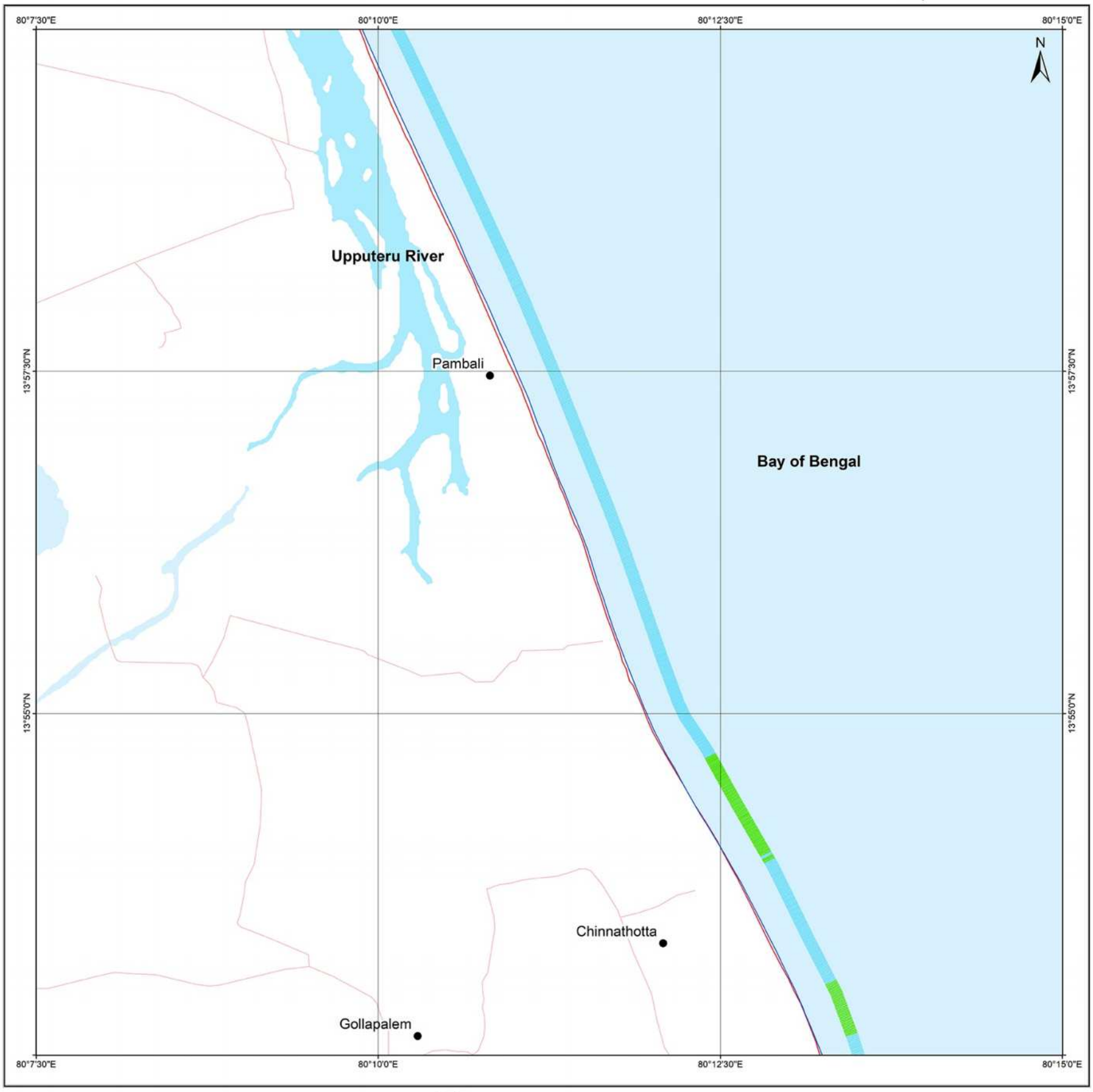
SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

66 C / 1 / NE

Map No. : NCCR/SCM/368



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/04/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

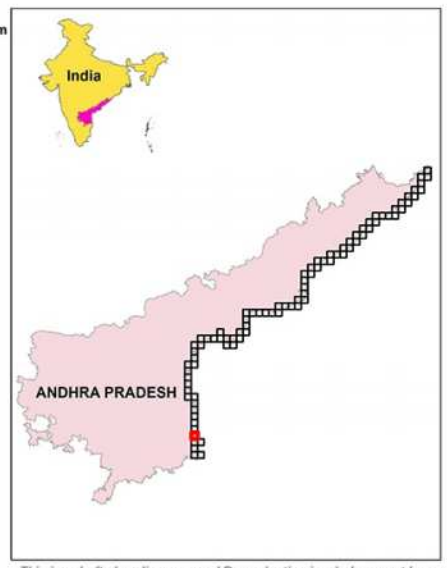
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018
LISS-IV	05/03/2017
LISS-IV	04/14/2016
LISS-IV	02/07/2015
LISS-IV	12/06/2014
LISS-IV	06/04/2013
LISS-IV	03/18/2012
LISS-III	04/19/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
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1990 - 2018

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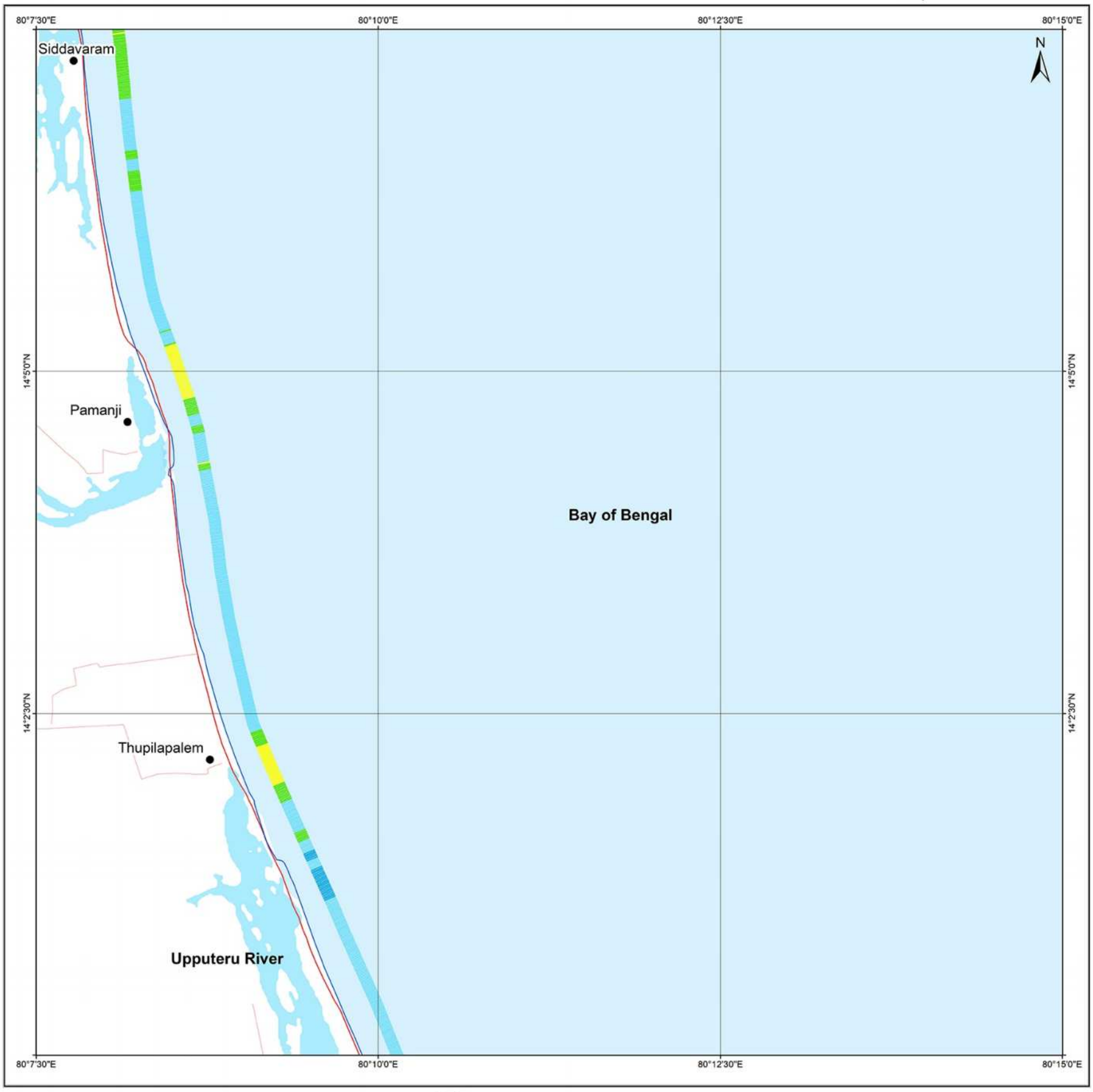
SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

66 B / 4 / SE

Map No. : NCCR/SCM/369



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/04/2018 & 04/28/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

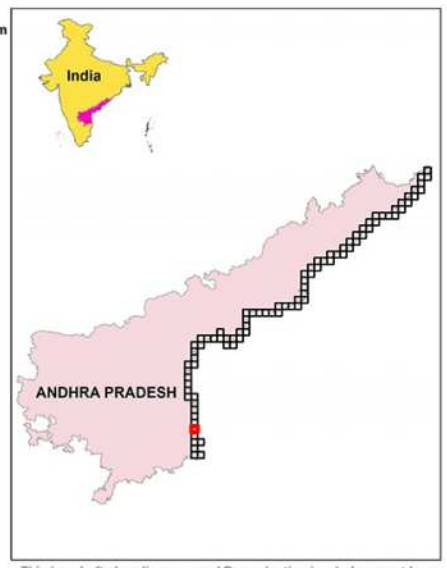
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/04/2018 &04/28/2018
LISS-IV	04/09/2017 &05/03/2017
LISS-IV	02/02/2016
LISS-IV	04/20/2015
LISS-IV	12/02/2014
LISS-IV	06/04/2013
LISS-IV	03/18/2012
LISS-III	04/19/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
- Port
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- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
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1990 - 2018

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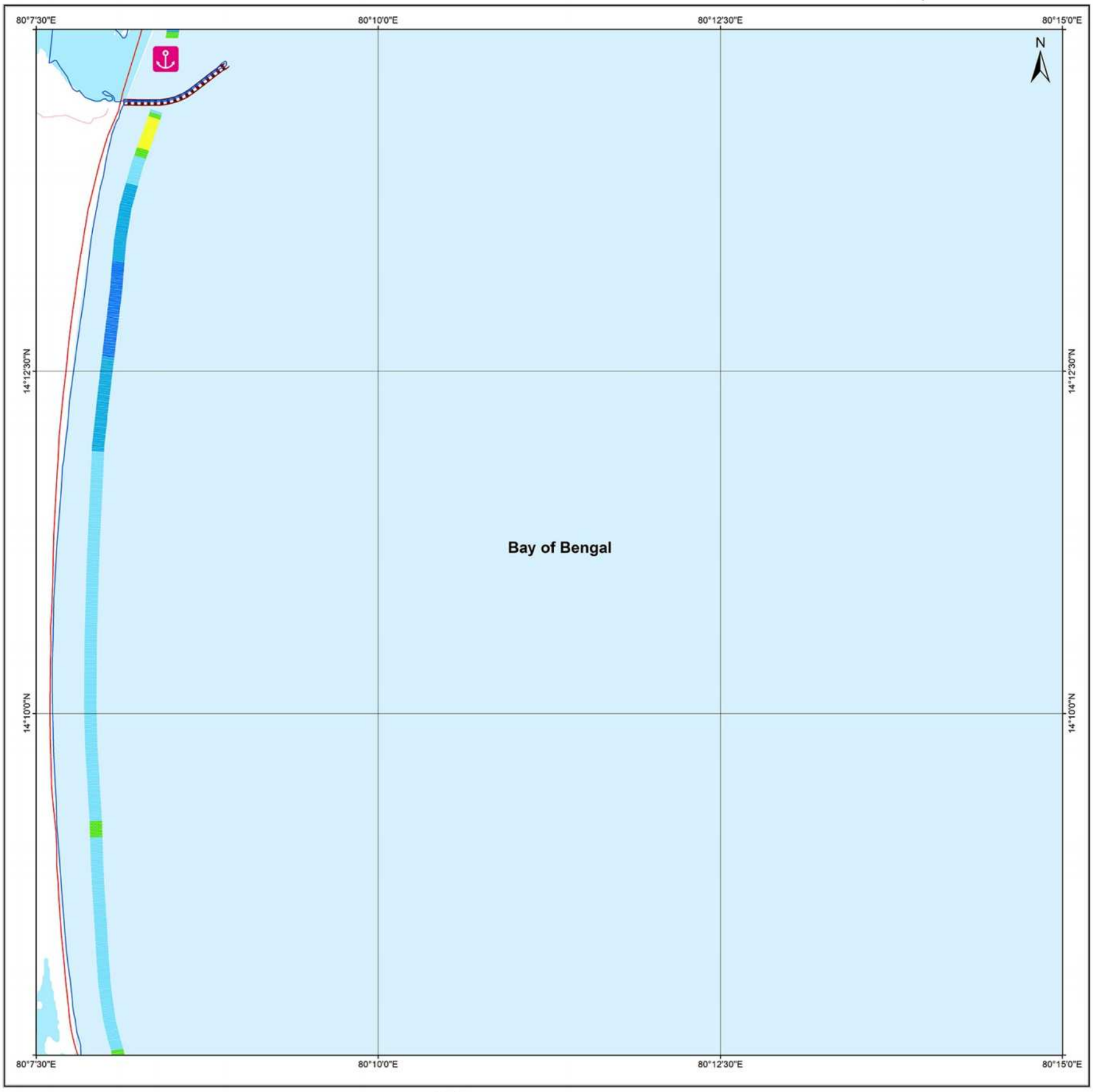
SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

66 B / 4 / NE

Map No. : NCCR/SCM/370



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/28/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

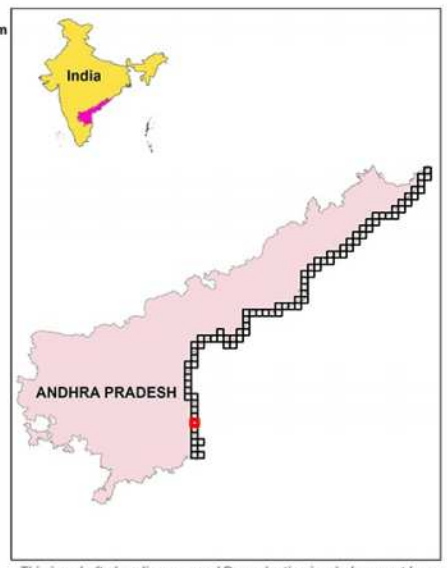
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
LISS-IV	04/09/2017
LISS-IV	02/02/2016
LISS-IV	04/20/2015
LISS-IV	12/02/2014
LISS-IV	04/30/2013
LISS-IV	03/18/2012
LISS-III	04/19/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
- Port
- Harbour
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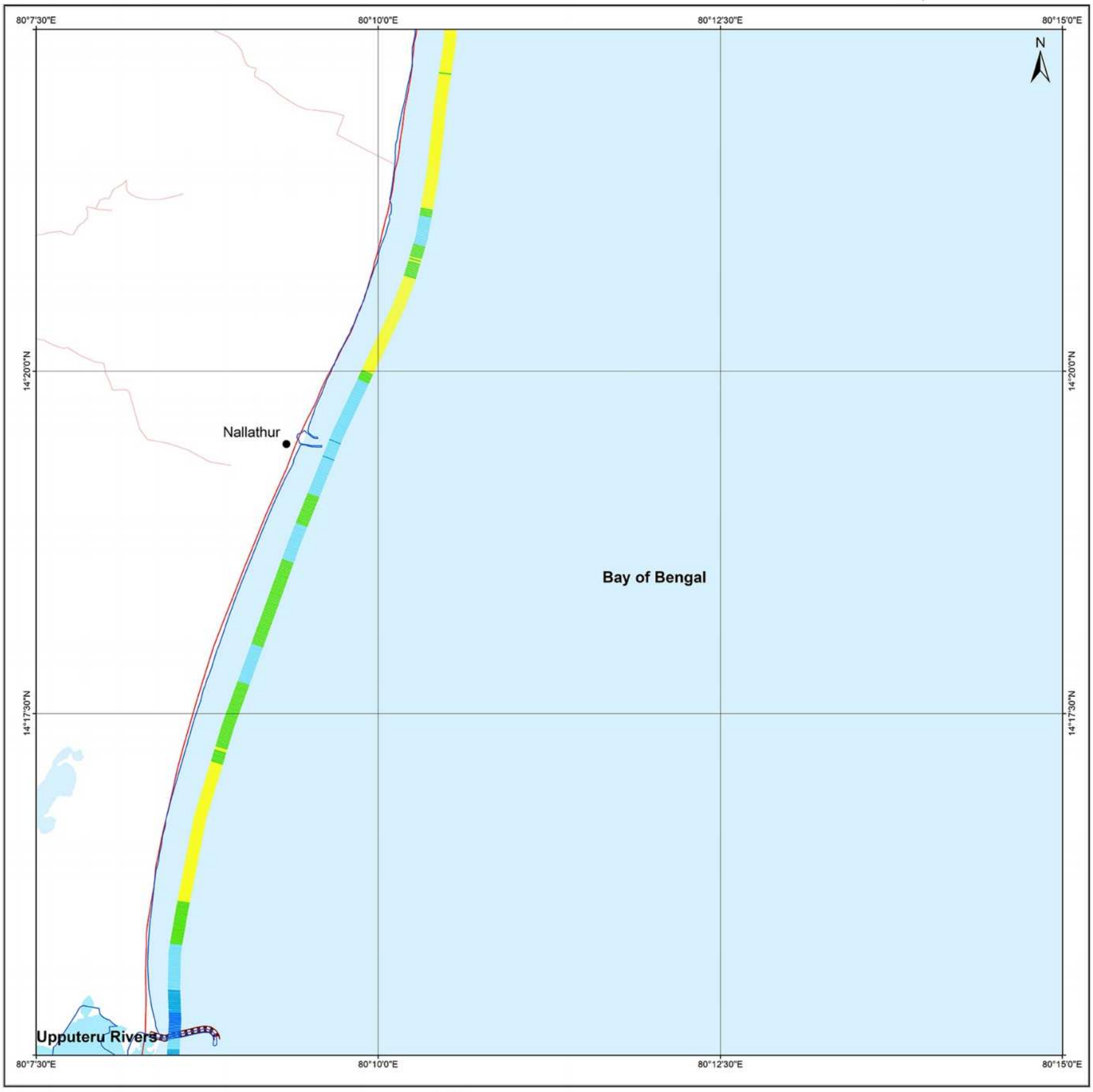
NELLORE

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

66 B / 3 / SE

Map No. : NCCR/SCM/371



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/28/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

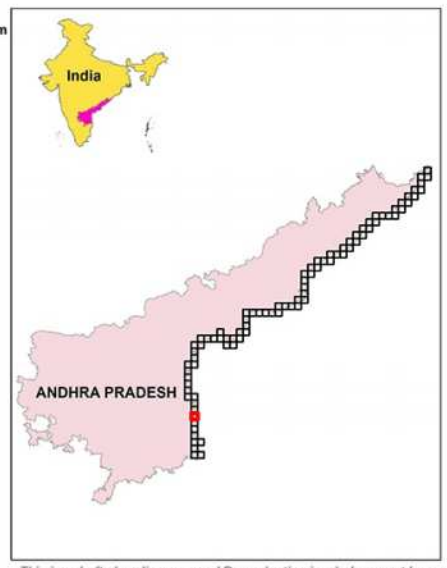
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
LISS-IV	04/09/2017
LISS-IV	02/02/2016
LISS-IV	04/20/2015
LISS-IV	12/02/2014
LISS-IV	04/30/2013
LISS-IV	03/18/2012
LISS-III	04/19/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
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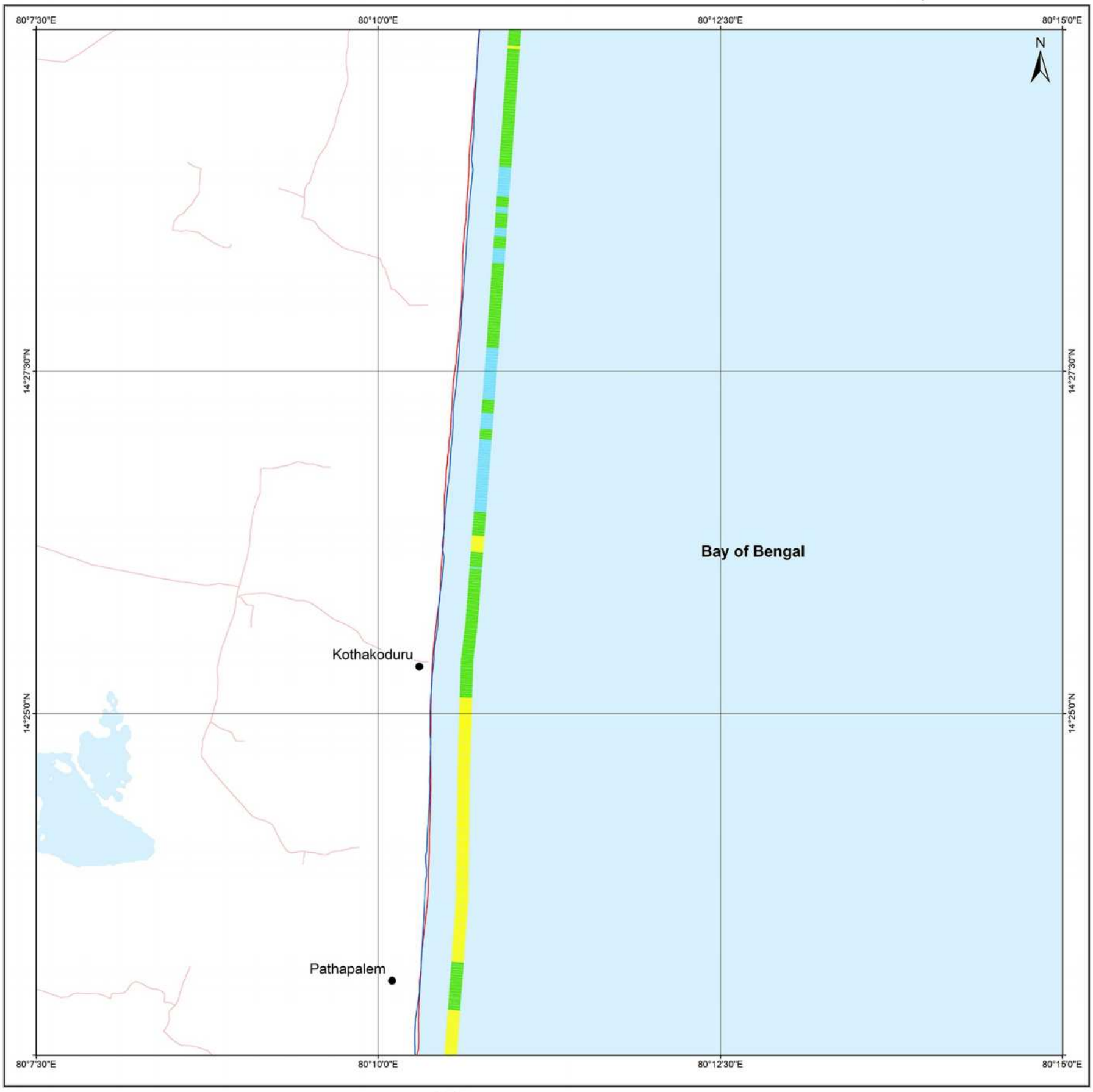
NELLORE

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

66 B / 3 / NE

Map No. : NCCR/SCM/372



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/28/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

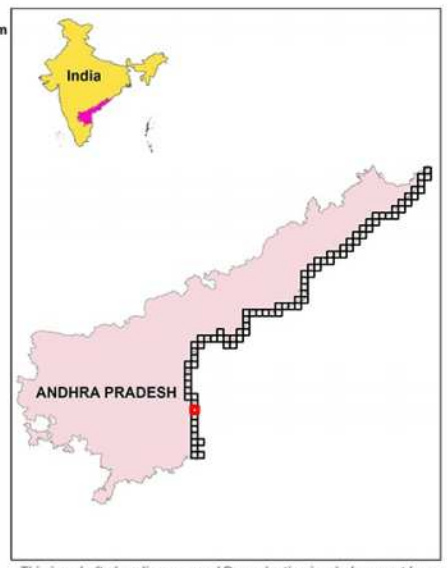
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
LISS-IV	04/09/2017
LISS-IV	02/02/2016
LISS-IV	04/20/2015
LISS-IV	01/04/2014
LISS-IV	04/30/2013
LISS-IV	02/23/2012
LISS-III	04/19/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
- Port
- Harbour
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- Breakwater
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SHORELINE CHANGE MAP
ANDHRA PRADESH

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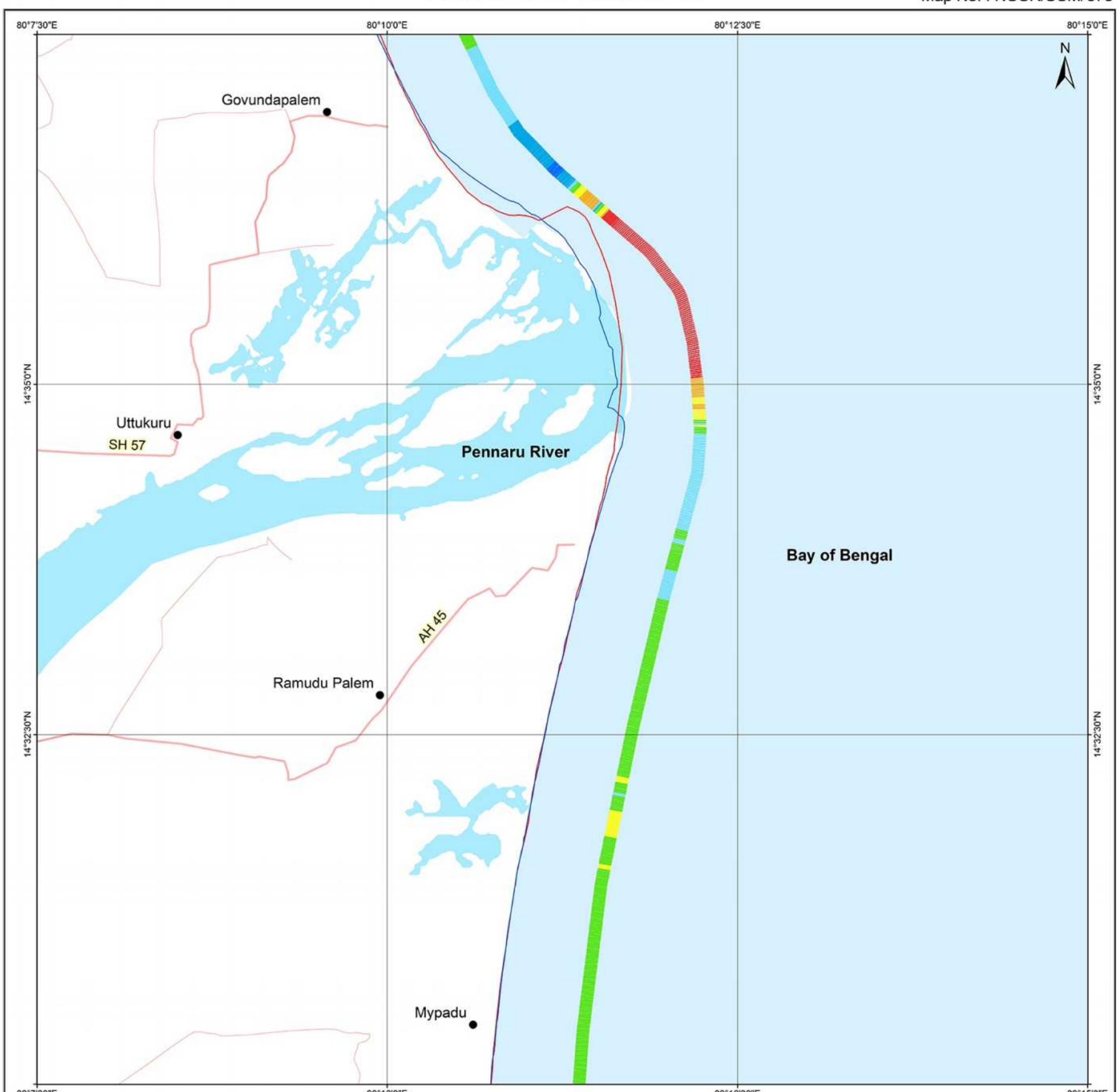
66 B / 2 / SE

Map No. : NCCR/SCM/373



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/28/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

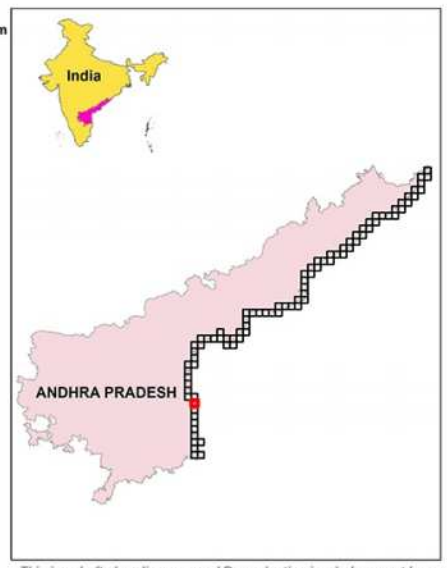
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
LISS-IV	04/09/2017
LISS-IV	02/02/2016
LISS-IV	04/20/2015
LISS-IV	01/04/2014
LISS-IV	04/30/2013
LISS-IV	02/23/2012
LISS-III	04/19/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
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SHORELINE CHANGE MAP
ANDHRA PRADESH

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66 B / 2 / NE

Map No. : NCCR/SCM/374

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/28/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

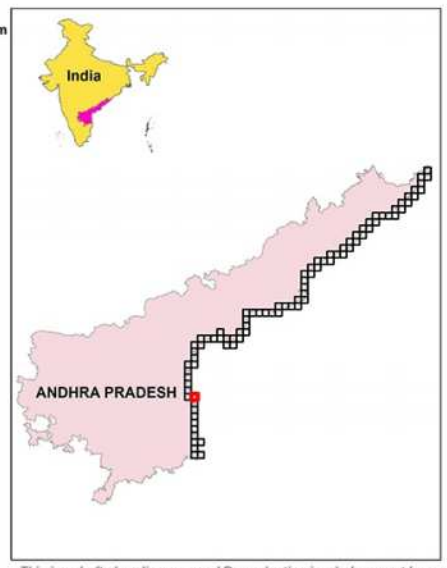
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
LISS-IV	04/09/2017
LISS-IV	02/02/2016
LISS-IV	04/20/2015
LISS-IV	01/04/2014
LISS-IV	04/30/2013
LISS-IV	11/04/2012
LISS-III	04/19/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
- Port
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- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
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SHORELINE CHANGE MAP
ANDHRA PRADESH

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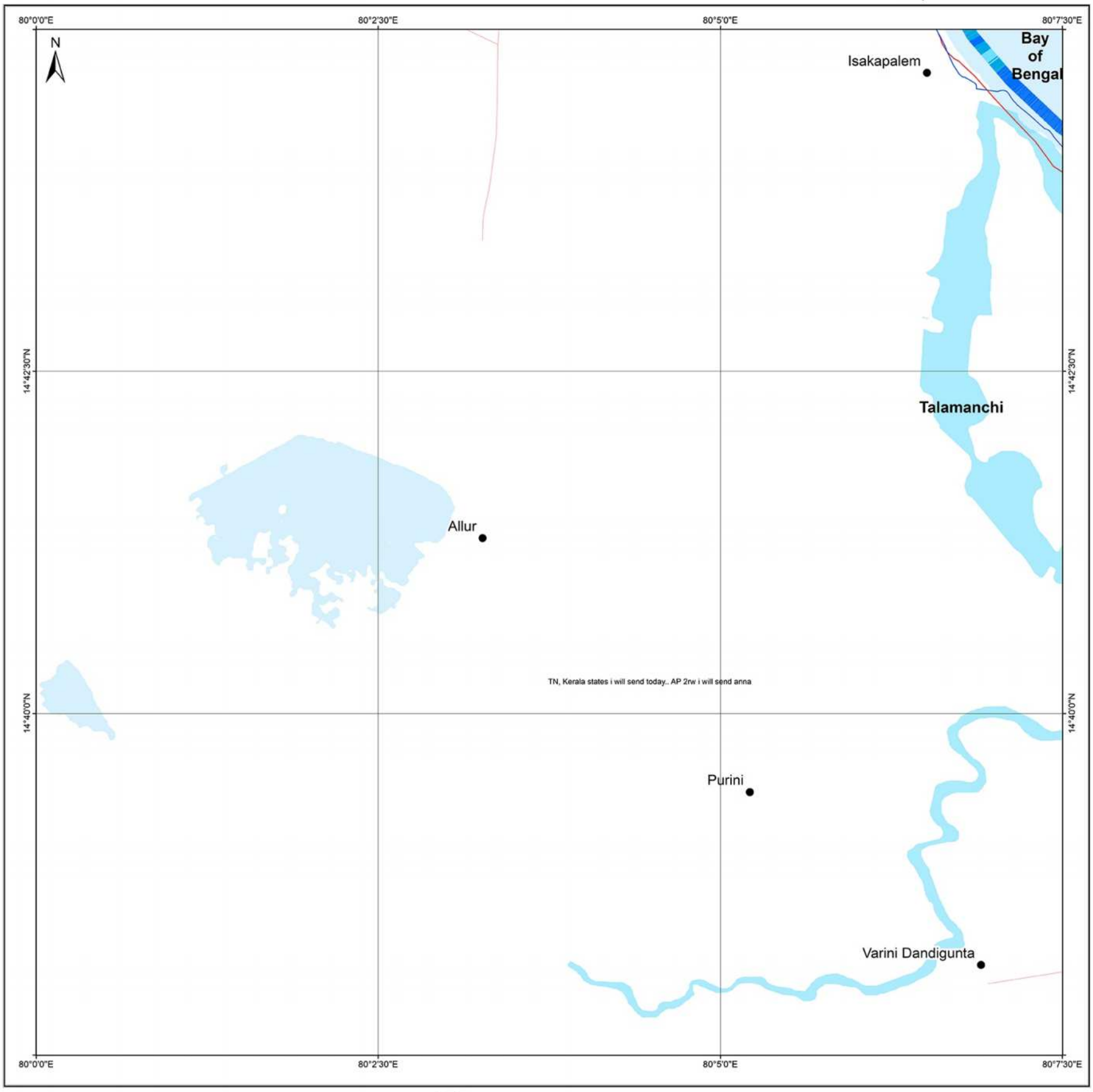
66 B / 2 / NW

Map No. : NCCR/SCM/375



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/28/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
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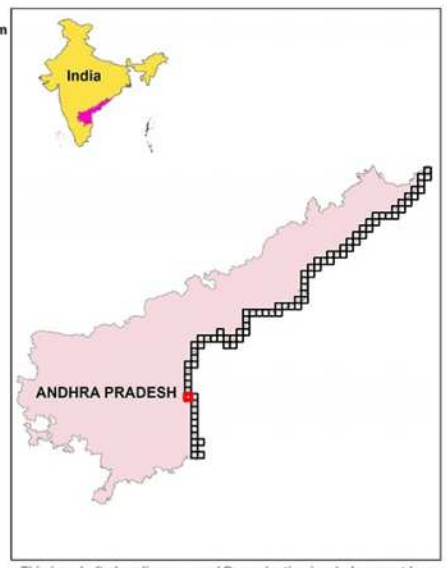
LISS-IV	04/20/2015
LISS-IV	01/04/2014
LISS-IV	04/30/2013
LISS-IV	11/04/2012
LISS-III	04/19/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
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SHORELINE CHANGE MAP
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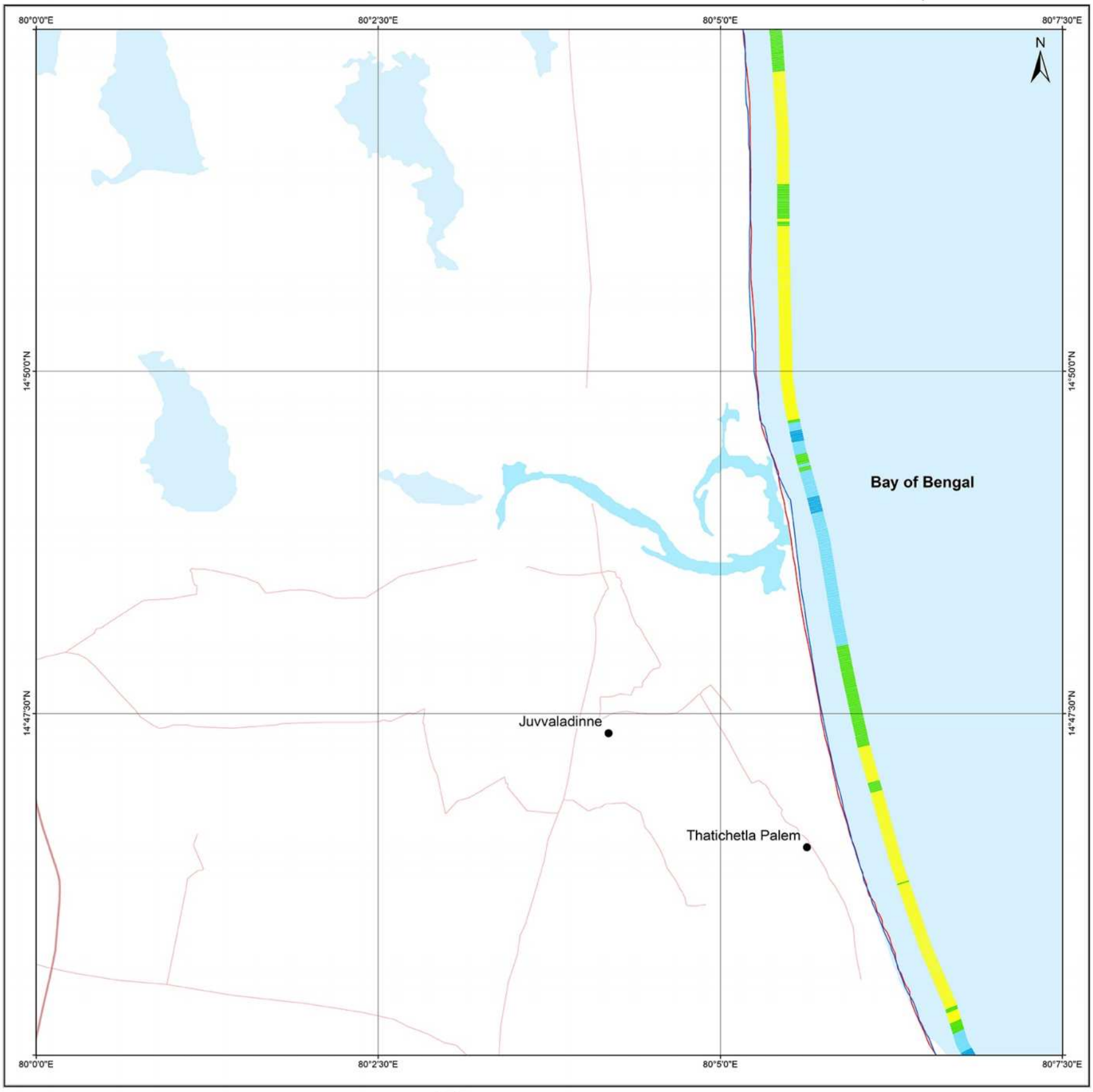
66 B / 1 / SW

Map No. : NCCR/SCM/376



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/28/2018

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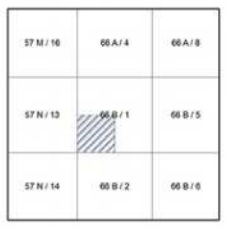


Scale

1000 m 500 0 1 2 km

1:25,000

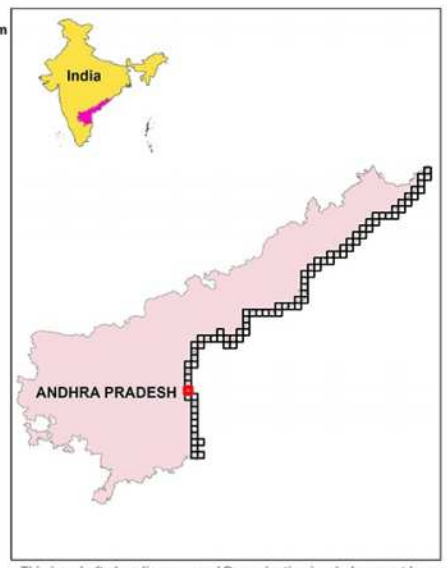
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
LISS-IV	04/09/2017
LISS-IV	02/02/2016
LISS-IV	04/20/2015
LISS-IV	01/04/2014
LISS-IV	04/30/2013
LISS-IV	11/04/2012
LISS-III	04/20/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



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66 B / 1 / NW

Map No. : NCCR/SCM/377

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/28/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

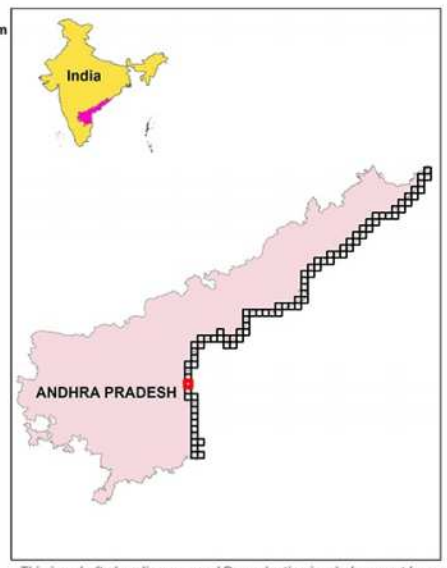
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
LISS-IV	02/20/2017 &04/09/2017
LISS-IV	02/02/2016
LISS-IV	04/20/2015
LISS-IV	01/04/2014
LISS-IV	04/30/2013
LISS-IV	05/29/2012
LISS-III	04/19/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
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PRAKASAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

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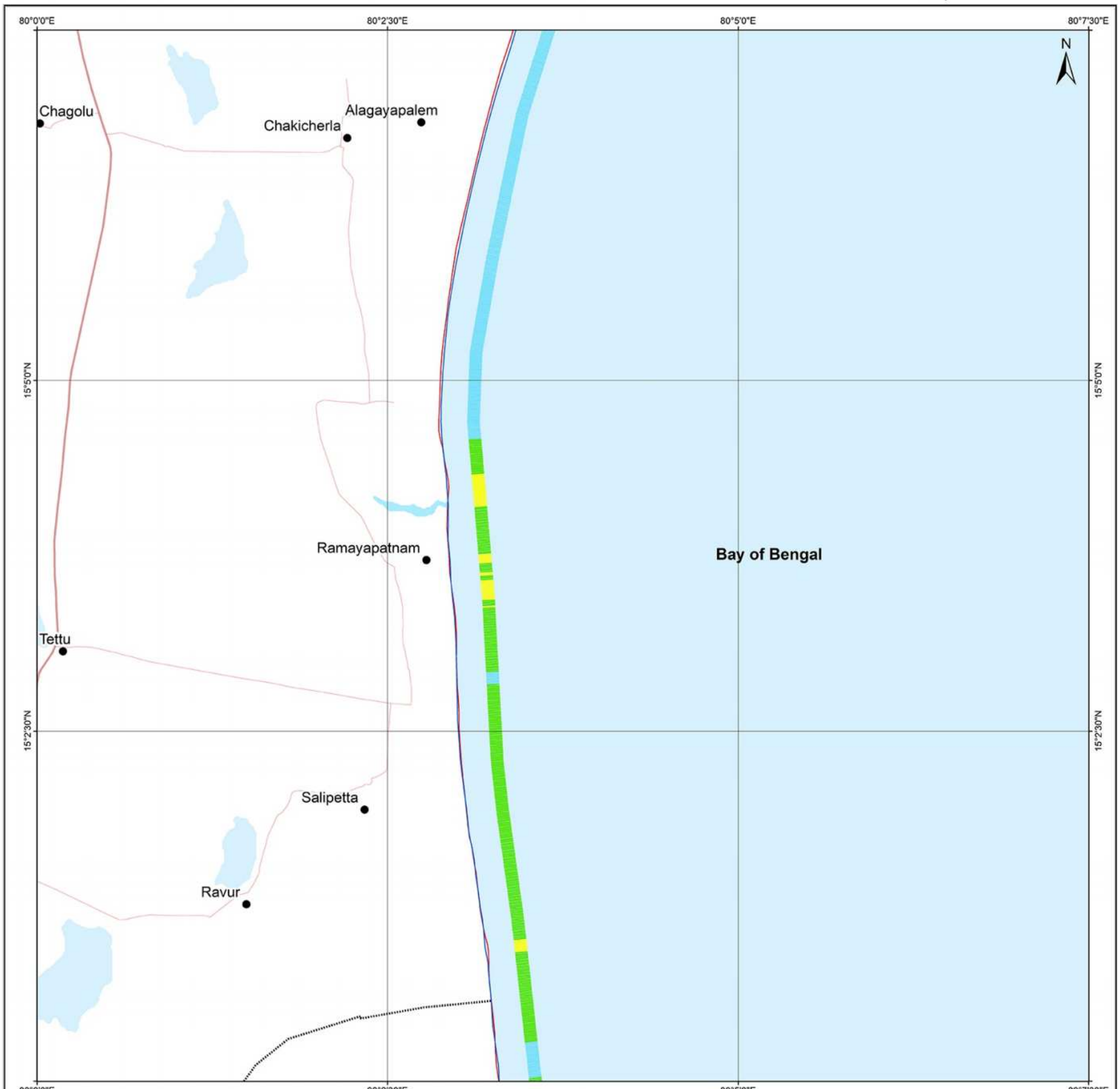
66 A / 4 / SW

Map No. : NCCR/SCM/378



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 25/08/1990
- 04/28/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

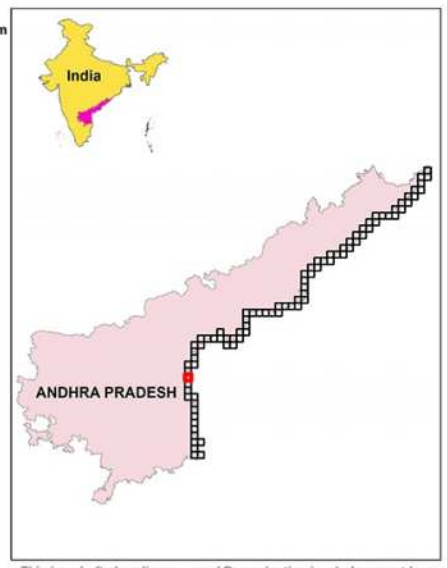
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
LISS-IV	02/20/2017
LISS-IV	02/02/2016
LISS-IV	04/20/2015
LISS-IV	12/02/2014
LISS-IV	04/30/2013
LISS-IV	05/29/2012
LISS-III	06/05/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	25/08/1990



- Settlements
- Port
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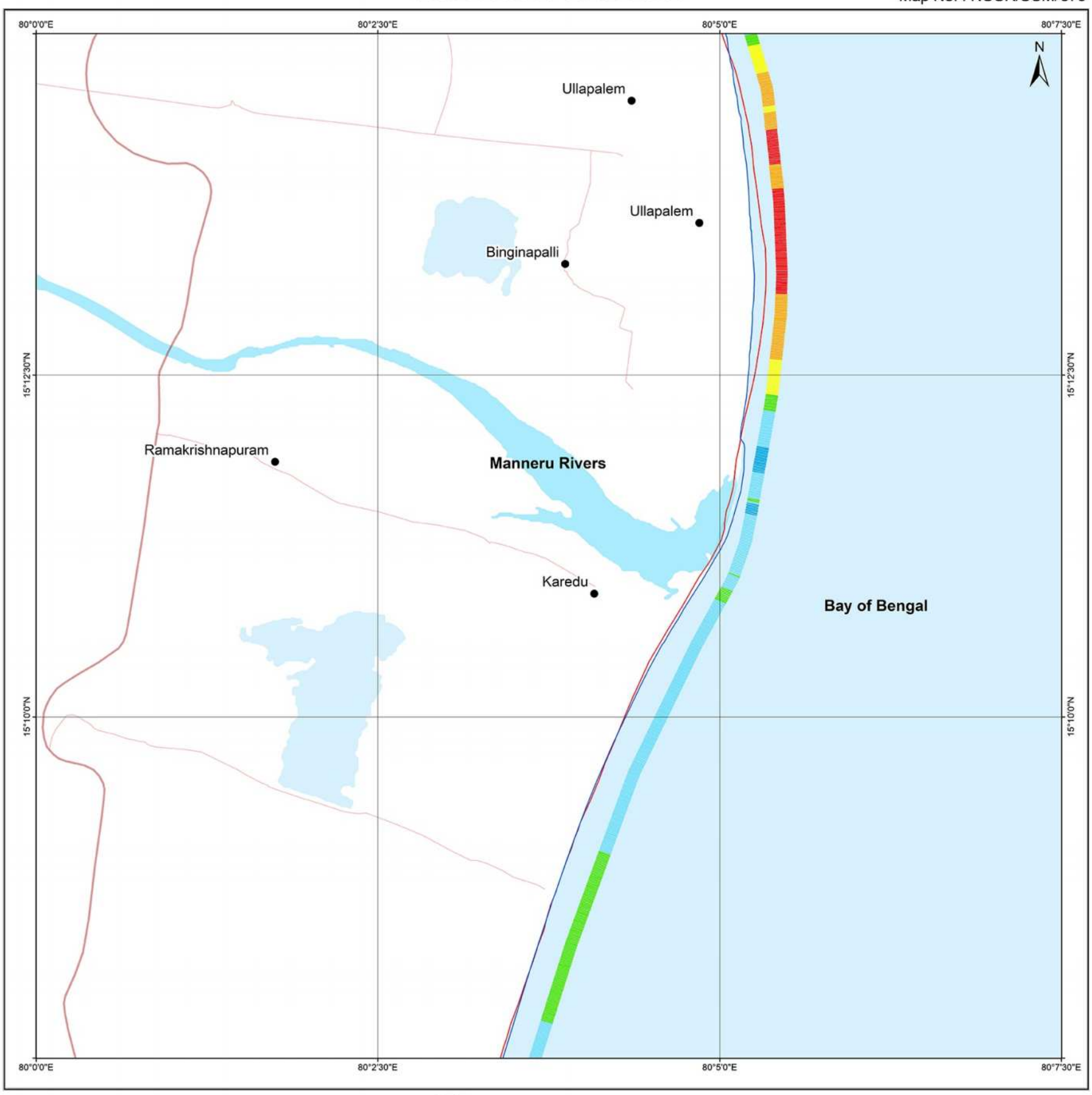
PRAKASAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

66 A / 4 / NW

Map No. : NCCR/SCM/379



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 04/28/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
LISS-IV	02/20/2017
LISS-IV	02/02/2016
LISS-IV	04/20/2015
LISS-IV	12/02/2014
LISS-IV	04/13/2013
LISS-IV	05/29/2012
LISS-III	06/05/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
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SHORELINE CHANGE MAP
ANDHRA PRADESH

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66 A / 3 / SW

Map No. : NCCR/SCM/380

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 04/28/2018

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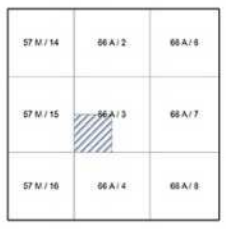

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
LISS-IV	02/20/2017
LISS-IV	02/02/2016
LISS-IV	04/20/2015
LISS-IV	12/02/2014
LISS-IV	04/13/2013
LISS-IV	05/29/2012
LISS-III	03/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	10/11/1990

- Settlements
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SHORELINE CHANGE MAP
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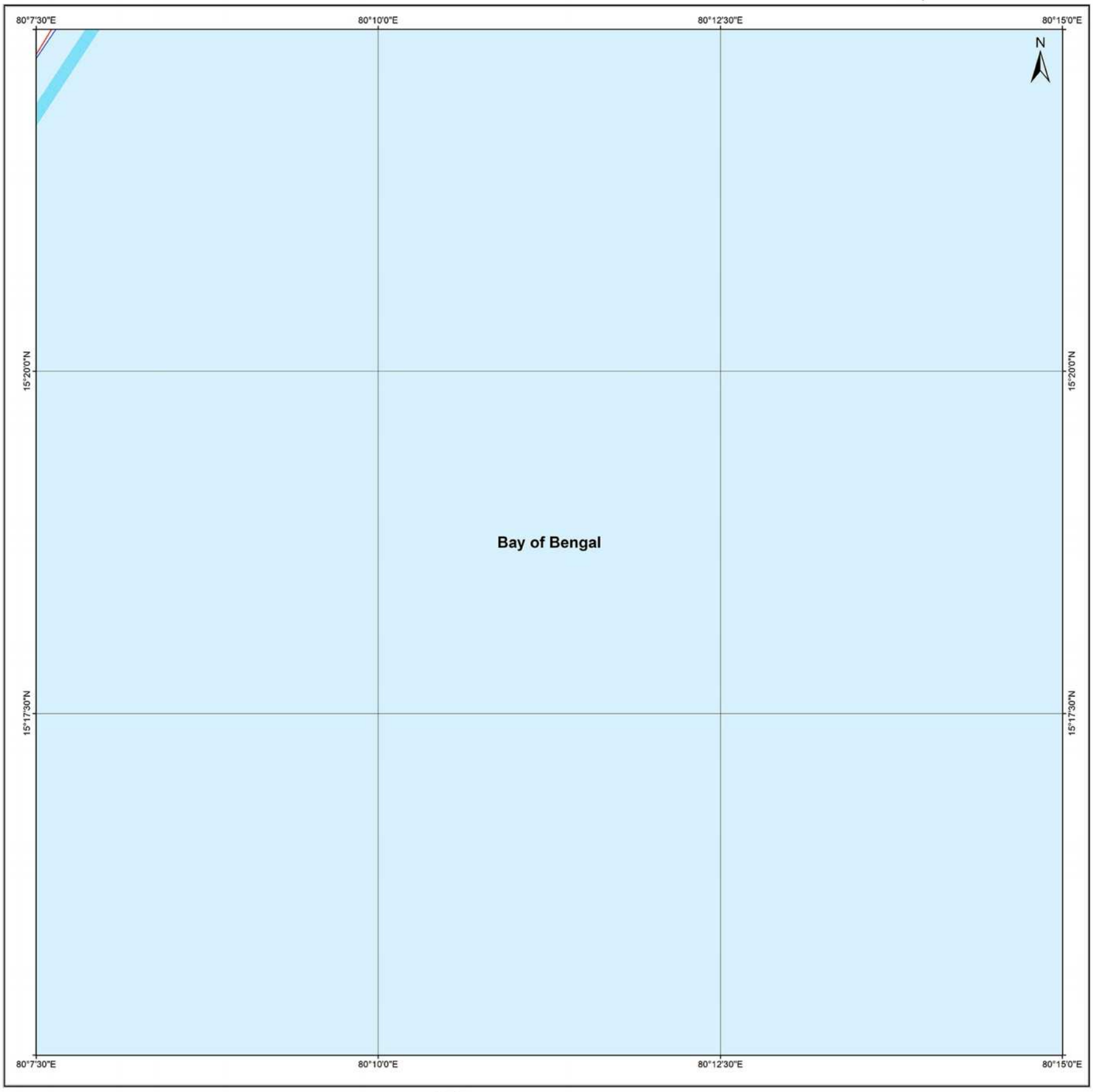
Map No. : NCCR/SCM/381



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 04/28/2018

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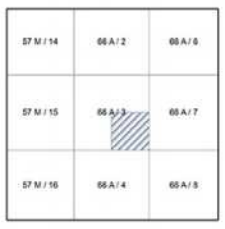

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
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LISS-IV	02/02/2016
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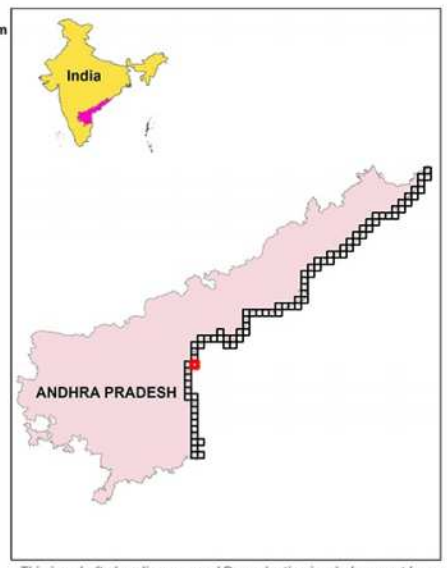
LISS-IV	04/13/2013
LISS-IV	05/29/2012
LISS-III	03/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	10/11/1990



- Settlements
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PRAKASAM

SHORELINE CHANGE MAP
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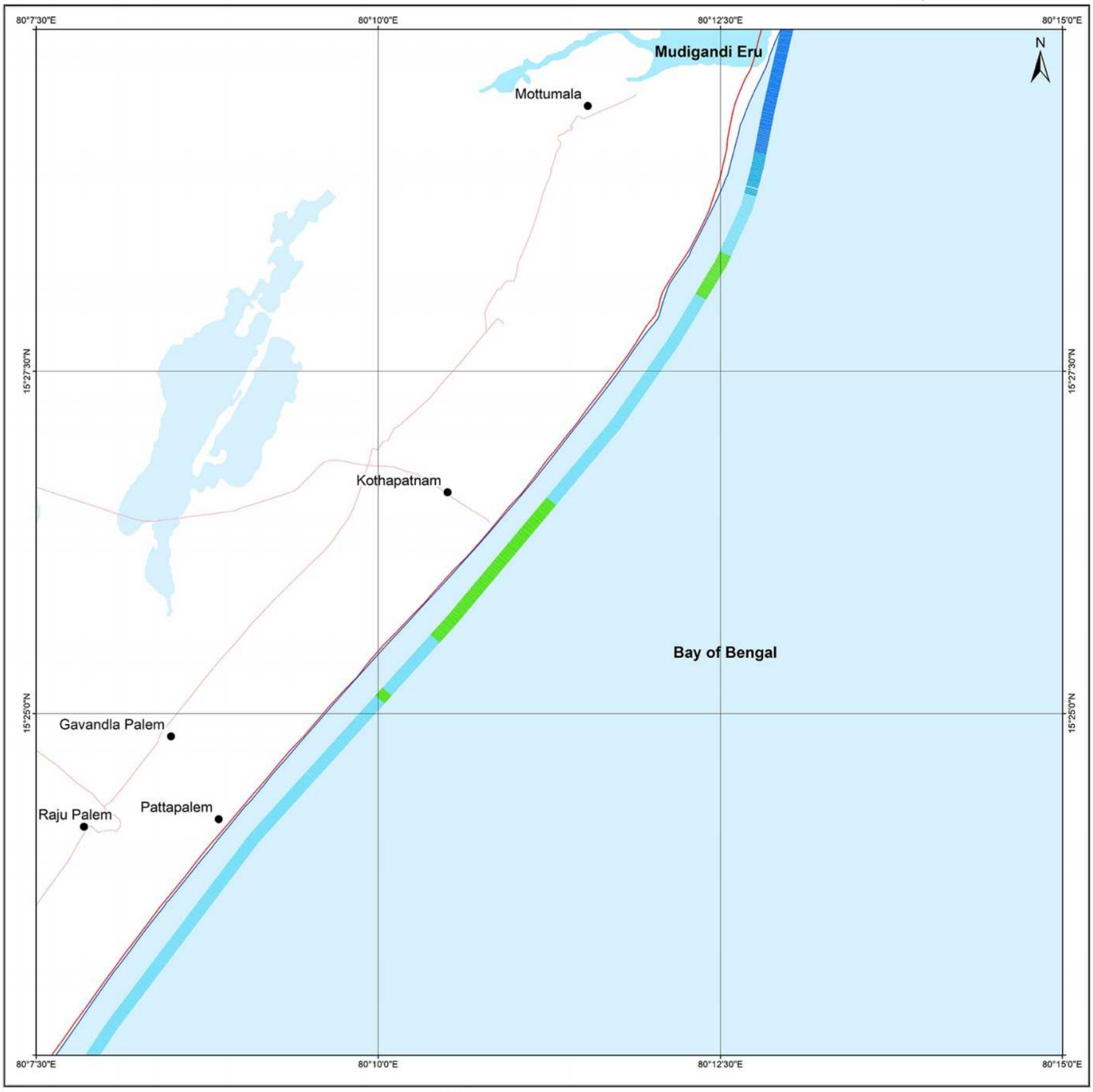
Map No. : NCCR/SCM/382



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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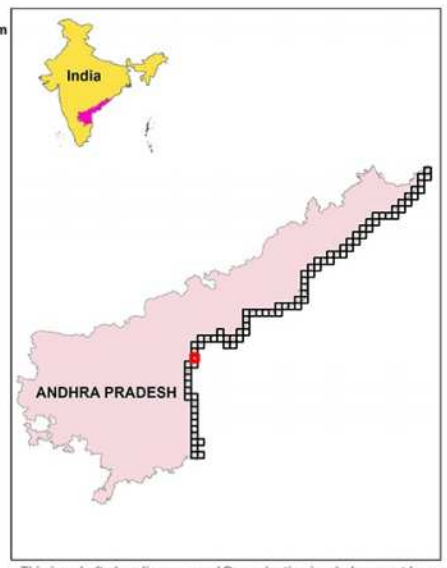
LISS-IV	12/02/2014
LISS-IV	03/13/2013
LISS-IV	05/29/2012
LISS-III	04/19/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	10/11/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
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- State Highways
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- Lakes
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1990 - 2018

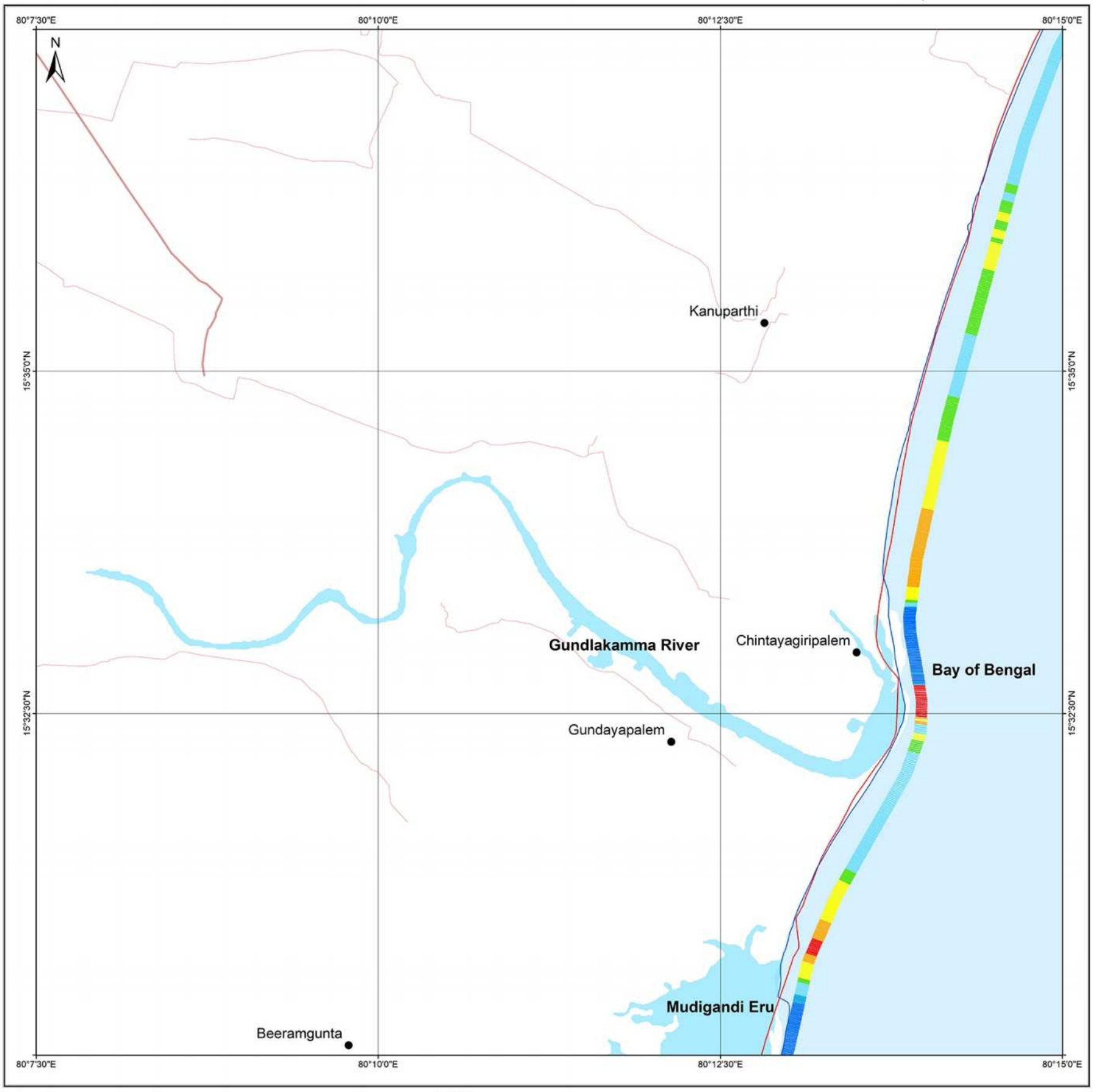
PRAKASAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

66 A / 2 / SE

Map No. : NCCR/SCM/383



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 04/28/2018

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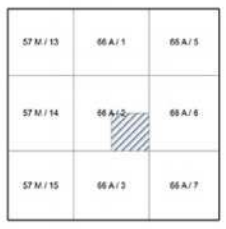


Scale

1000 m 500 0 1 2 km

1:25,000

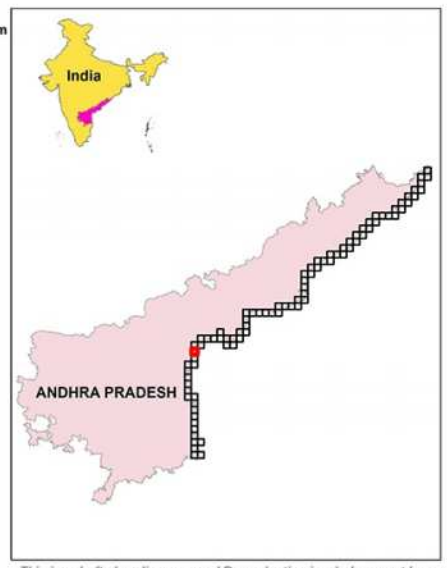
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
LISS-IV	02/20/2017
LISS-IV	02/02/2016
LISS-IV	04/20/2015
LISS-IV	12/02/2014
LISS-IV	03/13/2013
LISS-IV	02/23/2012
LISS-III	04/19/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	10/11/1990



- Settlements
- Port
- Harbour
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1990 - 2018

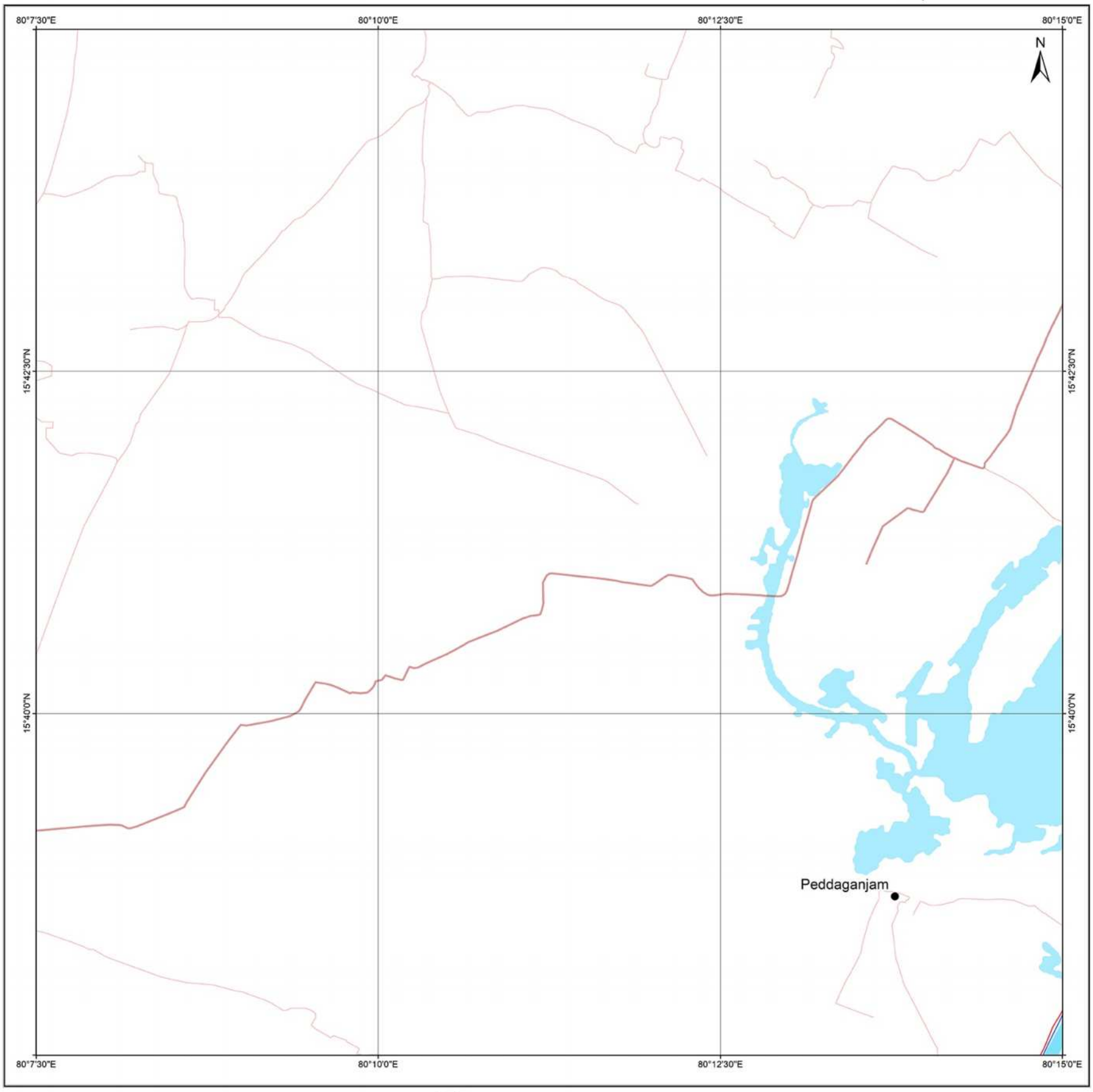
PRAKASAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

66 A / 2 / NE

Map No. : NCCR/SCM/384



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 04/28/2018

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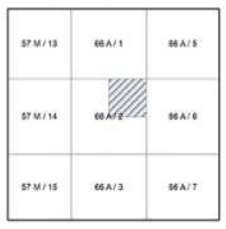

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

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Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/28/2018
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LISS-III	04/19/2008
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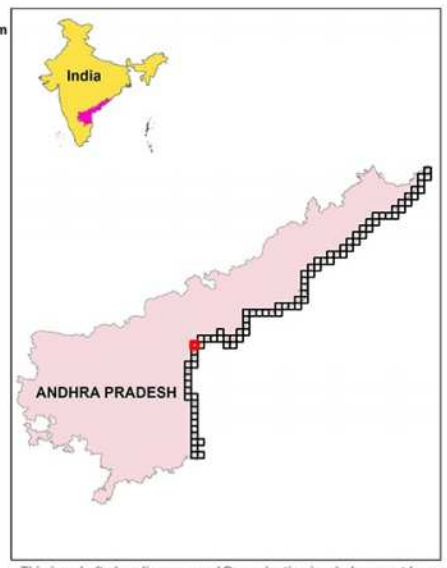

- Settlements
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PRAKASAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

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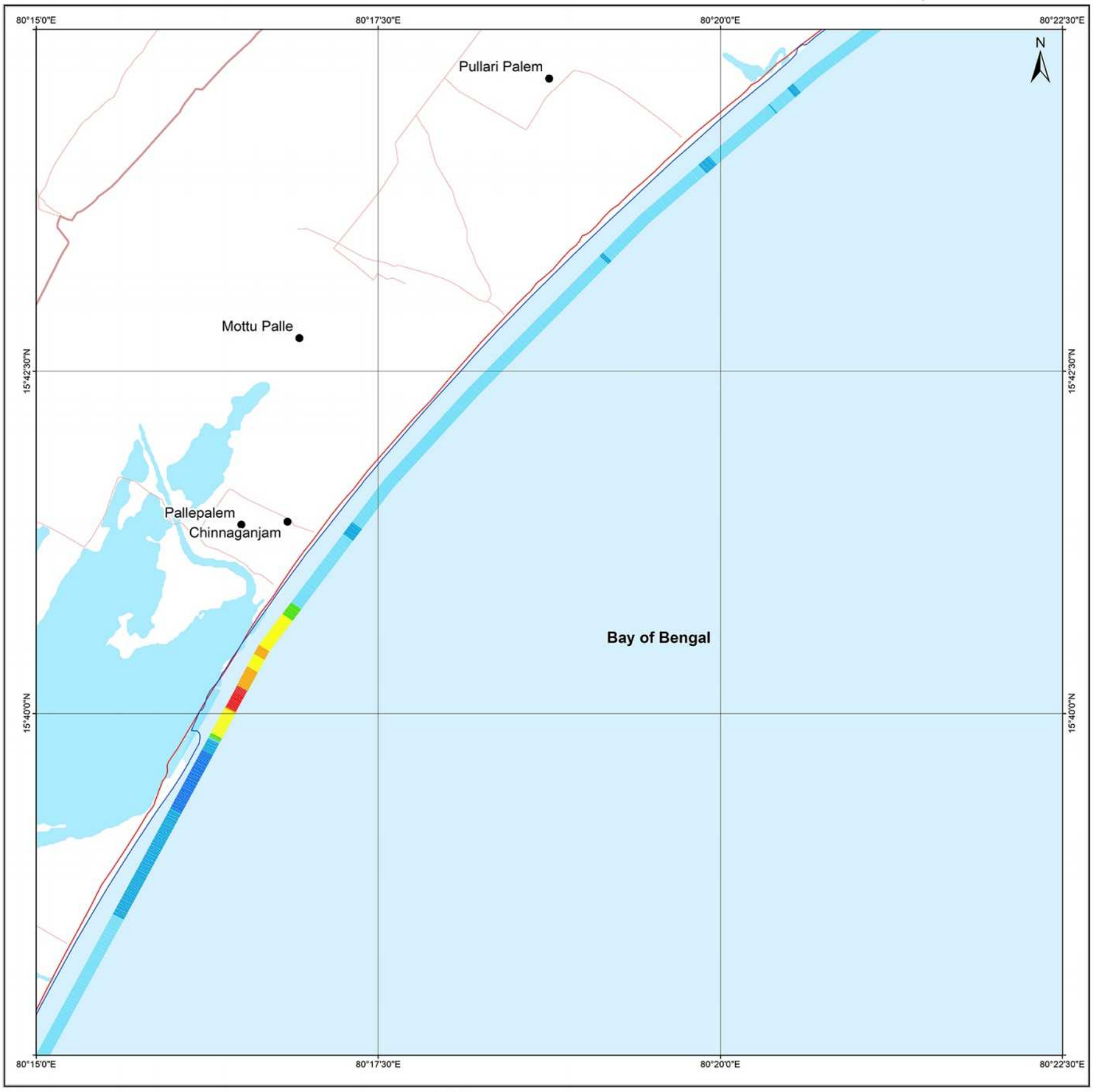
66 A / 6 / NW

Map No. : NCCR/SCM/385



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 04/28/2018

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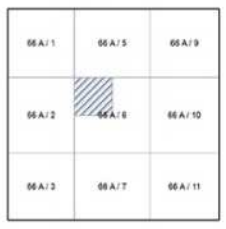

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

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LISS-IV	04/28/2018
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LISS-IV	04/20/2015
LISS-IV	12/02/2014
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LISS-IV	02/23/2012
LISS-III	03/03/2008
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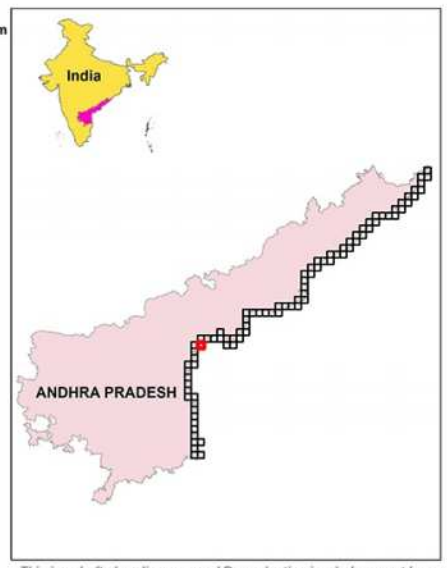
TM	10/11/1990



- Settlements
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PRAKASAM

SHORELINE CHANGE MAP
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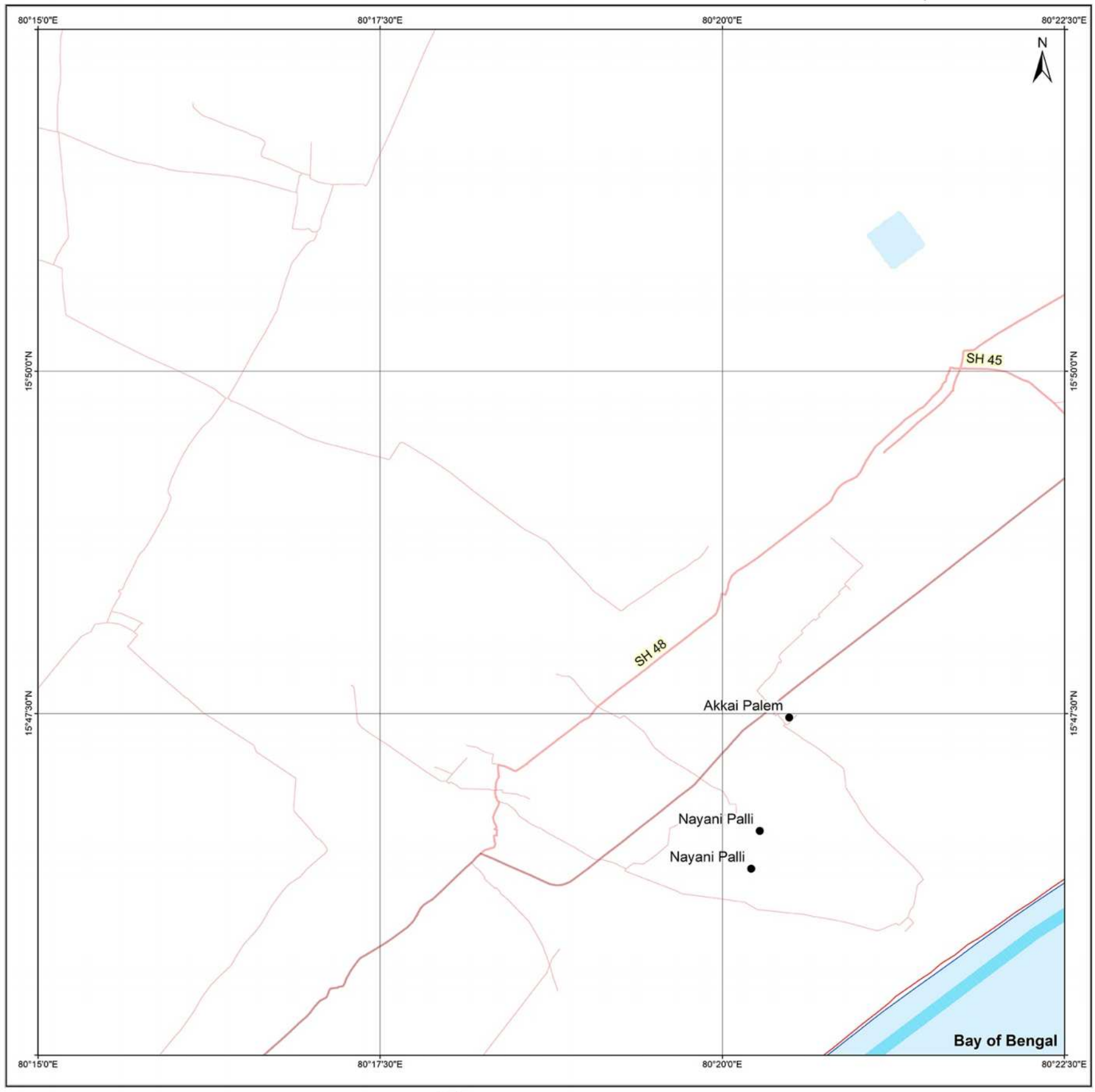
Map No. : NCCR/SCM/386



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 04/28/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

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LISS-IV	04/20/2015
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LISS-IV	06/17/2013
LISS-IV	02/23/2012
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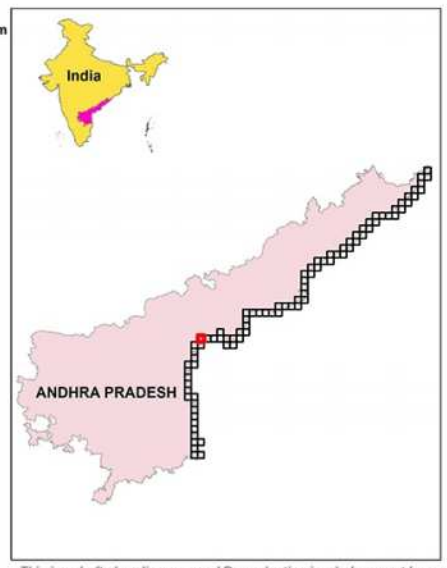

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SHORELINE CHANGE MAP
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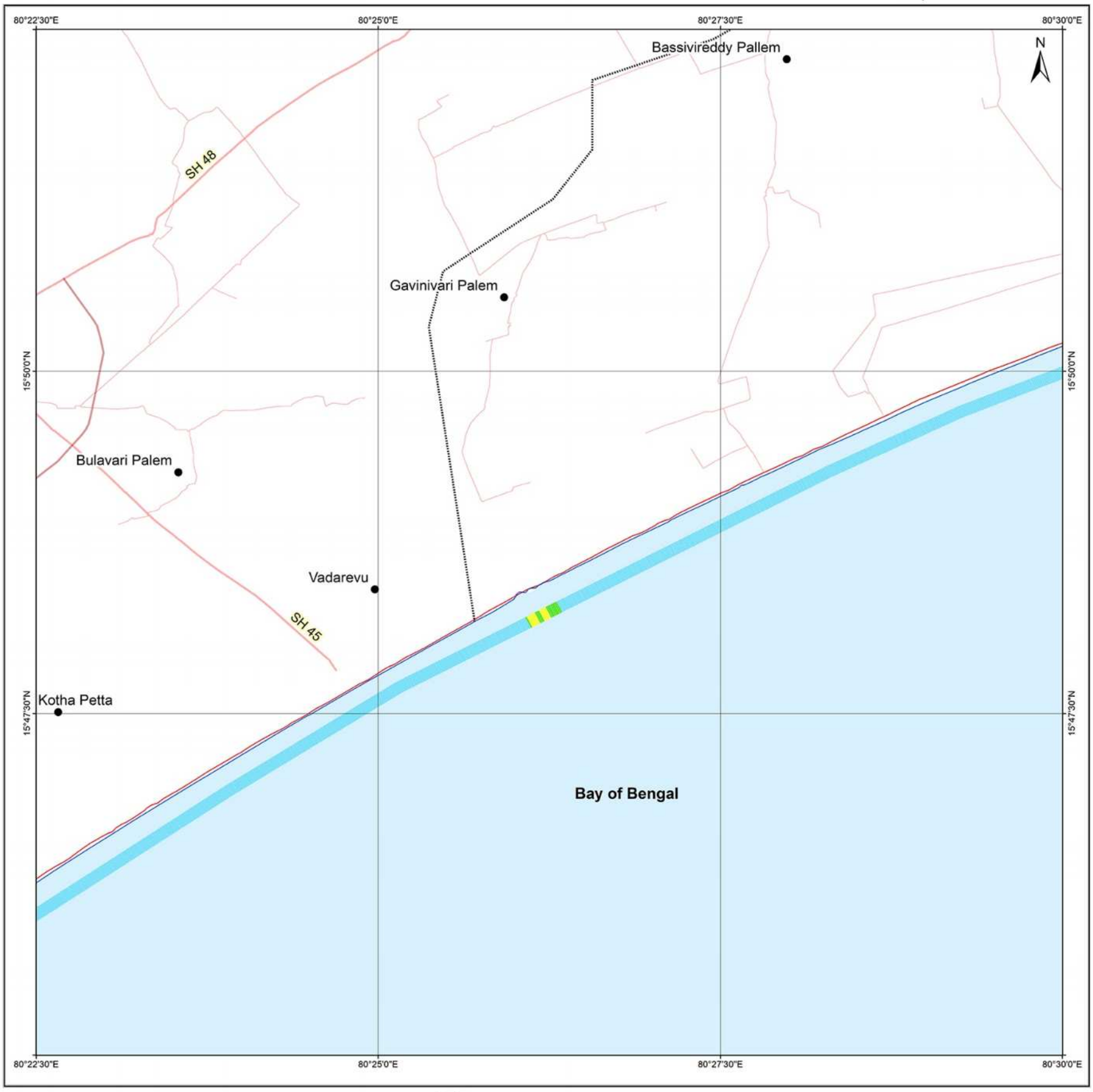
Map No. : NCCR/SCM/387



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 04/28/2018

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Scale

1000 m 500 0 1 2 km

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UTM Coordinates Zone 44

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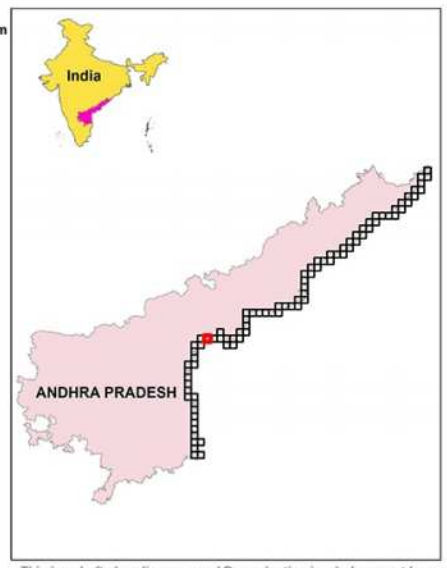
LISS-IV	06/17/2013
LISS-IV	10/17/2012
LISS-III	03/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	10/11/1990



- Settlements
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GUNTUR

SHORELINE CHANGE MAP
ANDHRA PRADESH

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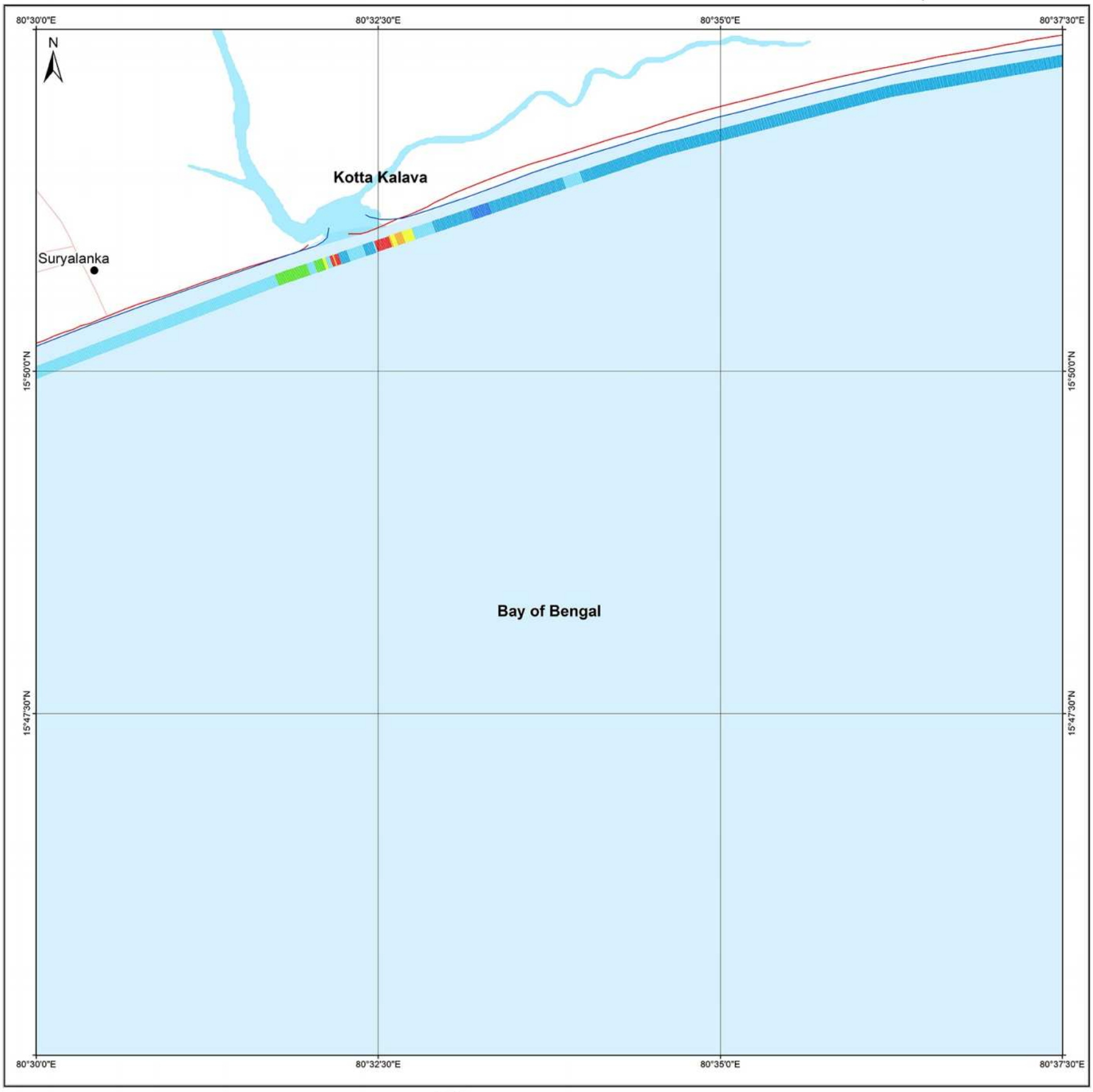
Map No. : NCCR/SCM/388



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 04/28/2018 & 02/03/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
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LISS-IV	02/06/2017 & 02/20/2017
LISS-IV	03/21/2016
LISS-IV	04/20/2015
LISS-IV	12/06/2014
LISS-IV	06/17/2013
LISS-IV	10/17/2012
LISS-III	03/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
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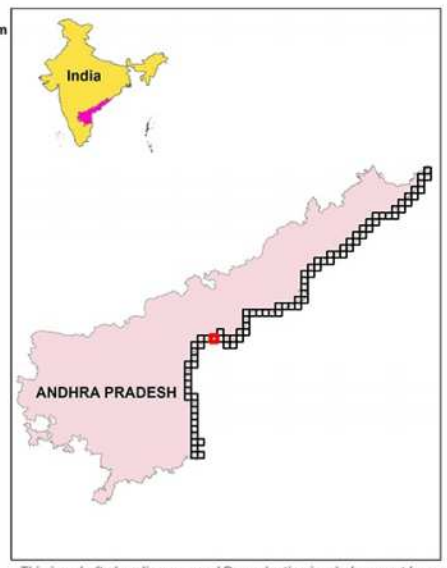

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SHORELINE CHANGE MAP
ANDHRA PRADESH

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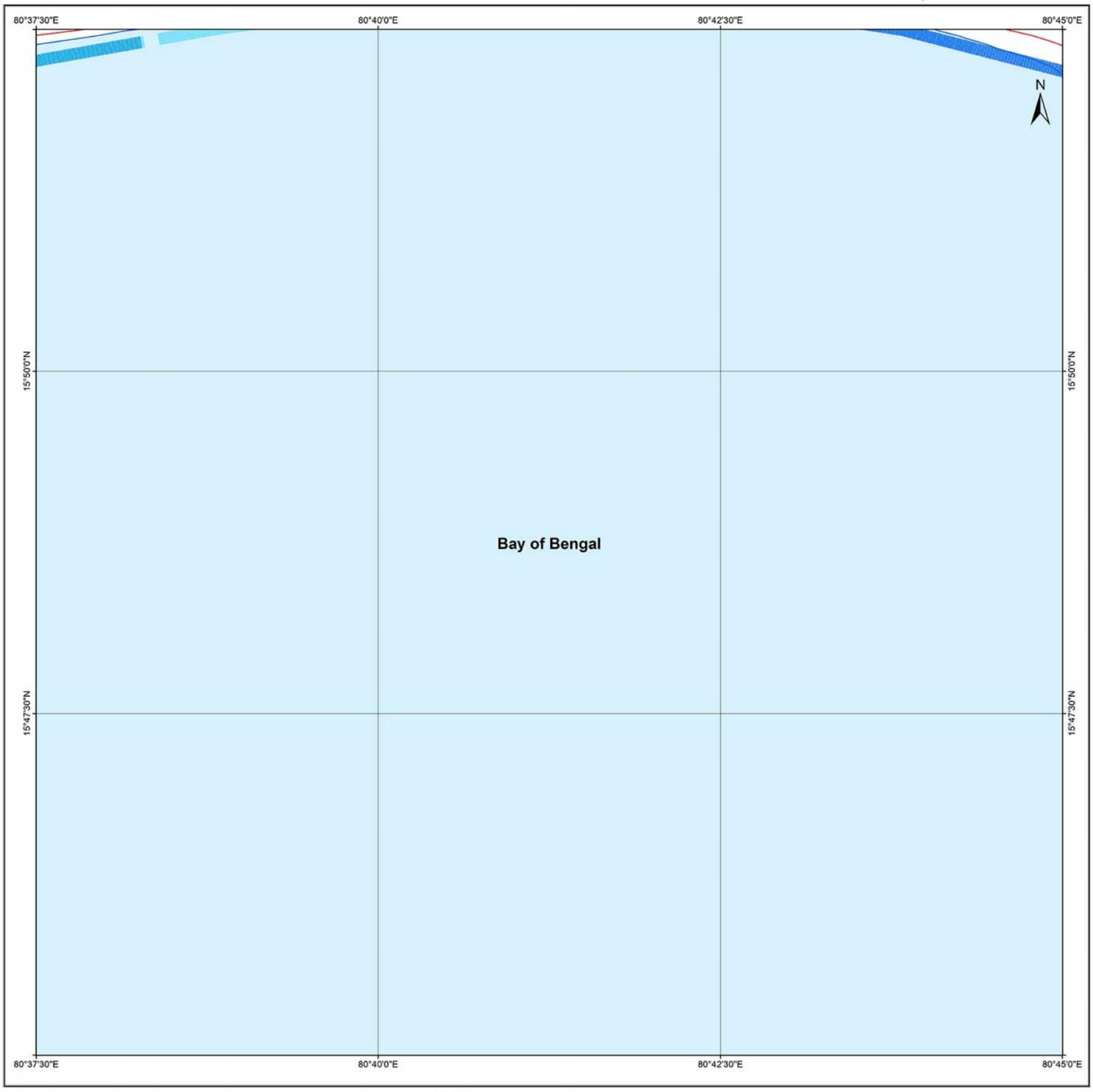
Map No. : NCCR/SCM/389



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
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- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 02/03/2018

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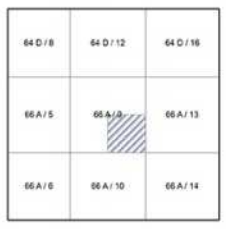

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
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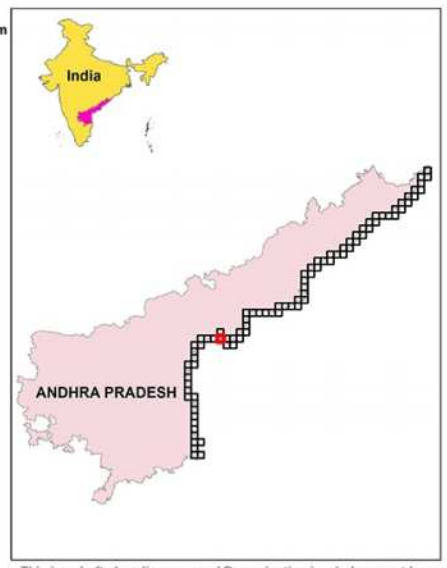
LISS-IV	02/06/2017
LISS-IV	01/09/2016
LISS-IV	07/01/2015
LISS-IV	12/06/2014
LISS-IV	06/17/2013
LISS-IV	11/13/2012
LISS-III	03/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	10/11/1990



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GUNTUR

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

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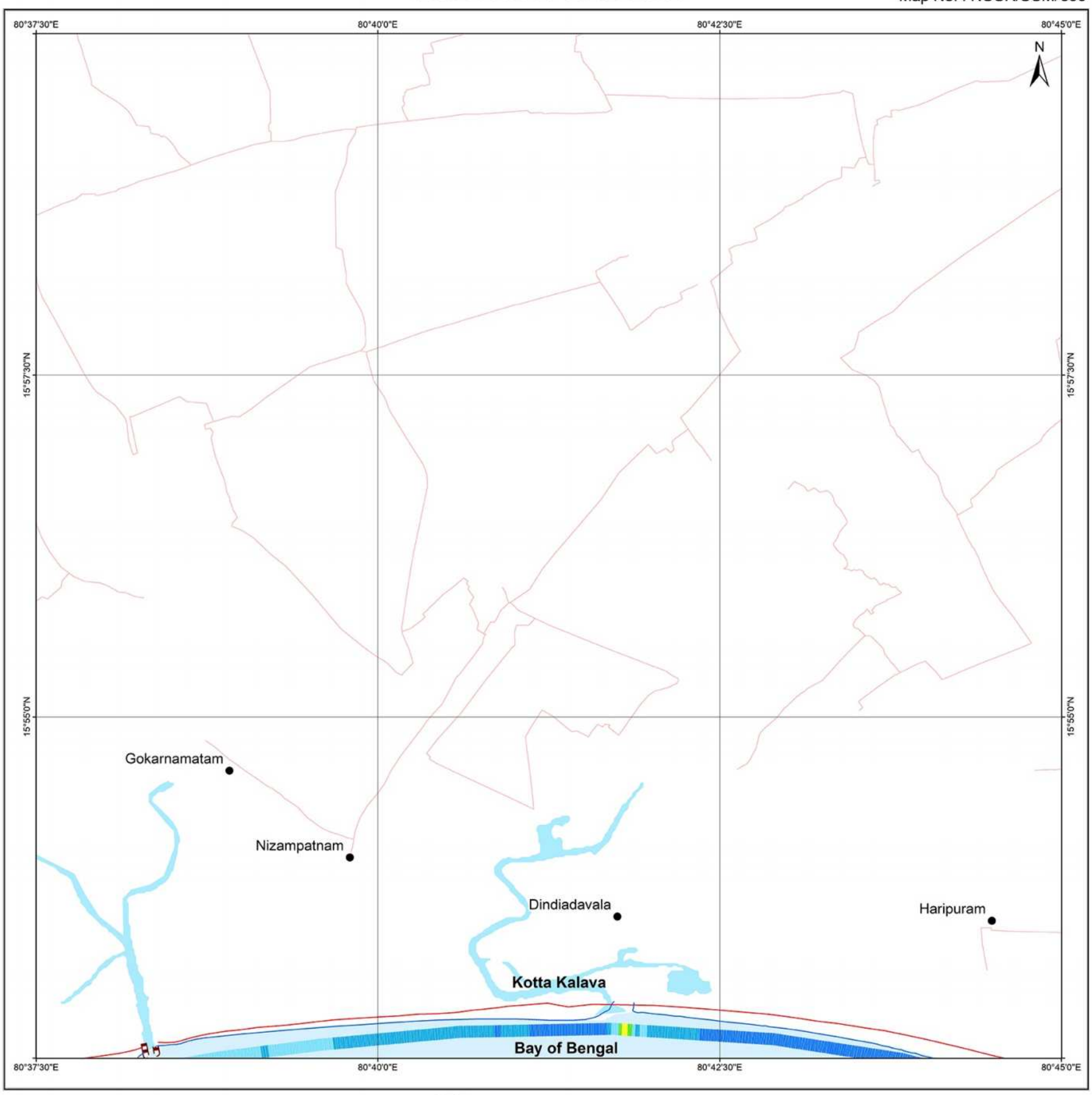
Map No. : NCCR/SCM/390



Shoreline Change Trend for Period 1990 - 2018

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- Moderate Accretion
- High Accretion

Shoreline date

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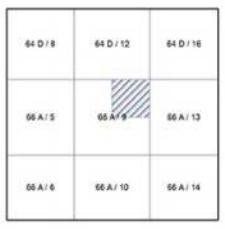

Scale

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UTM Coordinates Zone 44

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LISS-IV	11/13/2012
LISS-III	03/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
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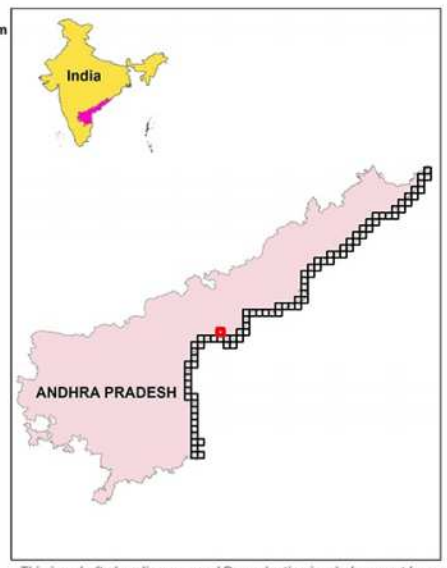

- Settlements
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GUNTUR

SHORELINE CHANGE MAP
ANDHRA PRADESH

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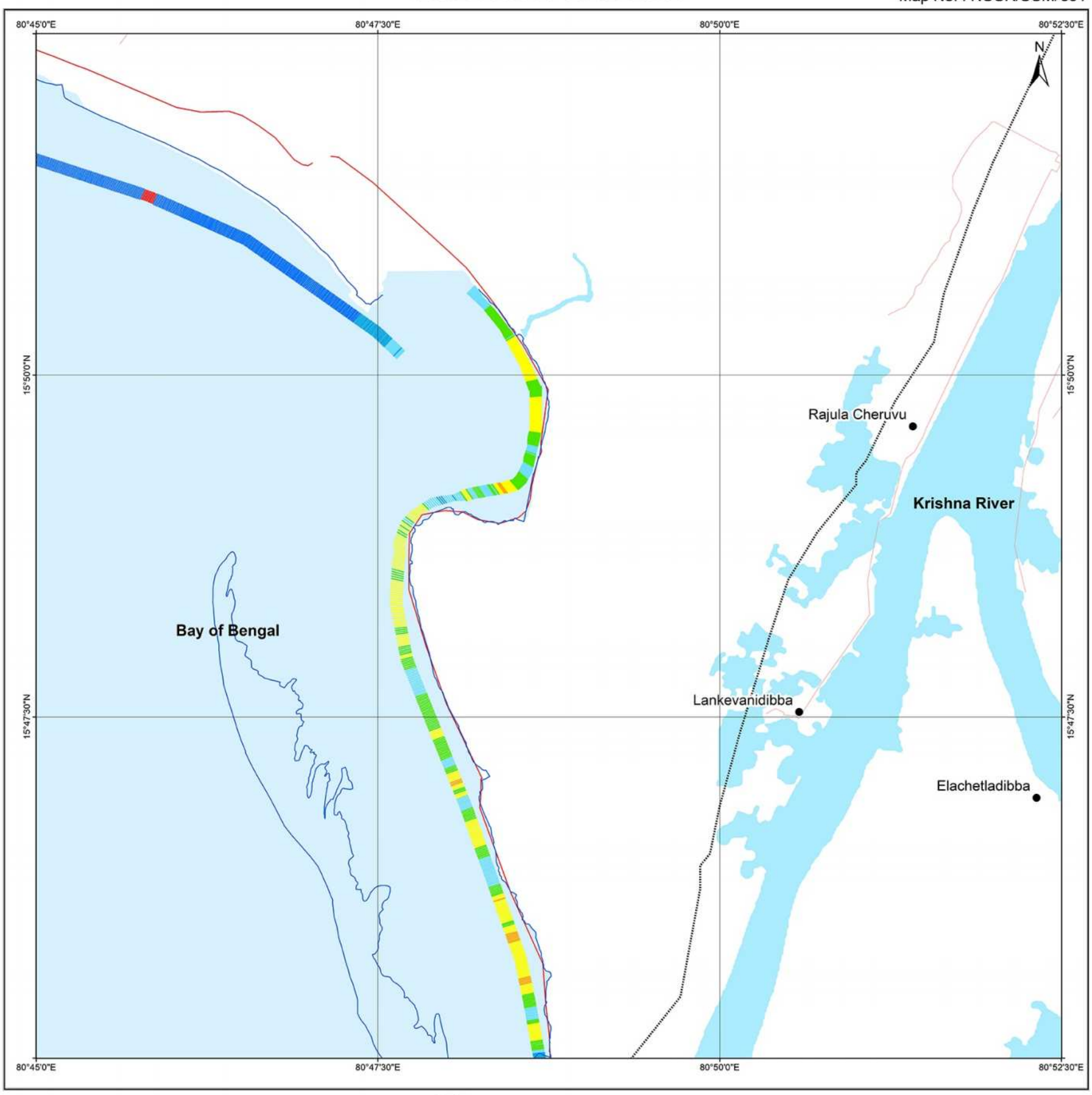
Map No. : NCCR/SCM/391



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
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- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
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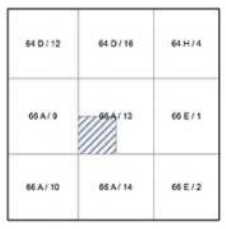

Scale

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UTM Coordinates Zone 44

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LISS-IV	02/03/2018
LISS-IV	02/06/2017
LISS-IV	01/09/2016
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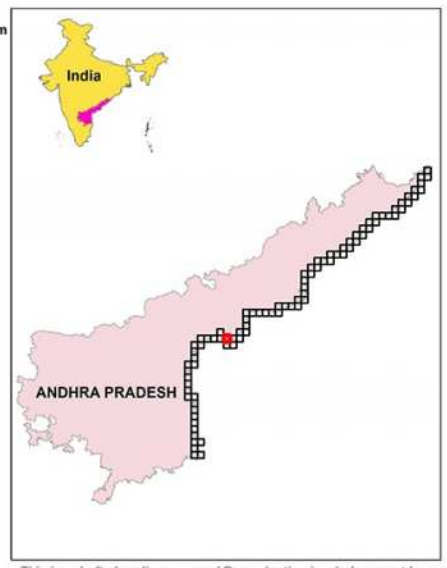
LISS-IV	12/06/2014
LISS-IV	05/24/2013
LISS-IV	11/13/2012
LISS-III	03/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	10/11/1990



- Settlements
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KRISHNA

SHORELINE CHANGE MAP
ANDHRA PRADESH

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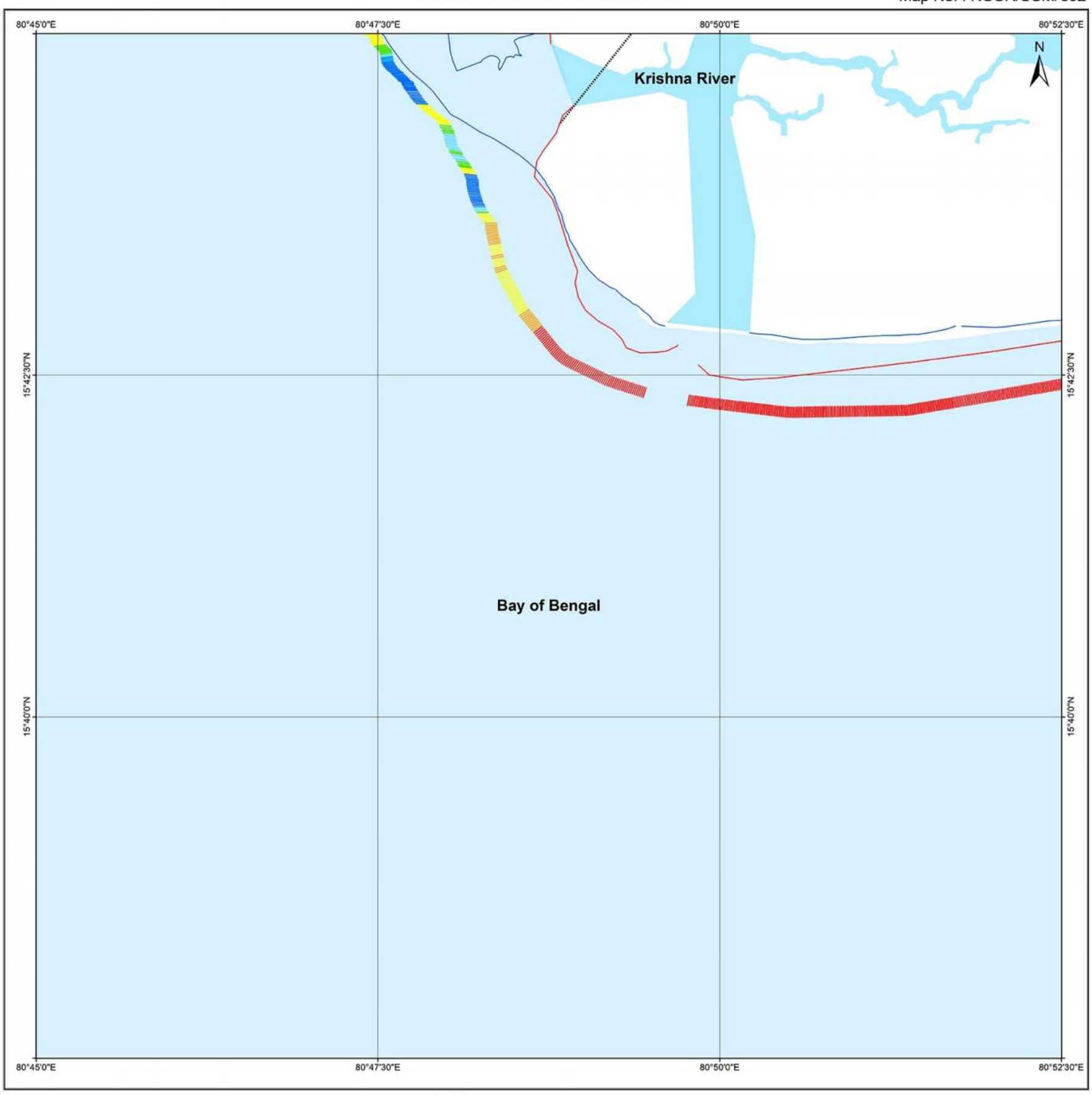
Map No. : NCCR/SCM/392



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

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- 02/03/2018

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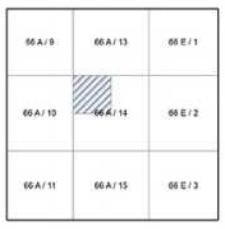


Scale

1000 m 500 0 1 2 km

1:25,000

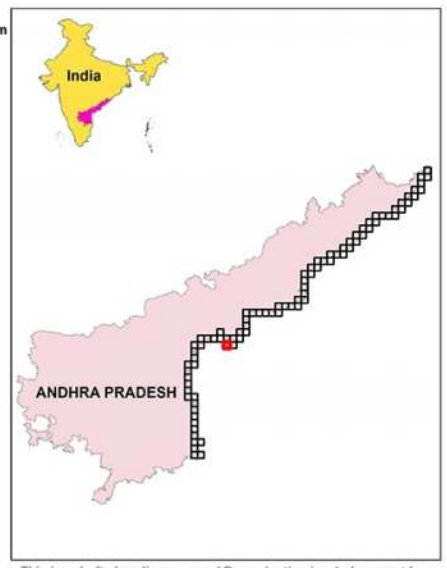
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/03/2018
LISS-IV	02/06/2017
LISS-IV	01/09/2016
LISS-IV	07/01/2015
LISS-IV	12/06/2014
LISS-IV	05/24/2013
LISS-IV	11/13/2012
LISS-III	03/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
TM	10/11/1990



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- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
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1990 - 2018

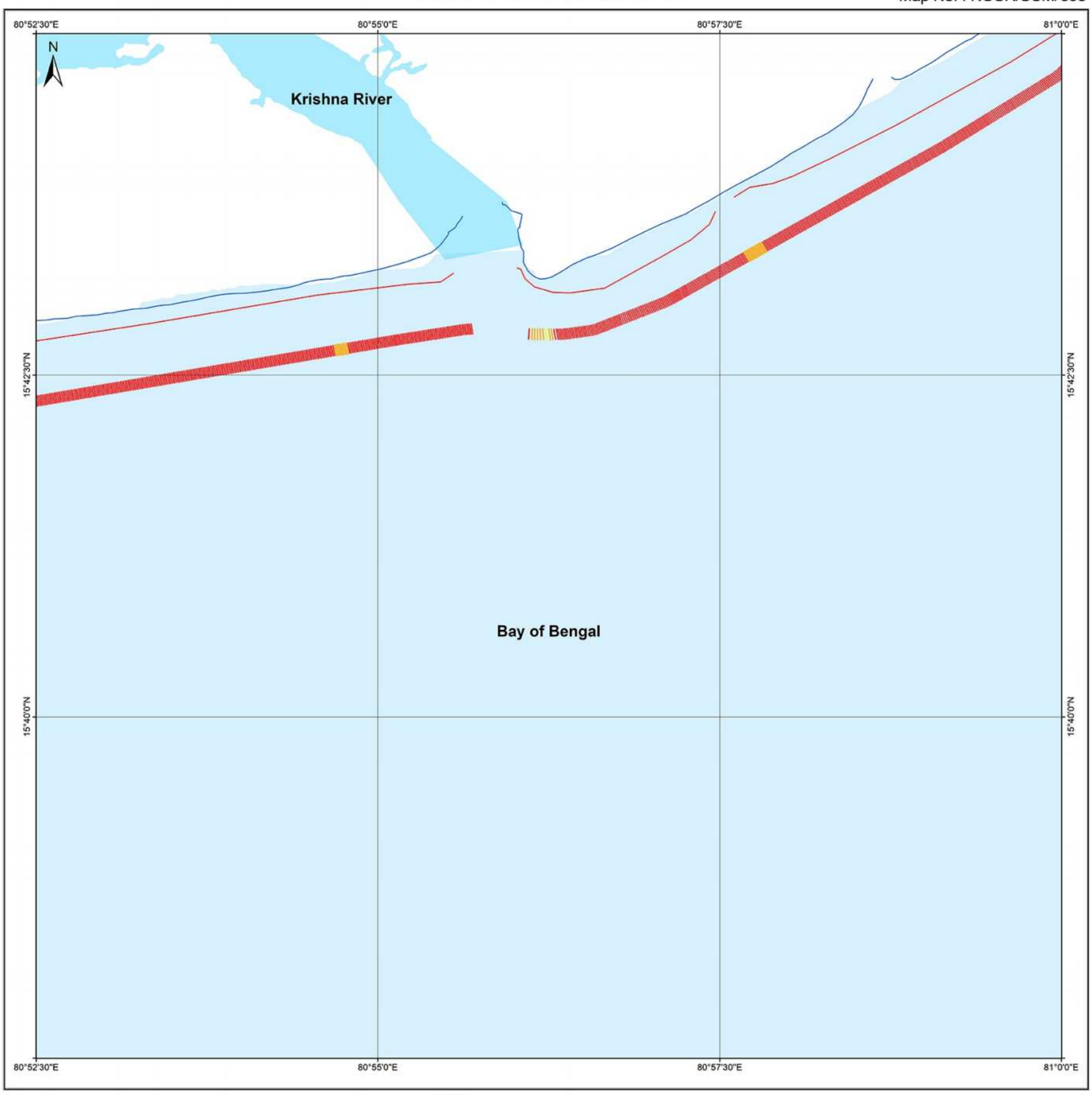
KRISHNA

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

66 A / 14 / NE

Map No. : NCCR/SCM/393



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 02/03/2018

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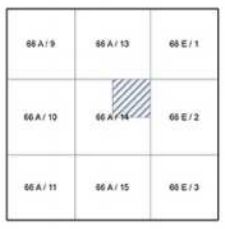

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

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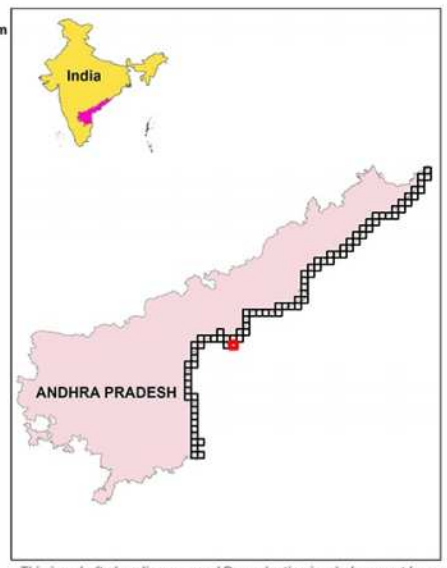

- Settlements
- Port
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1990 - 2018

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SHORELINE CHANGE MAP
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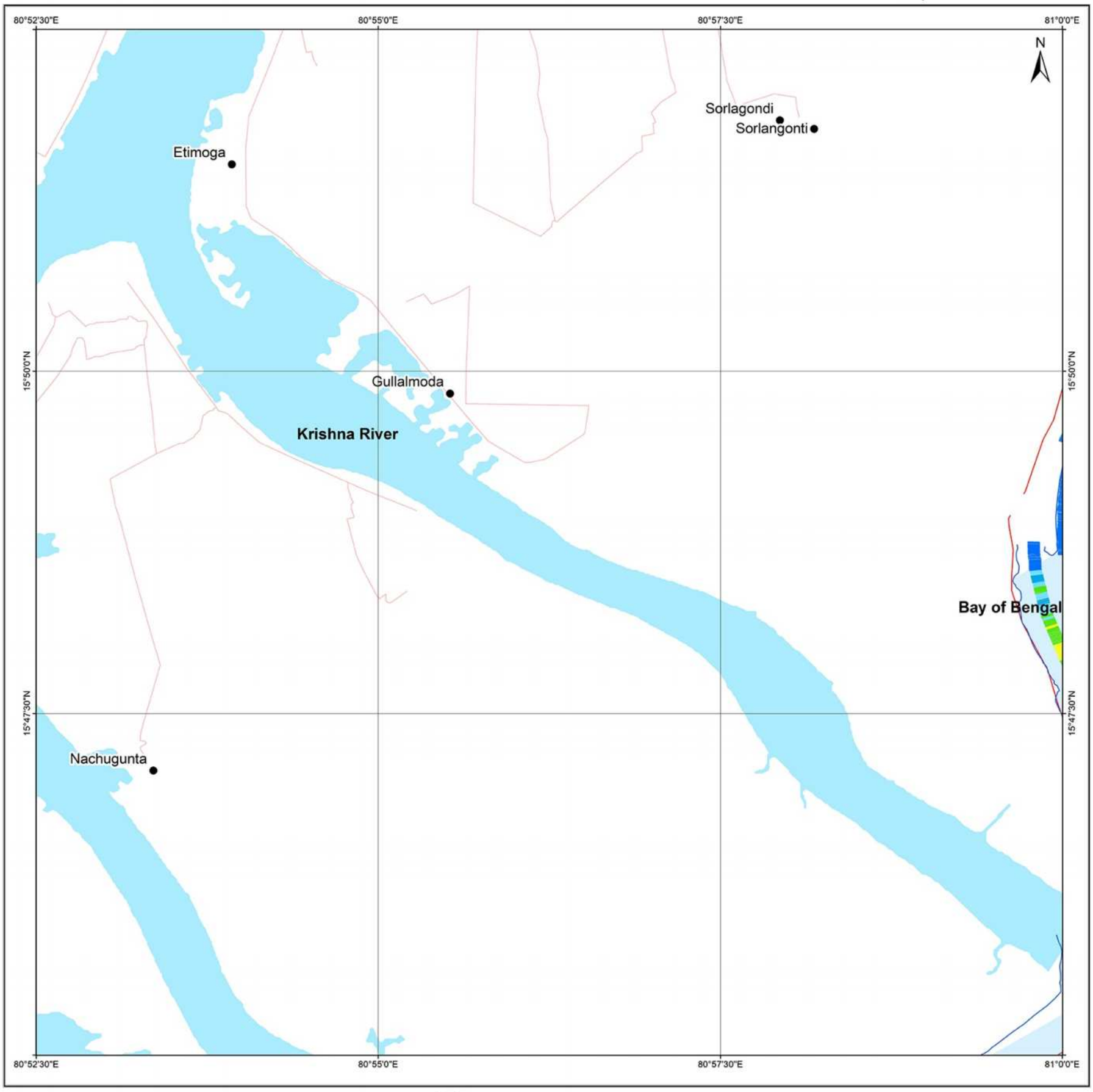
66 A / 13 / SE

Map No. : NCCR/SCM/394



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 02/03/2018

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Scale

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UTM Coordinates Zone 44

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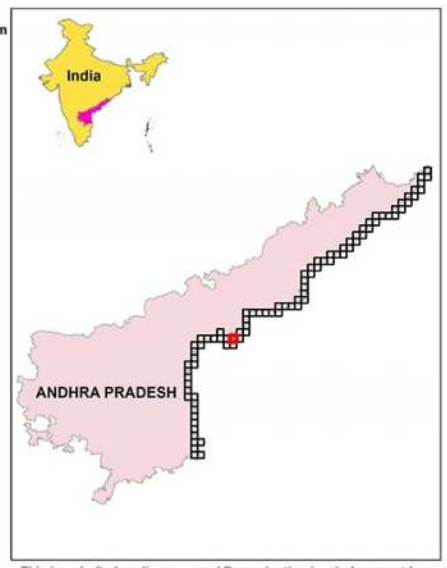

- Settlements
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SHORELINE CHANGE MAP
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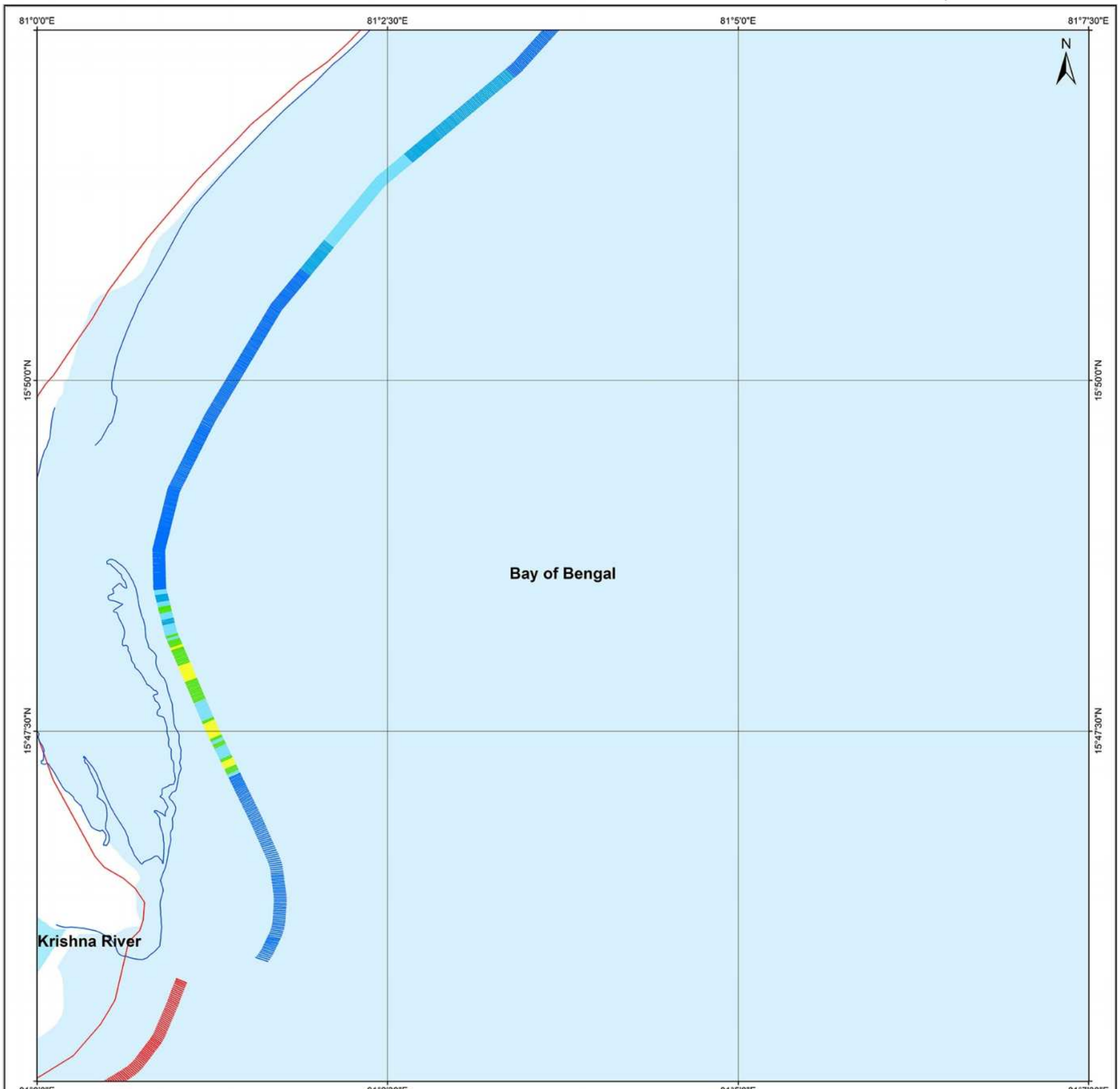
66 E / 1 / SW

Map No. : NCCR/SCM/395



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 02/03/2018

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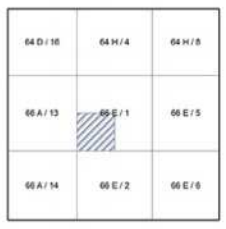

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

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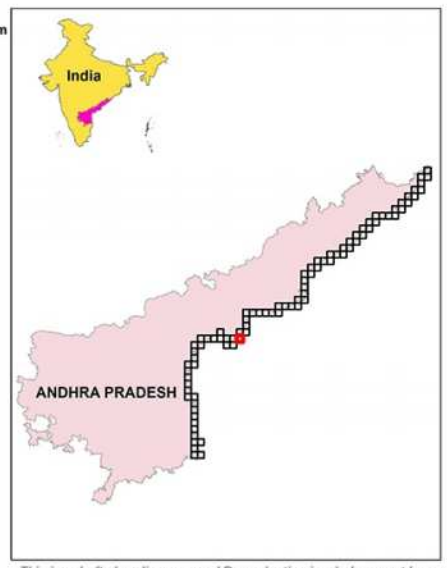

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SHORELINE CHANGE MAP
ANDHRA PRADESH

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66 E / 1 / NW

Map No. : NCCR/SCM/396

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 02/03/2018

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Scale

1000 m 500 0 1 2 km

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UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

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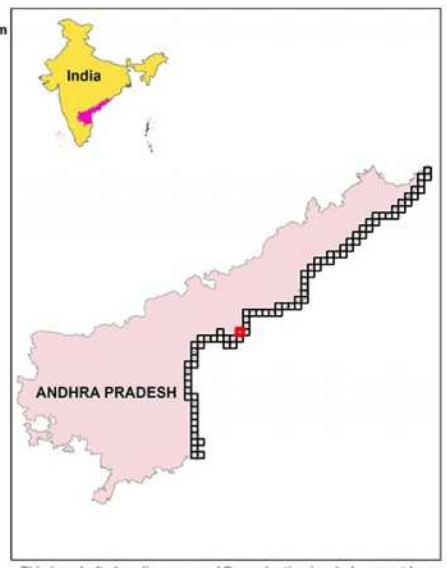

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1990 - 2018

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SHORELINE CHANGE MAP
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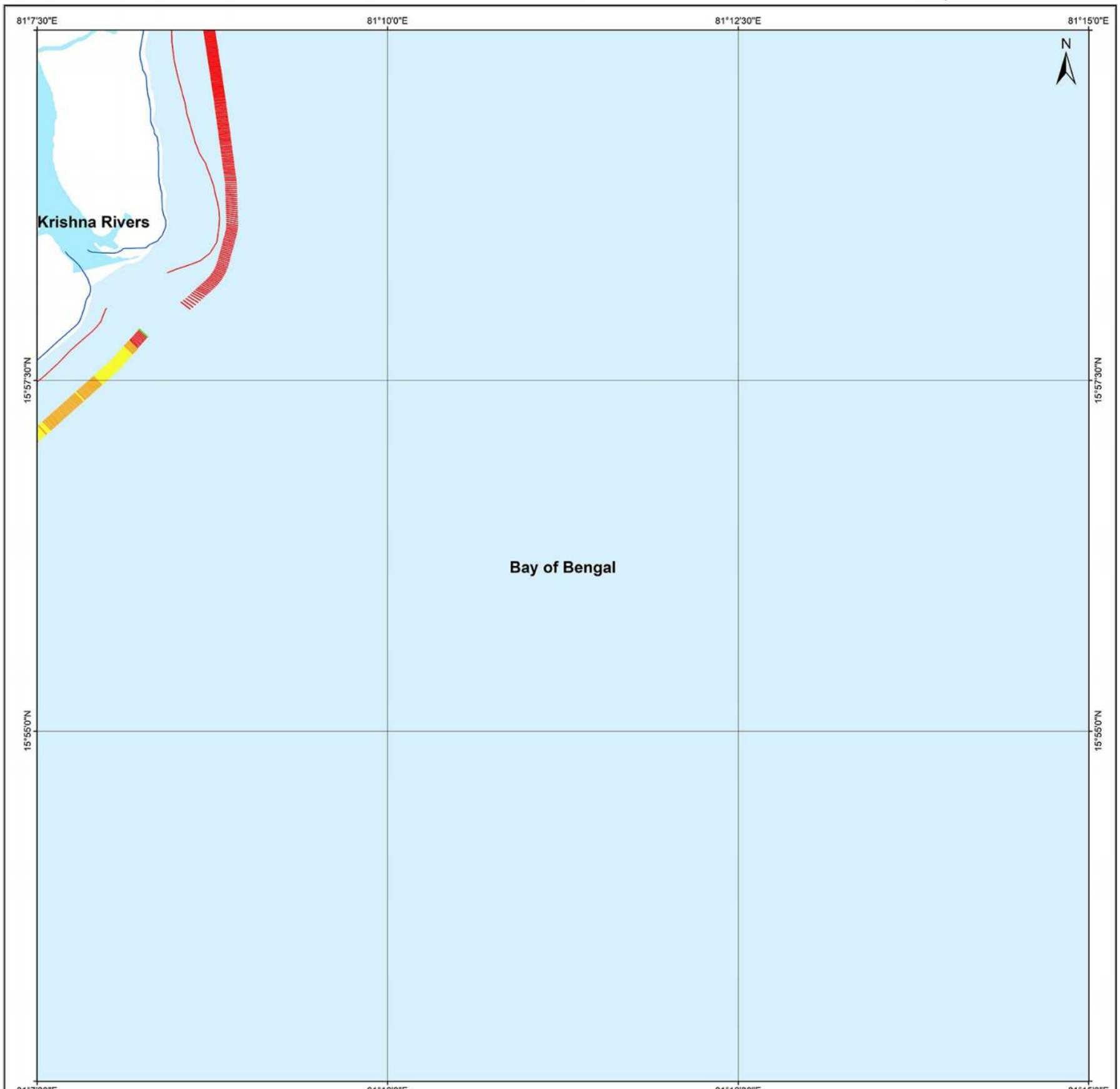
66 E / 1 / NE

Map No. : NCCR/SCM/397



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 02/03/2018

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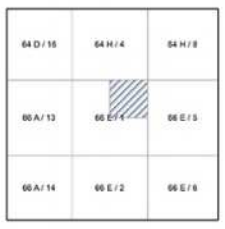

Scale

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UTM Coordinates Zone 44

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LISS-IV	01/09/2012
LISS-III	03/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	10/28/2000
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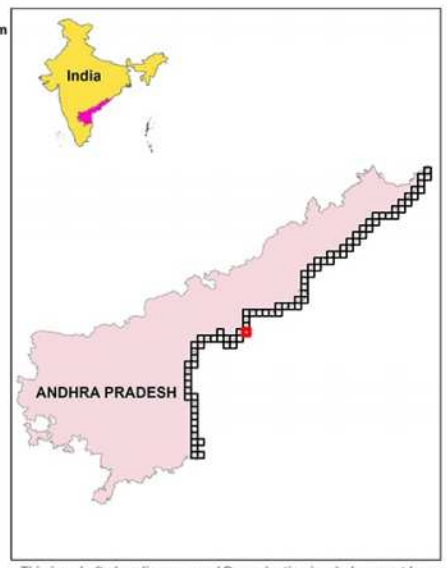

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1990 - 2018

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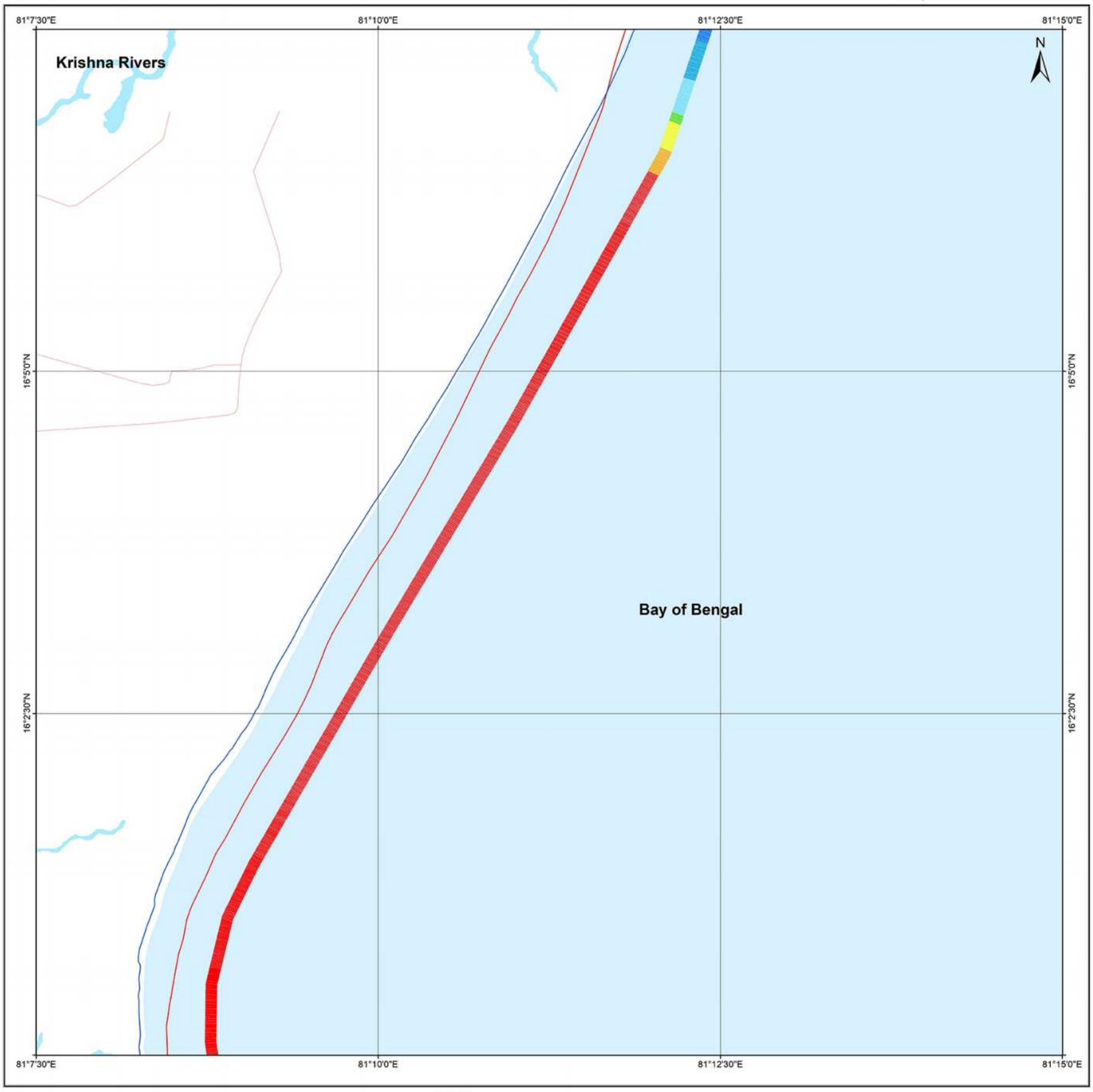
SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 H / 4 / SE

Map No. : NCCR/SCM/398



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 10/11/1990
- 02/03/2018 & 03/04/2018

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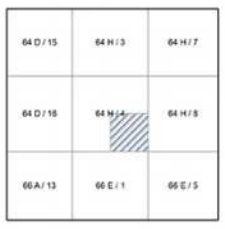
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/03/2018 & 03/04/2018
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LISS-IV	06/01/2016
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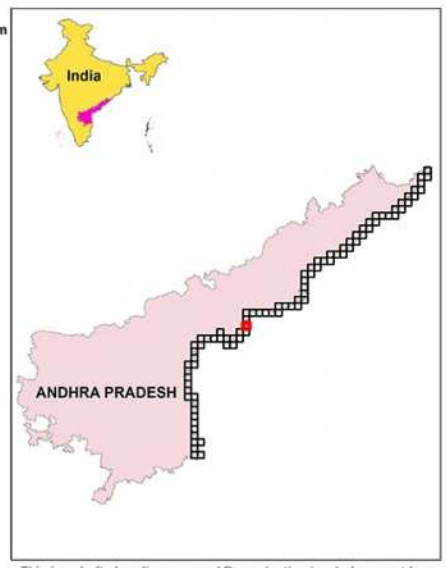

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1990 - 2018

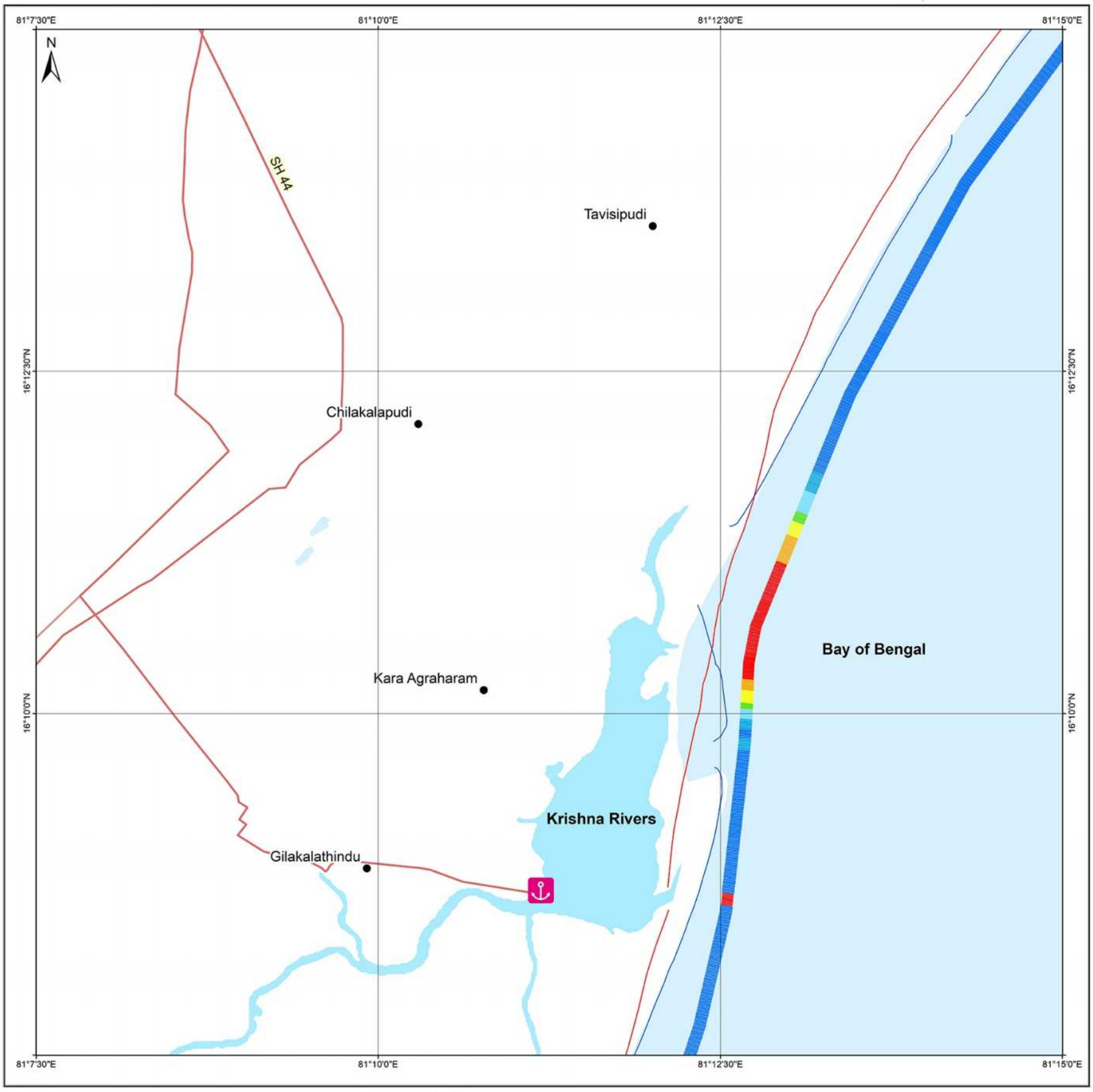
KRISHNA

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 H / 4 / NE

Map No. : NCCR/SCM/399



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/10/1990
- 03/04/2018

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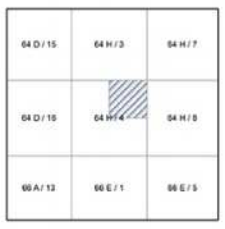

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

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LISS-IV	01/09/2012
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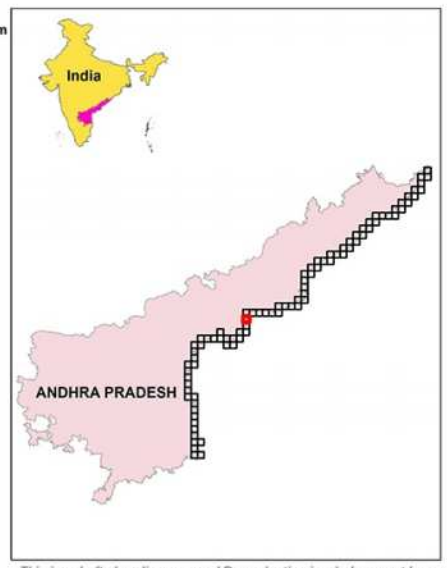

- Settlements
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1990 - 2018

KRISHNA

SHORELINE CHANGE MAP
ANDHRA PRADESH

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65 H / 3 / SE

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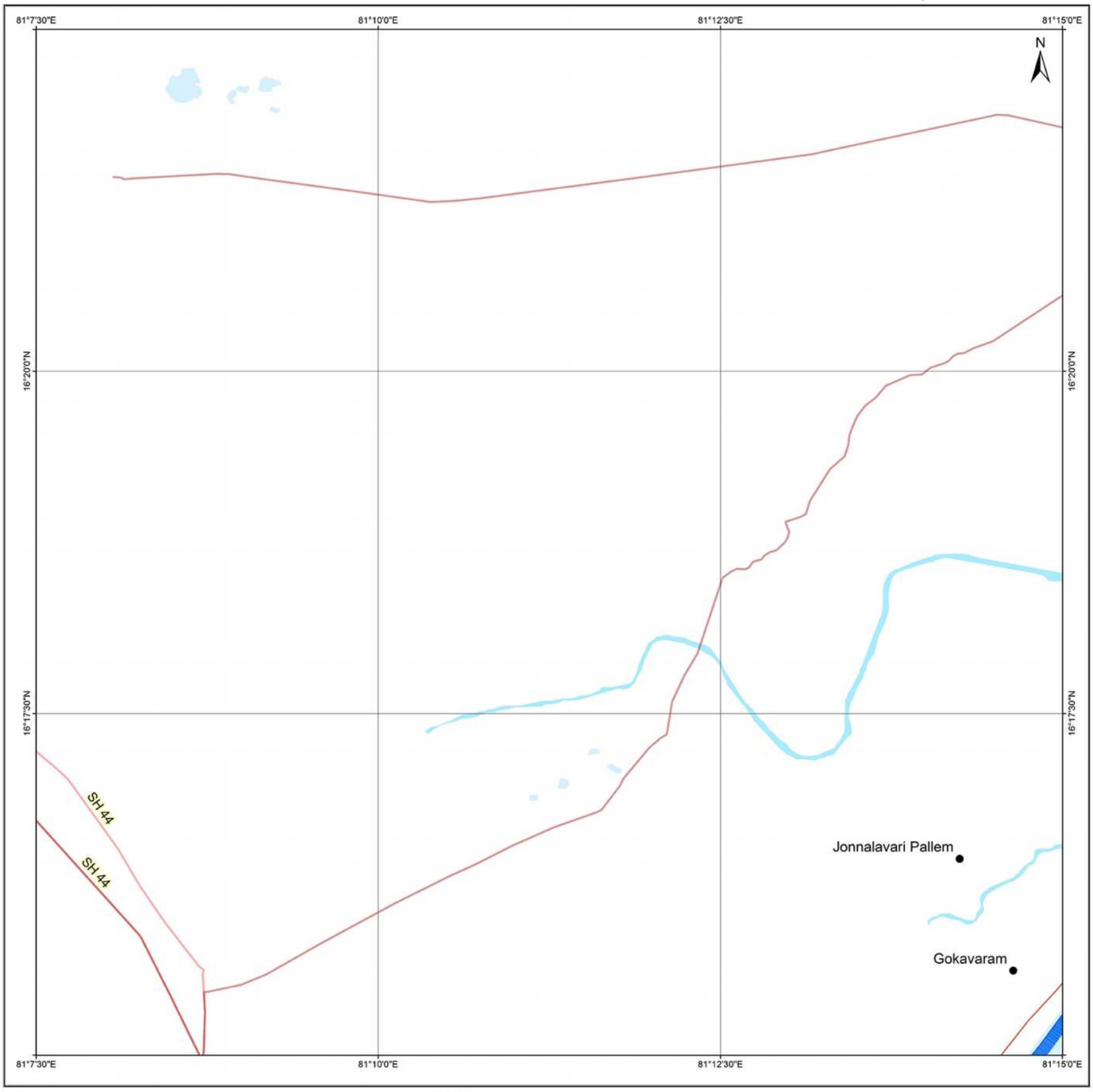

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/10/1990
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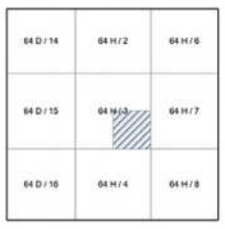

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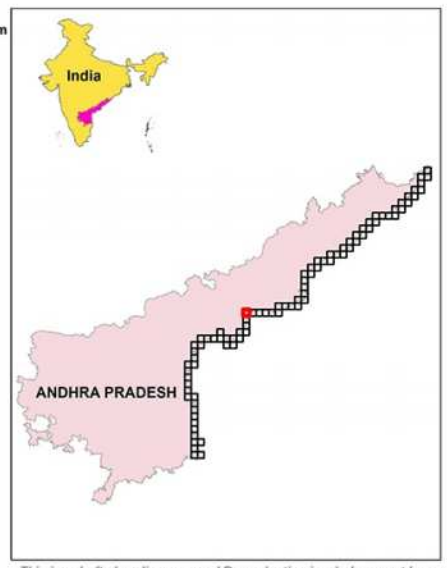

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SHORELINE CHANGE MAP
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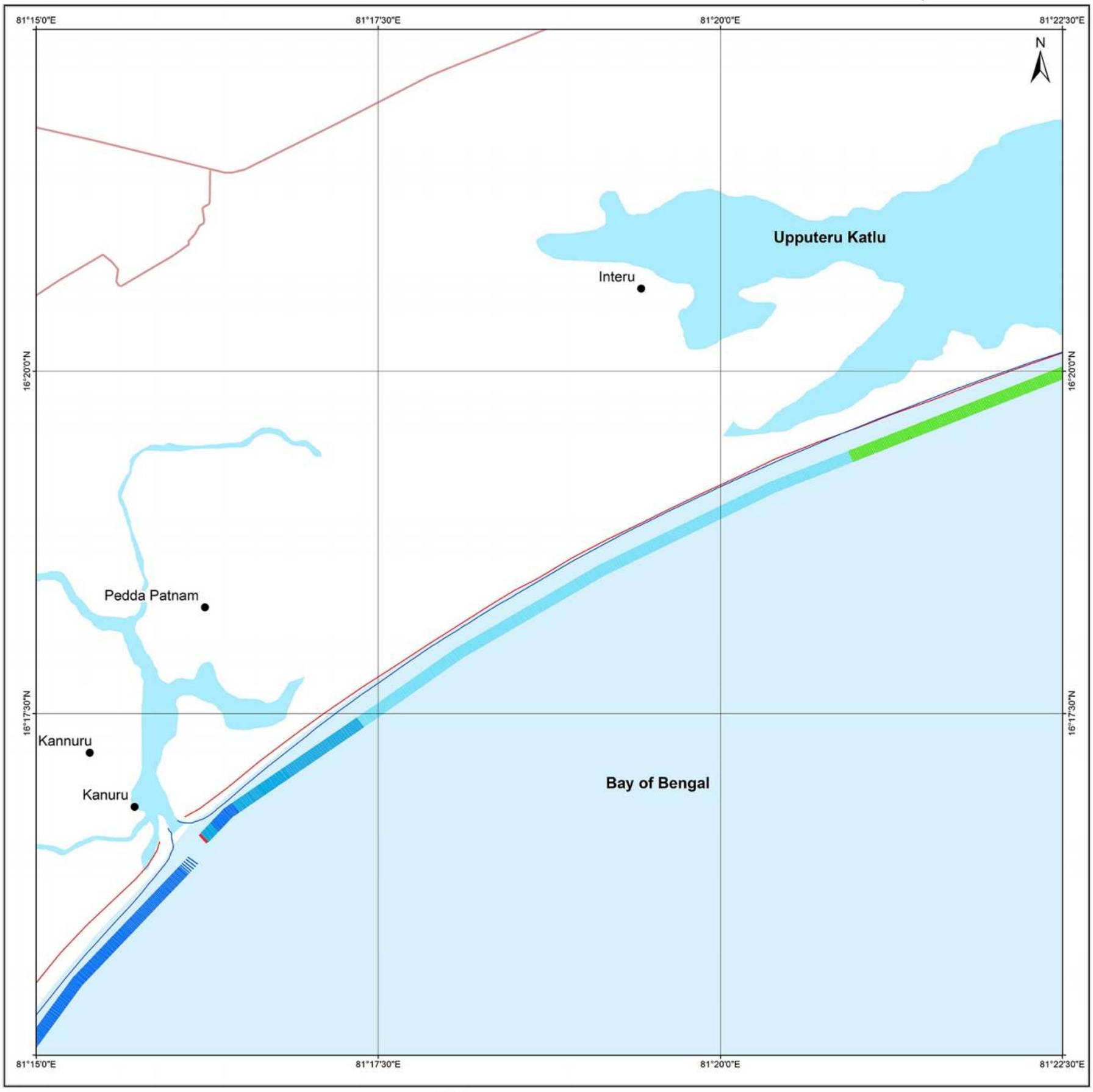
65 H / 7 / SW

Map No. : NCCR/SCM/401



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/10/1990
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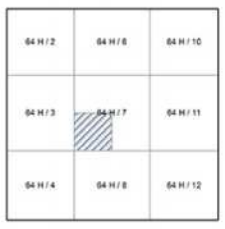

Scale

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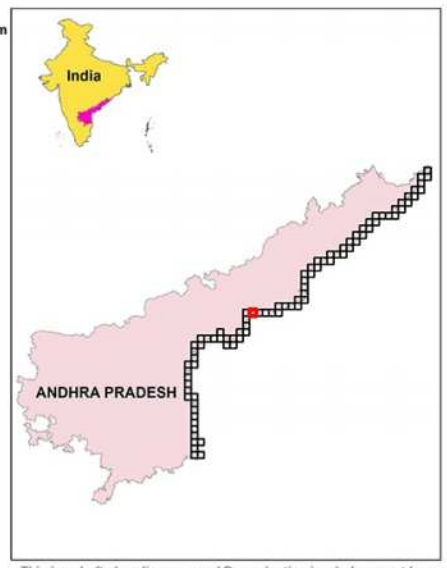

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- National Highways
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- Other Roads
- Railways
- Lakes
- Rivers

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1990 - 2018

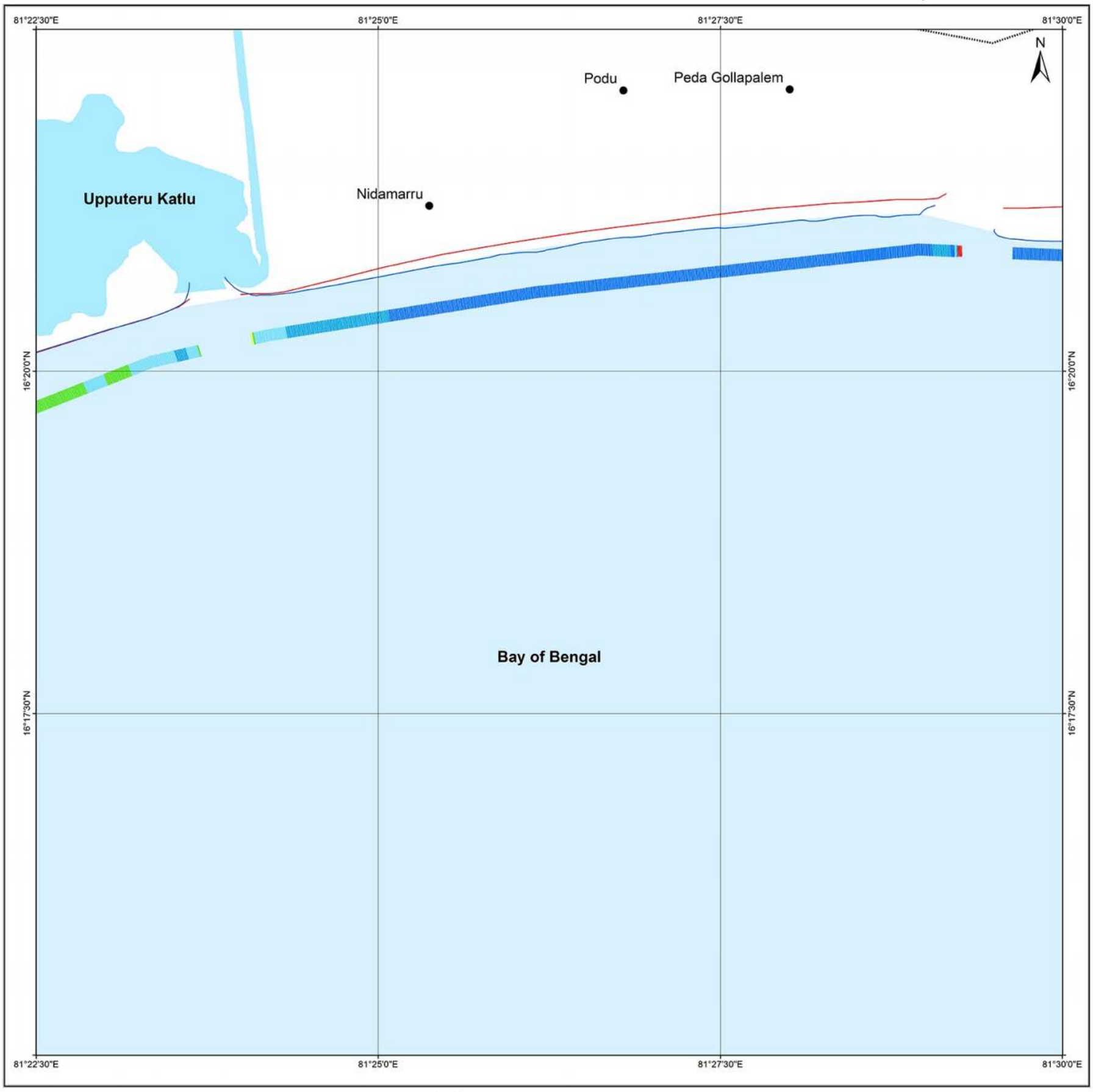
KRISHNA

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 H / 7 / SE

Map No. : NCCR/SCM/402



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/10/1990
- 03/04/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/04/2018
LISS-IV	04/14/2017
LISS-IV	11/21/2016
LISS-IV	01/19/2015
LISS-IV	06/04/2014
LISS-IV	05/24/2013
LISS-IV	12/12/2012
LISS-III	08/03/2008
PAN (Cartosat-1)	01/07/2006
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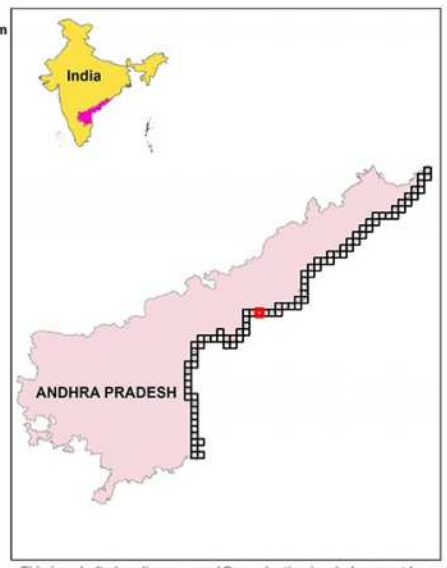
TM	11/10/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
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- Lakes
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1990 - 2018

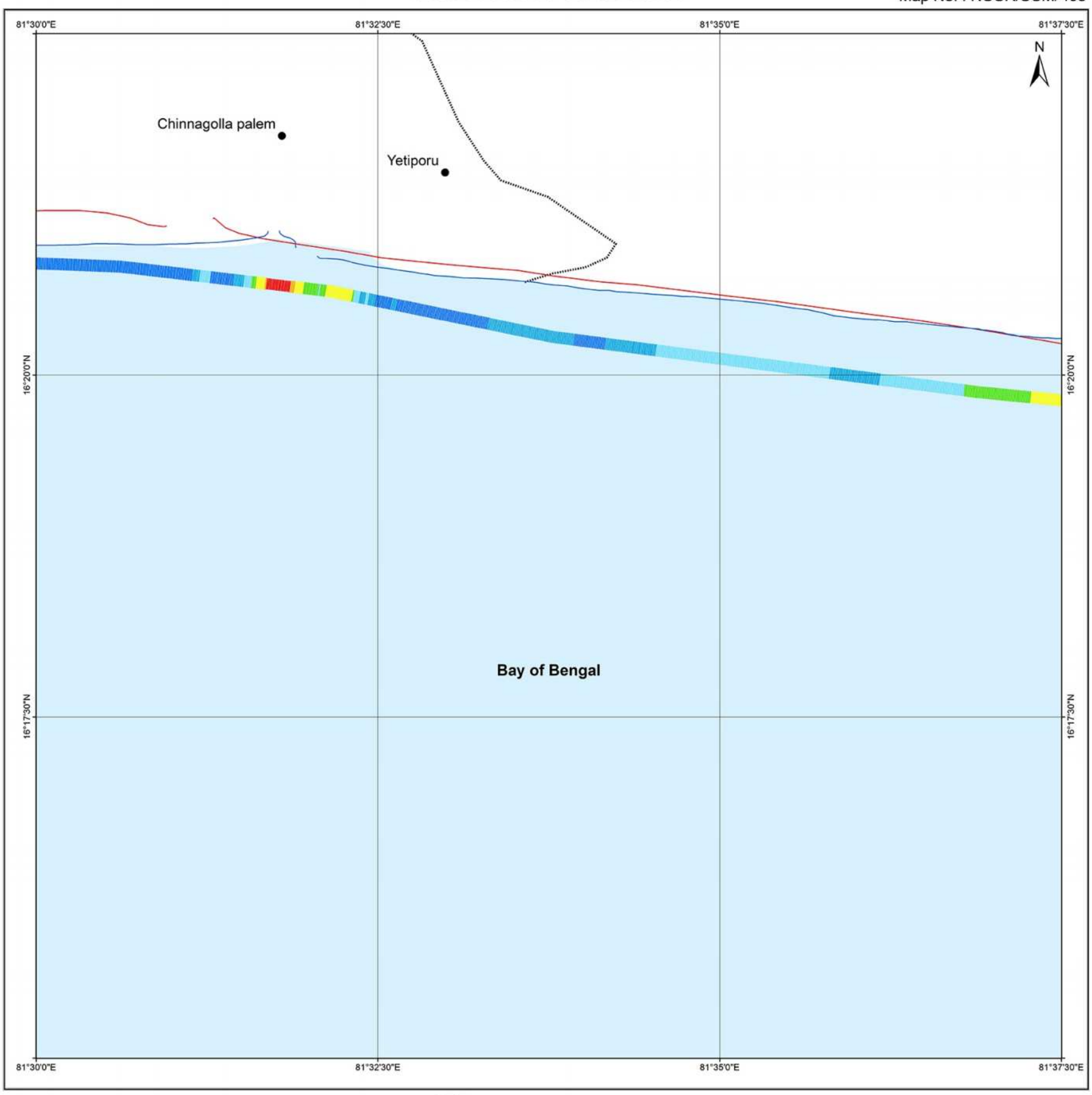
KRISHNA

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 H / 11 / SW

Map No. : NCCR/SCM/403



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/10/1990
- 03/04/2018

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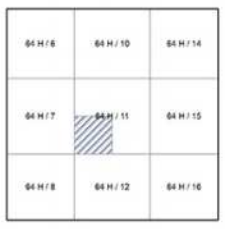
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

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PAN (Cartosat-1)	01/07/2006
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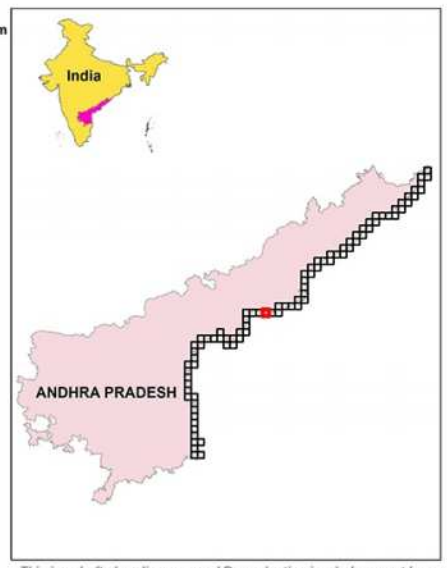

- Settlements
- Port
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- Breakwater
- Seawall/Ripraps
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- Administrative Boundary
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1990 - 2018

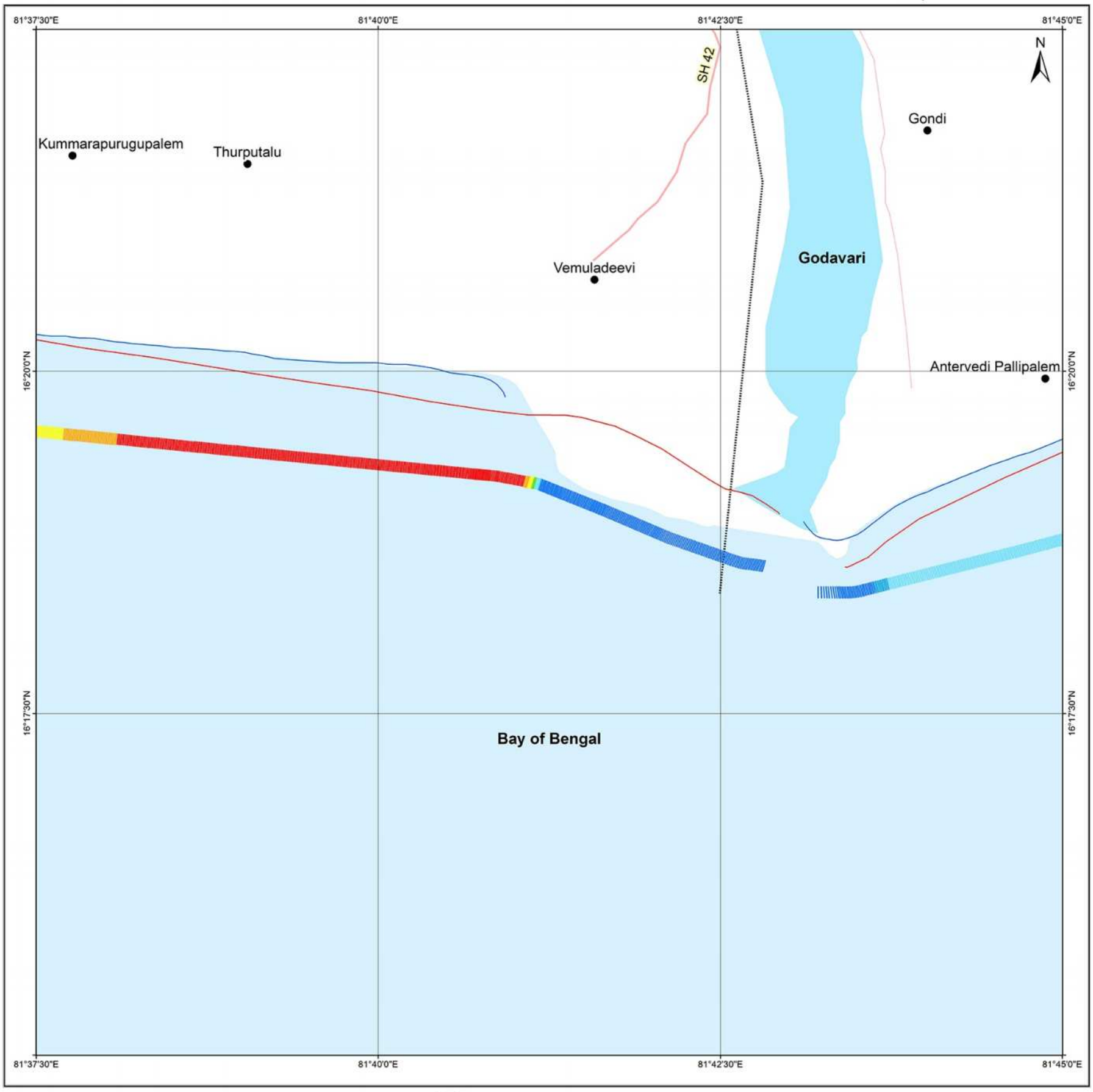
WEST GODAVARI

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 H / 11 / SE

Map No. : NCCR/SCM/404



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/10/1990
- 03/04/2018 & 02/20/2018

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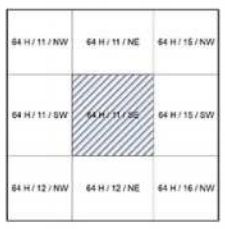

Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

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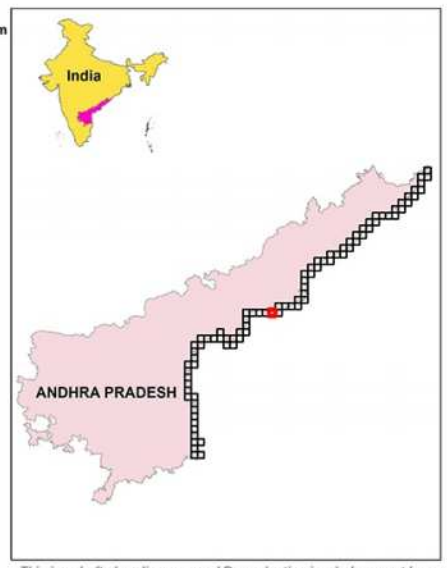

- Settlements
- Port
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- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
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1990 - 2018

EAST GODAVARI

SHORELINE CHANGE MAP
ANDHRA PRADESH

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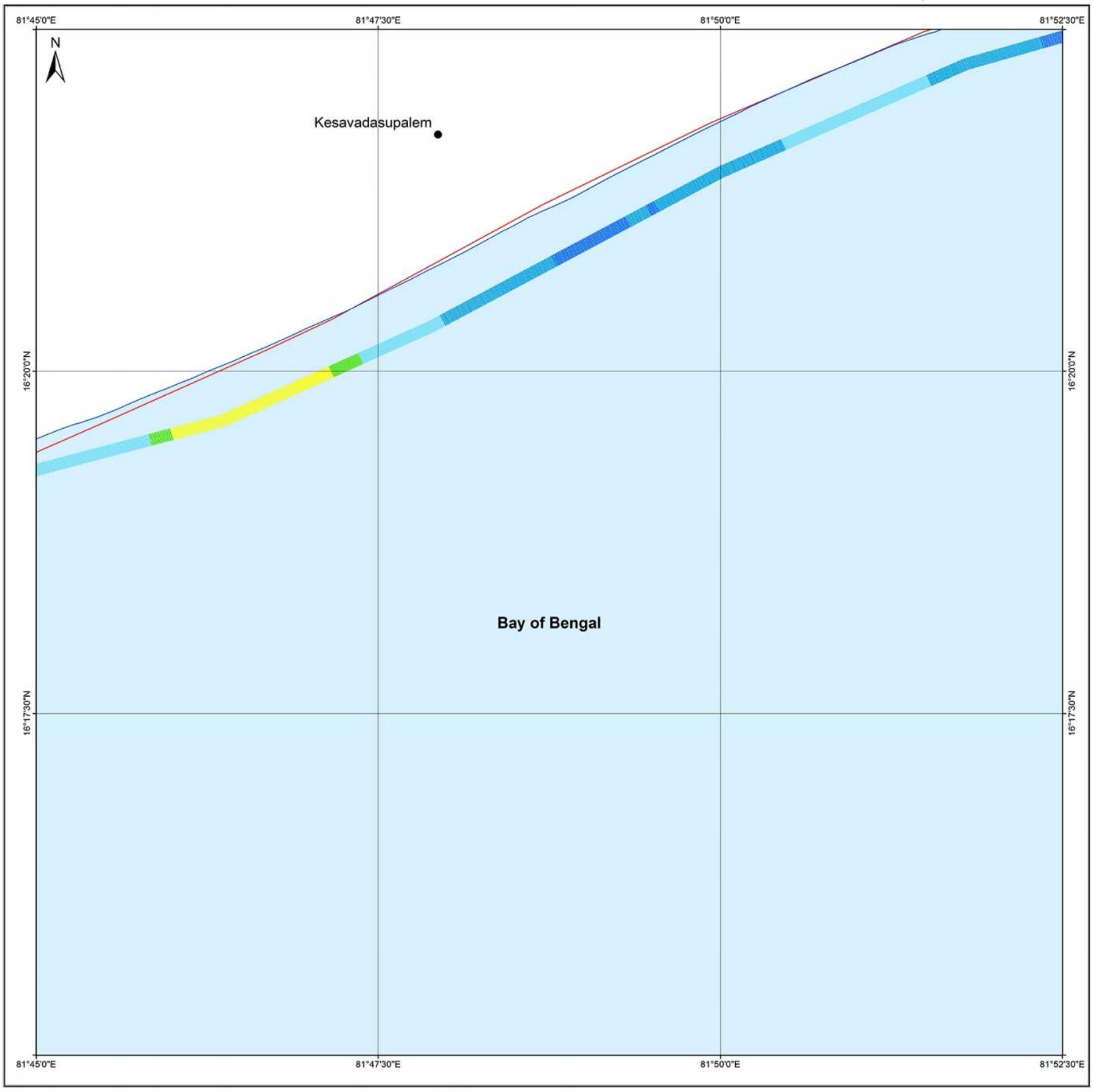
65 H / 15 / SW

Map No. : NCCR/SCM/405



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/10/1990
- 02/20/2018

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Scale

1000 m 500 0 1 2 km

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UTM Coordinates Zone 44

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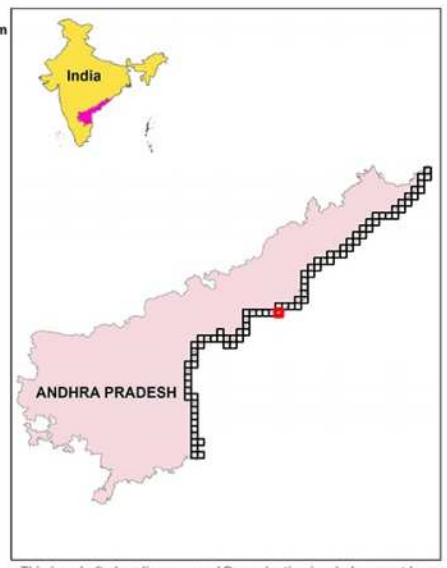

- Settlements
- Port
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- Breakwater
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1990 - 2018

EAST GODAVARI

SHORELINE CHANGE MAP
ANDHRA PRADESH

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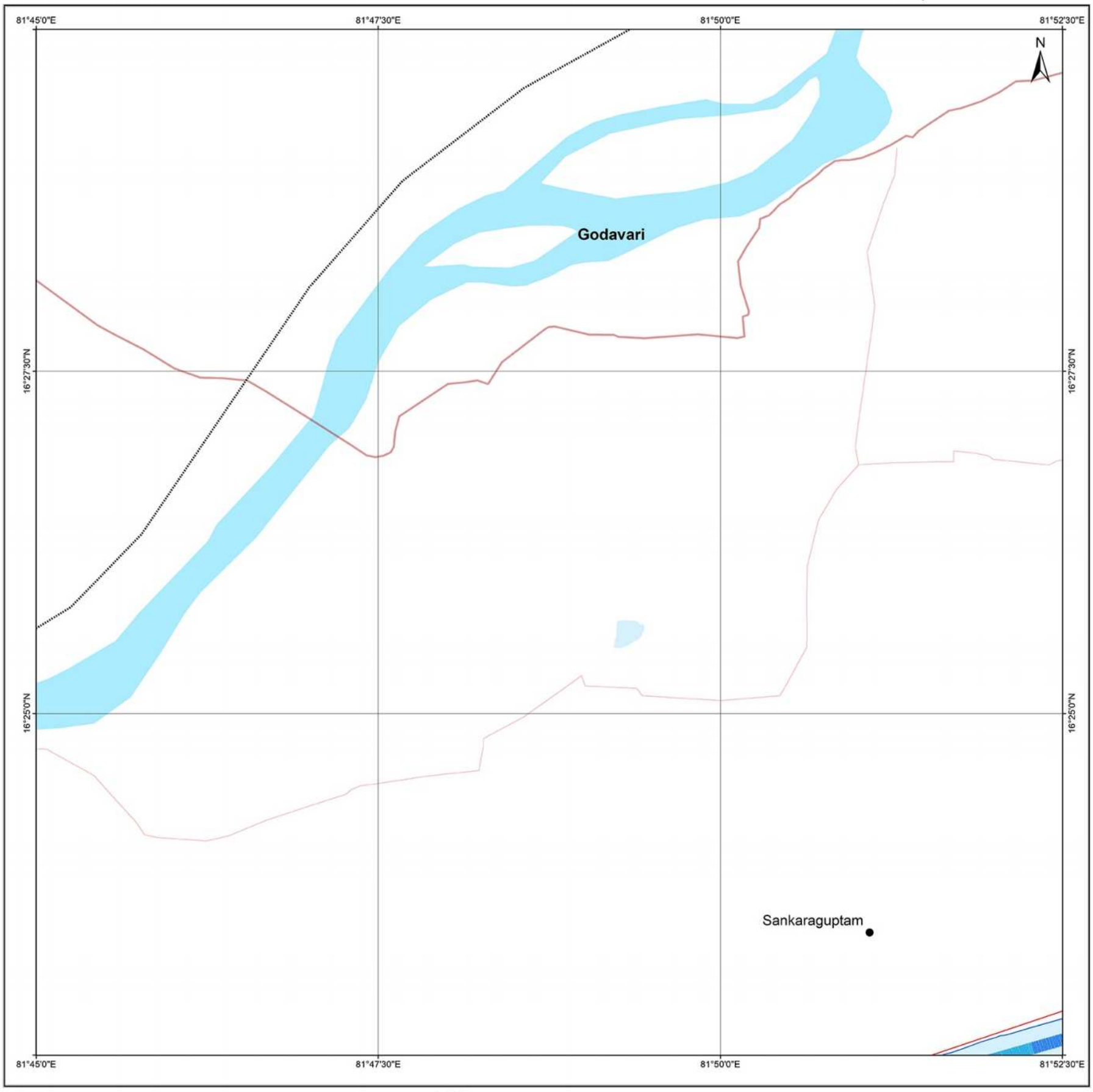
65 H / 15 / NW

Map No. : NCCR/SCM/406



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/10/1990
- 02/20/2018

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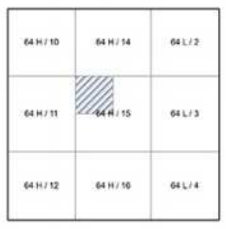

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

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LISS-IV	05/05/2015
LISS-IV	03/13/2014
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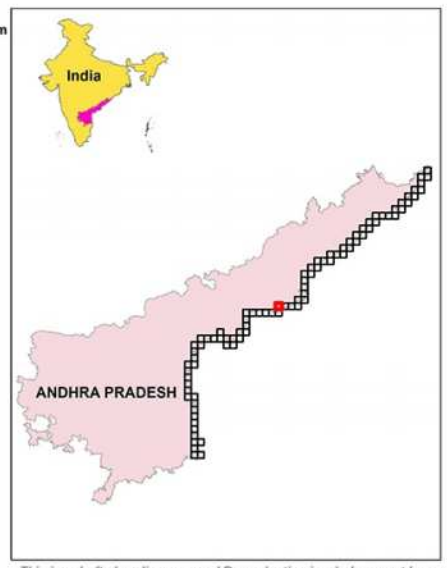

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- Breakwater
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EAST GODAVARI

SHORELINE CHANGE MAP
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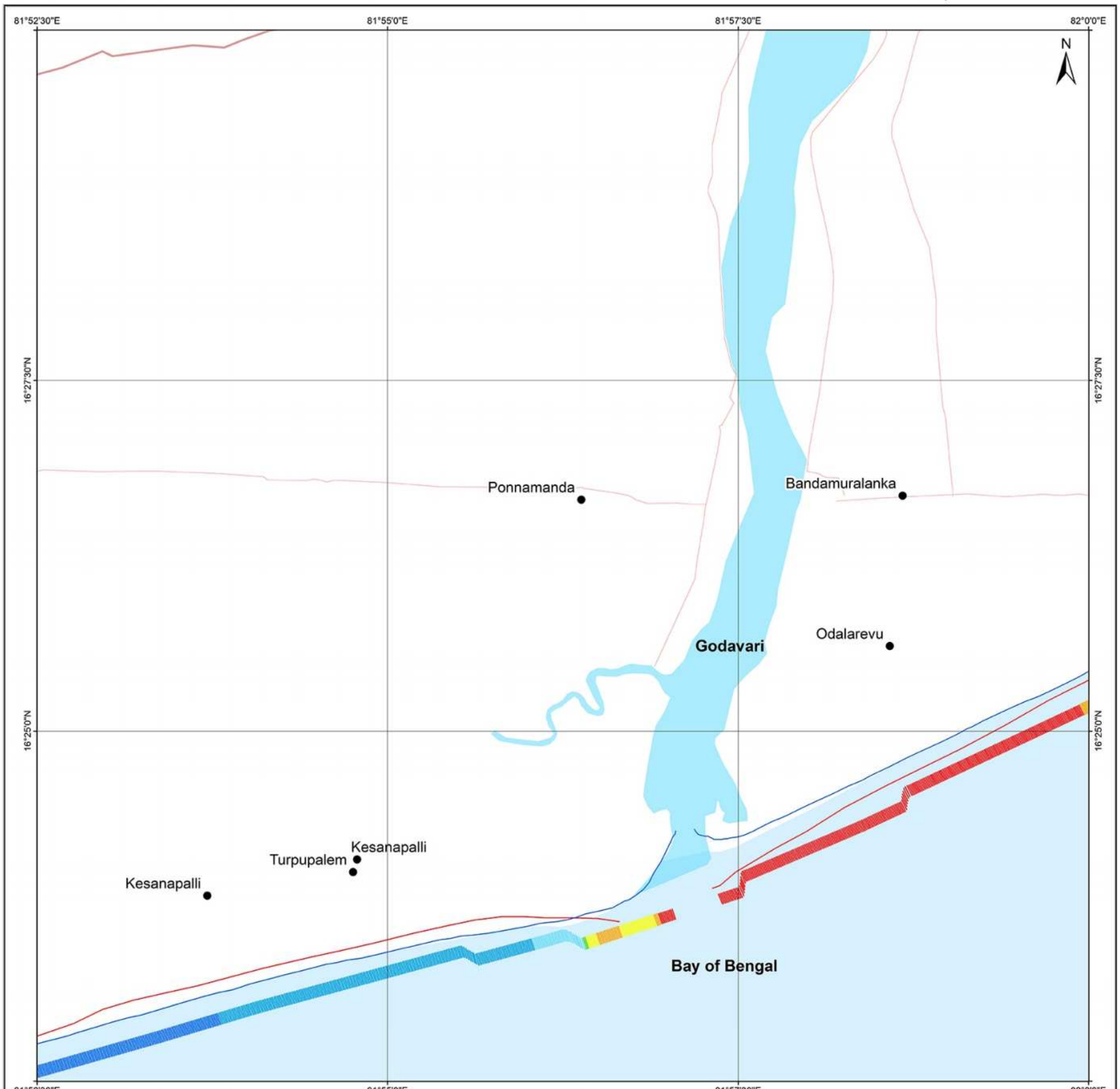
65 H / 15 / NE

Map No. : NCCR/SCM/407



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 31/10/1990
- 02/20/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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LISS-IV	02/20/2018
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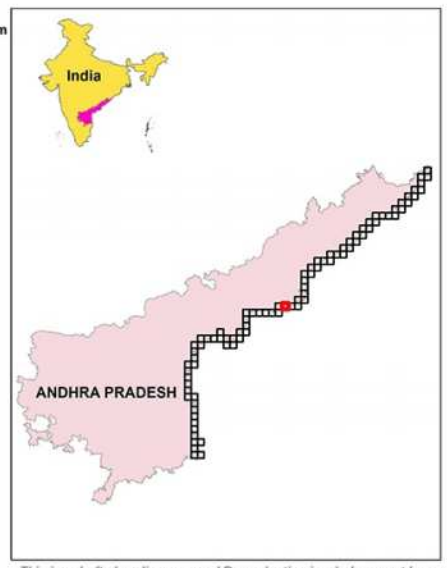
ETM+	08/12/2000
TM	31/10/1990



- Settlements
- Port
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- Seawall/Ripraps
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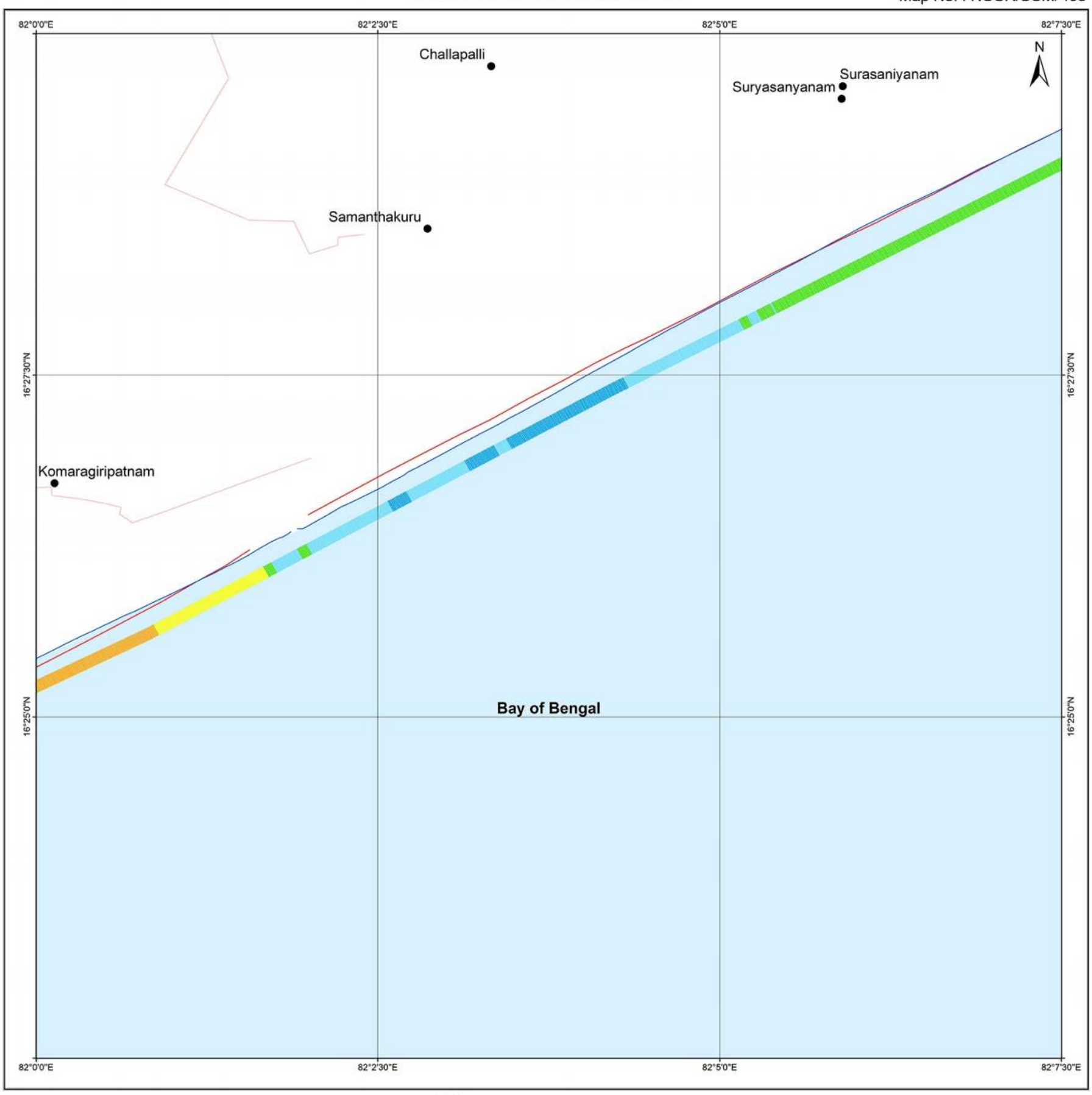
EAST GODAVARI

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 L / 3 / NW

Map No. : NCCR/SCM/408



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 31/10/1990
- 02/20/2018

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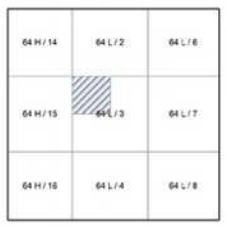
Incidence on 1:50,000 Sheets



Scale

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1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/20/2018
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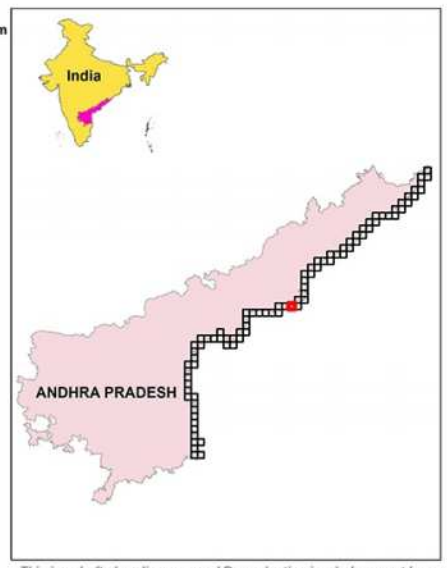

- Settlements
- Port
- Harbour
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- Seawall/Ripraps
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1990 - 2018

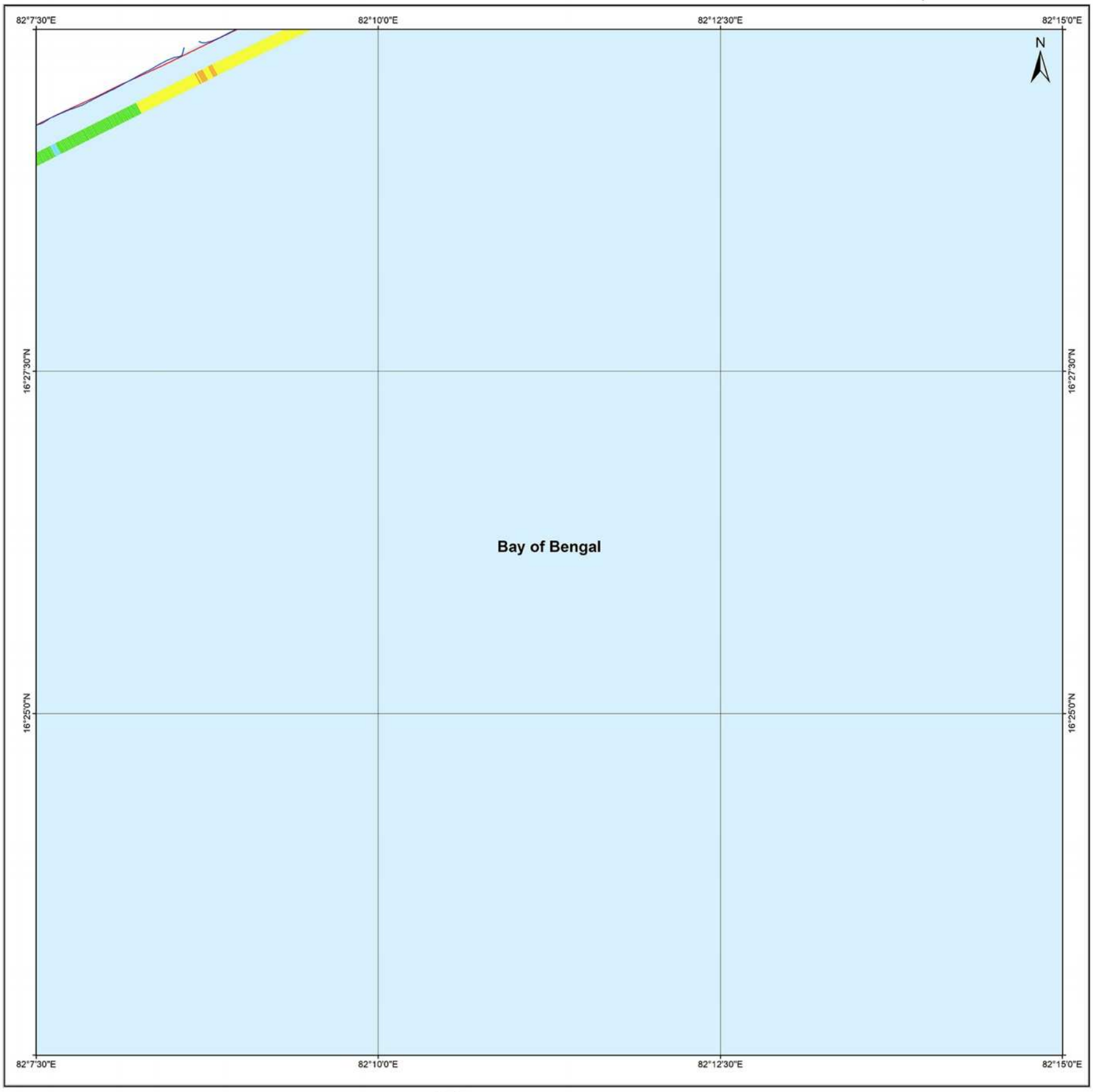
EAST GODAVARI

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 L / 3 / NE

Map No. : NCCR/SCM/409



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 31/10/1990
- 02/20/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

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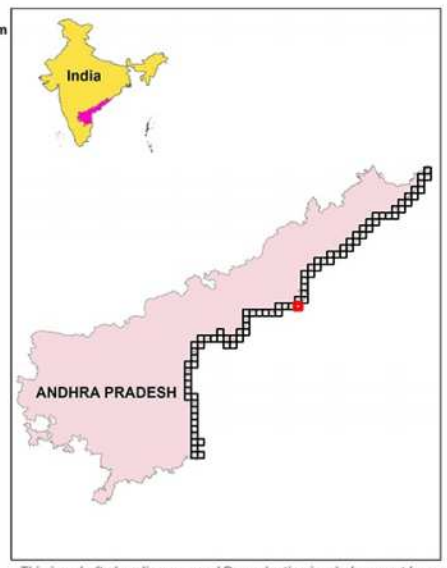

- Settlements
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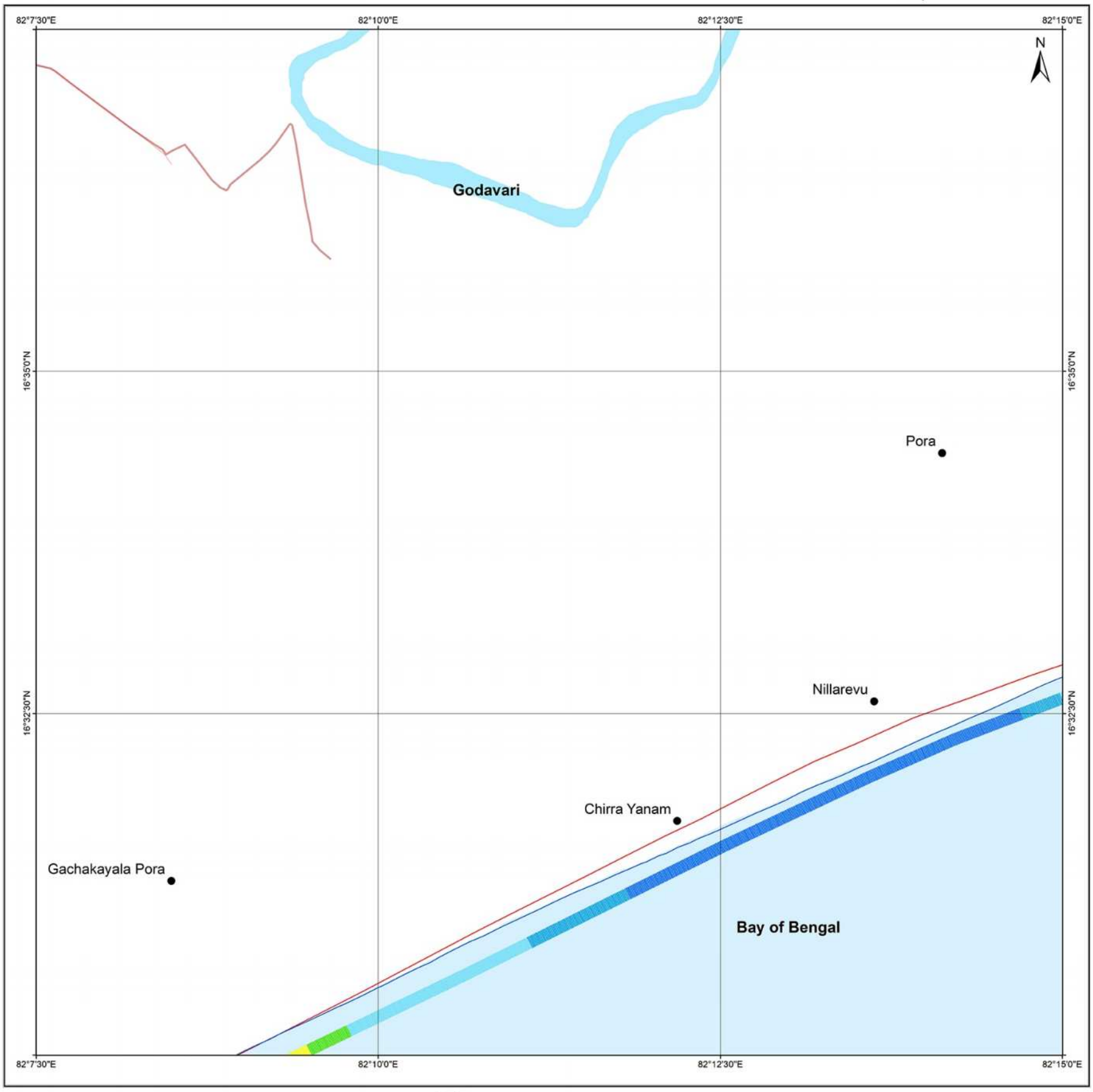
EAST GODAVARI

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 L / 2 / SE

Map No. : NCCR/SCM/410



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 31/10/1990
- 02/20/2018

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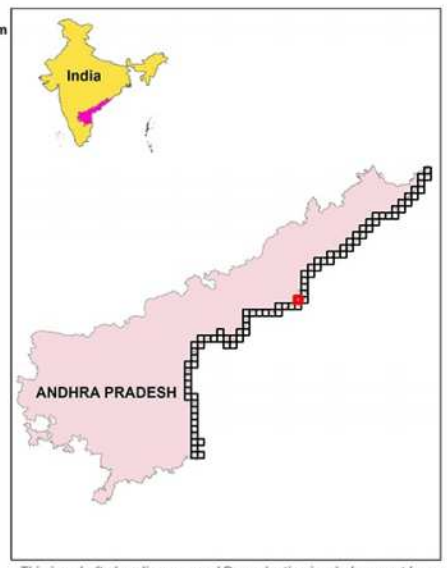

- Settlements
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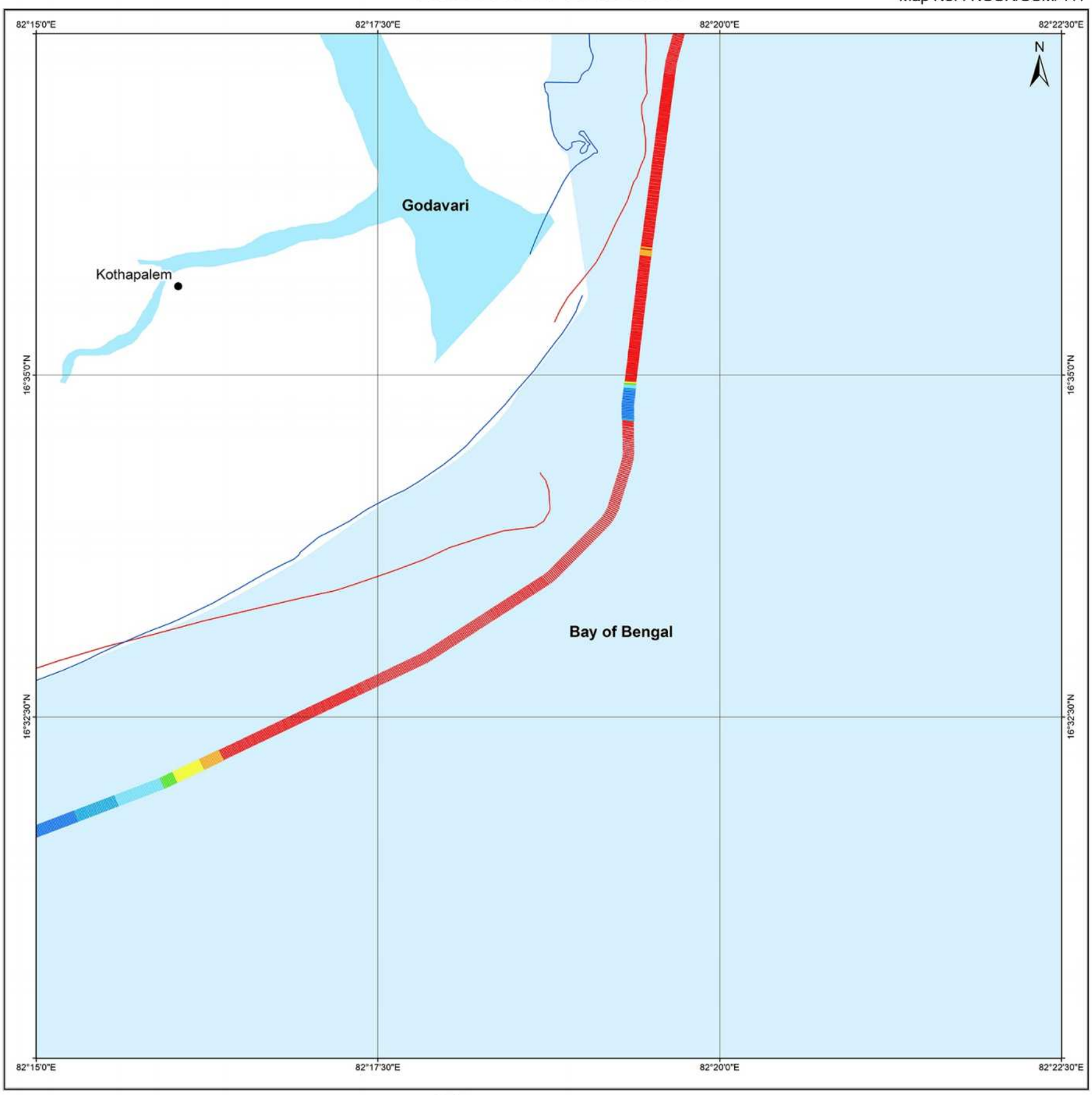
EAST GODAVARI

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 L / 6 / SW

Map No. : NCCR/SCM/411



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 31/10/1990
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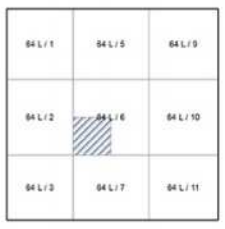

Scale

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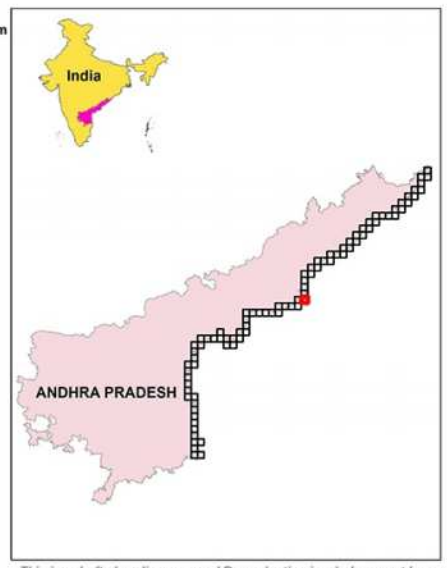
ETM+	08/12/2000
TM	31/10/1990



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- Port
- Harbour
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- Breakwater
- Seawall/Ripraps
- Rocky Coast
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1990 - 2018

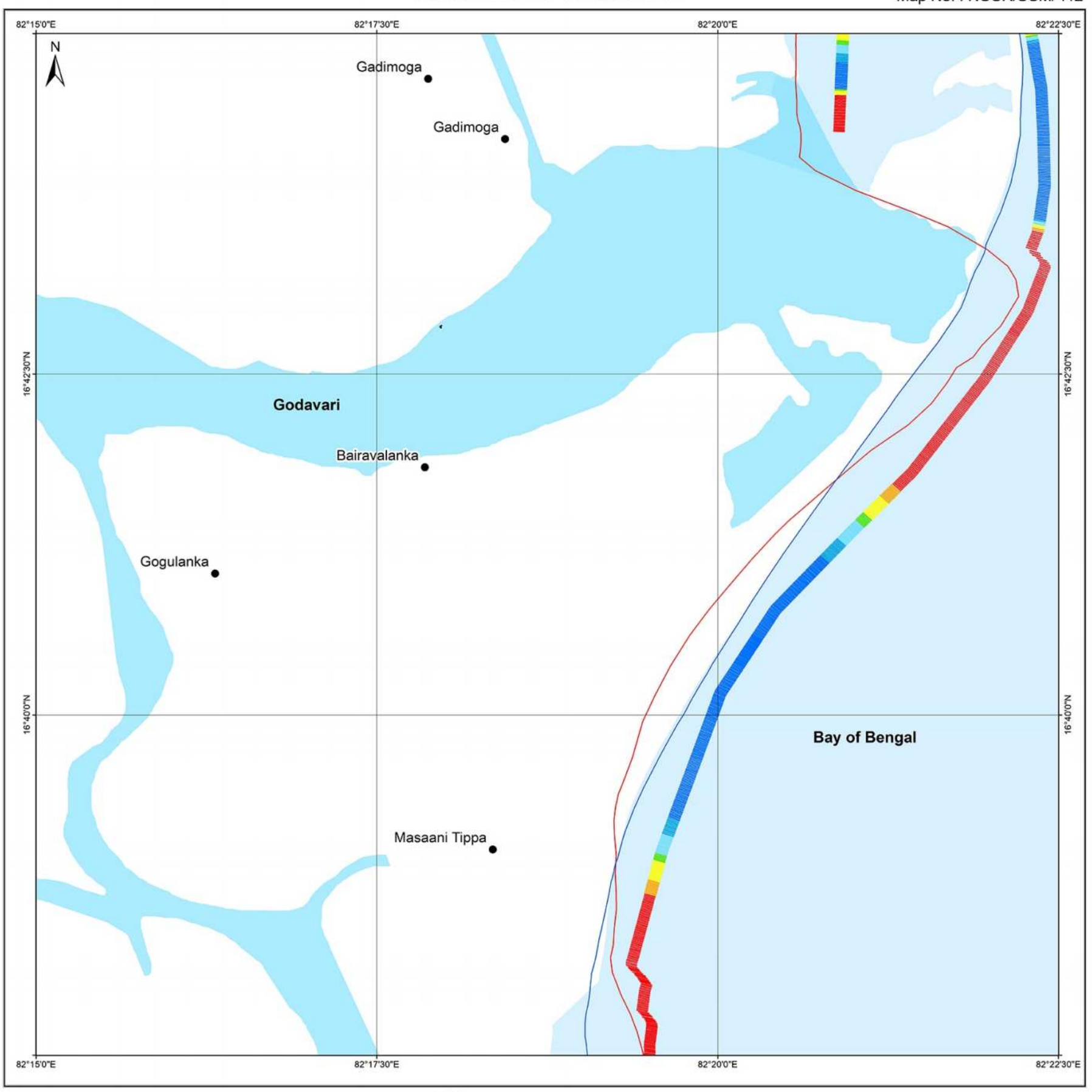
EAST GODAVARI

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 L / 6 / NW

Map No. : NCCR/SCM/412



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 31/10/1990
- 02/20/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

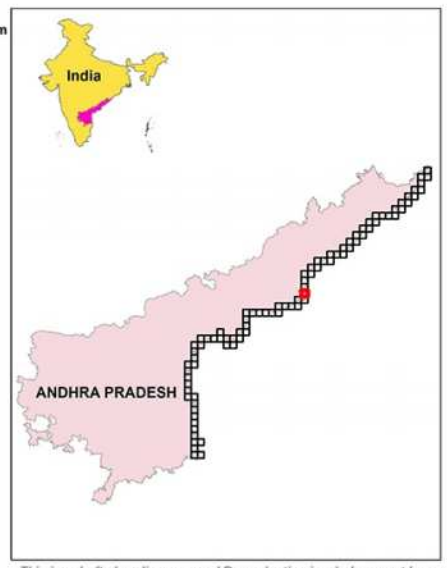
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/20/2018
LISS-IV	01/20/2017
LISS-IV	04/19/2016
LISS-IV	02/12/2015
LISS-IV	06/17/2014
LISS-IV	11/04/2013
LISS-IV	03/23/2012
LISS-III	08/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	31/10/1990



- Settlements
- Port
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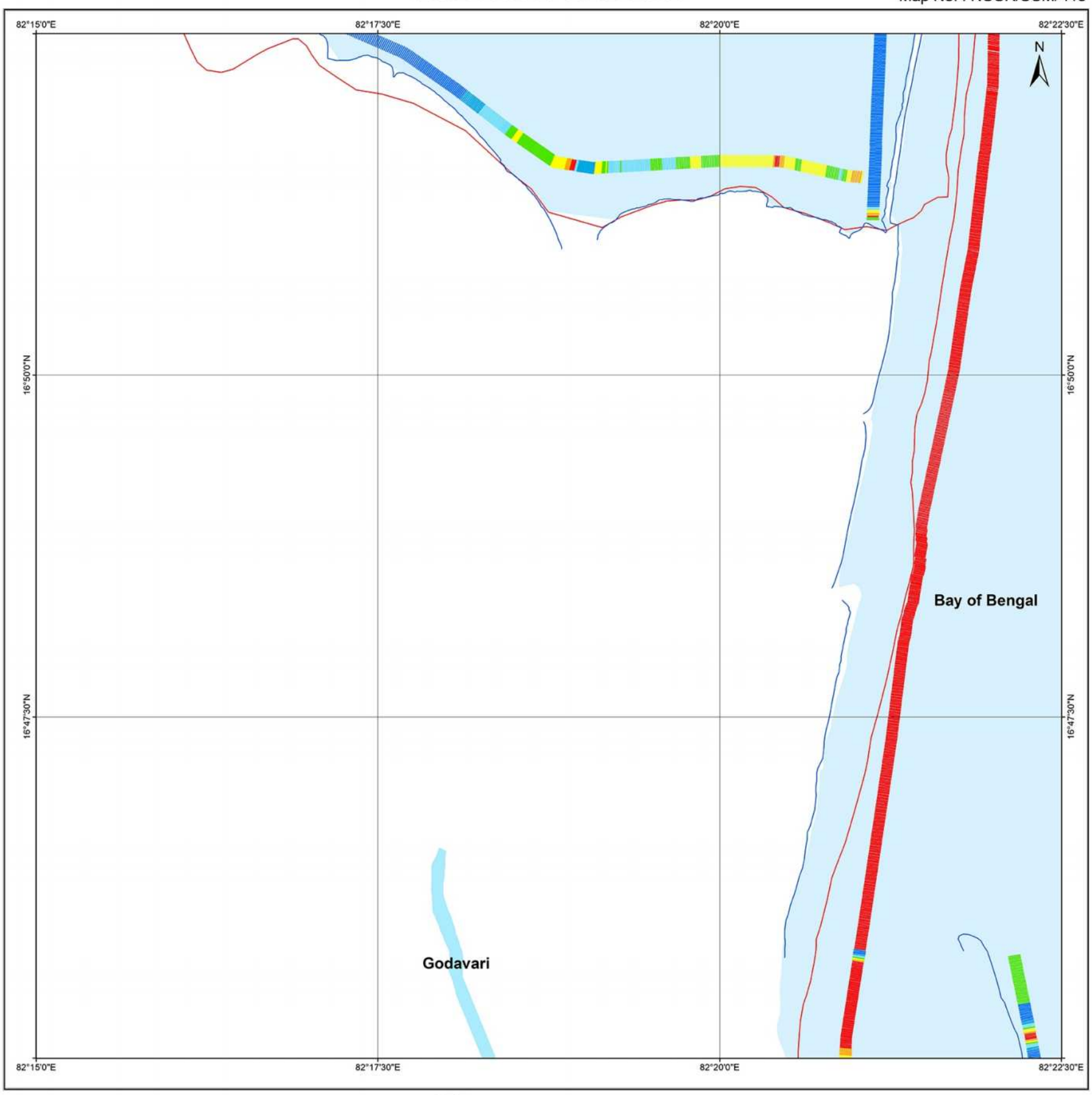
EAST GODAVARI

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 L / 5 / SW

Map No. : NCCR/SCM/413



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 02/20/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

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LISS-IV	02/20/2018
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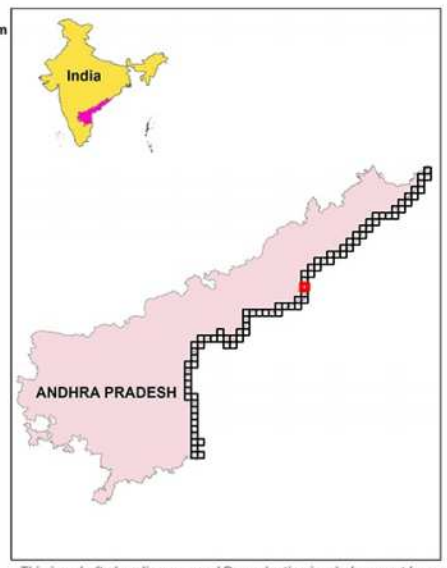
LISS-IV	03/23/2012
LISS-III	08/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



- Settlements
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1990 - 2018

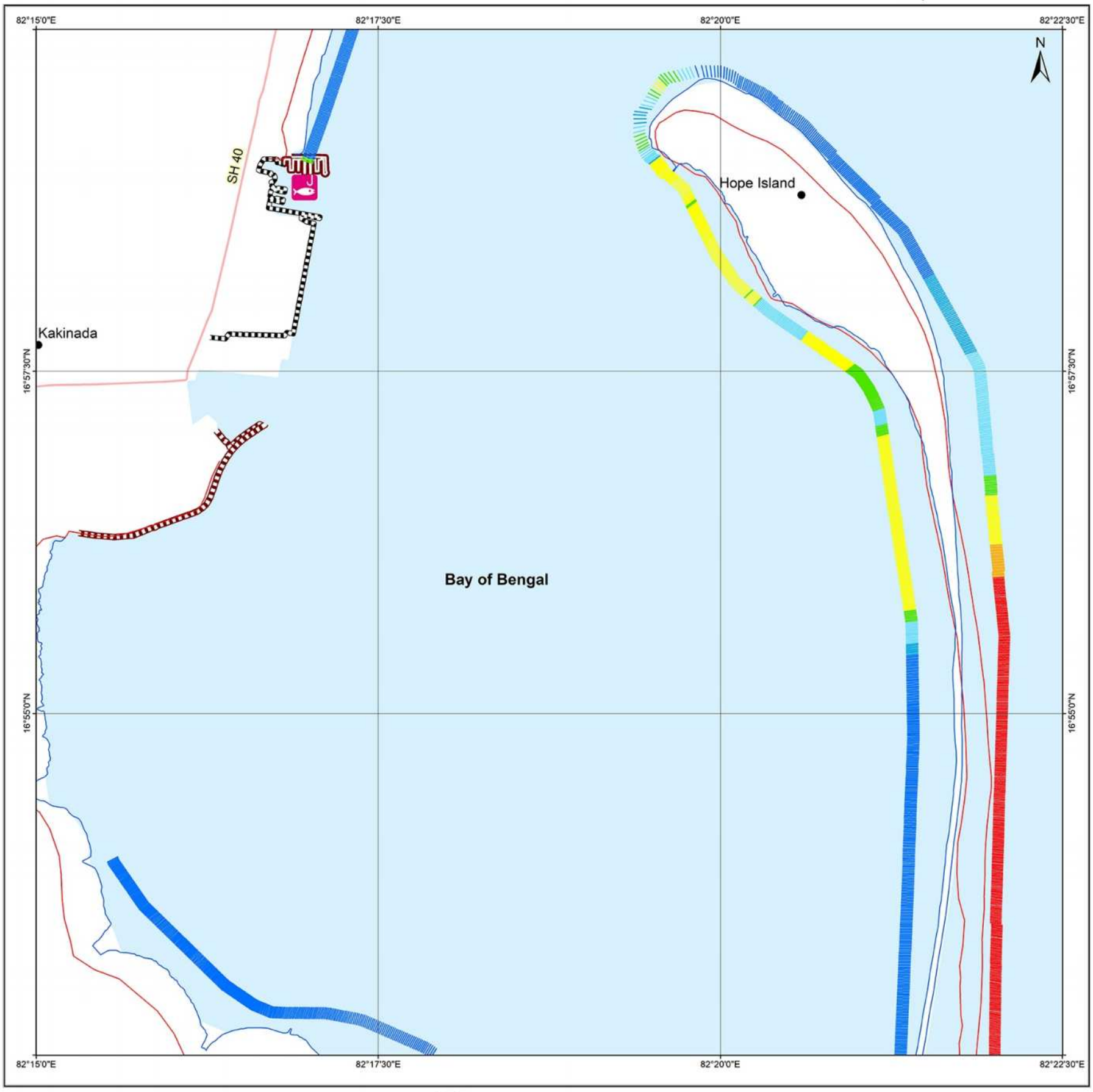
EAST GODAVARI

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 L / 5 / NW

Map No. : NCCR/SCM/414



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 02/20/2018

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Scale

1000 m 500 0 1 2 km

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UTM Coordinates Zone 44

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Sensors	Date of acquisition
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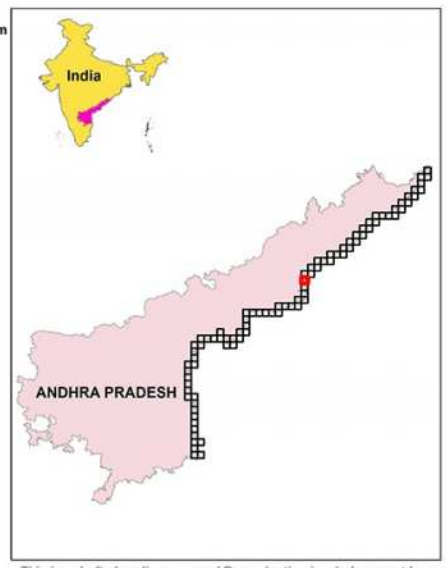
LISS-IV	11/04/2013
LISS-IV	03/23/2012
LISS-III	08/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



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EAST GODAVARI

SHORELINE CHANGE MAP
ANDHRA PRADESH

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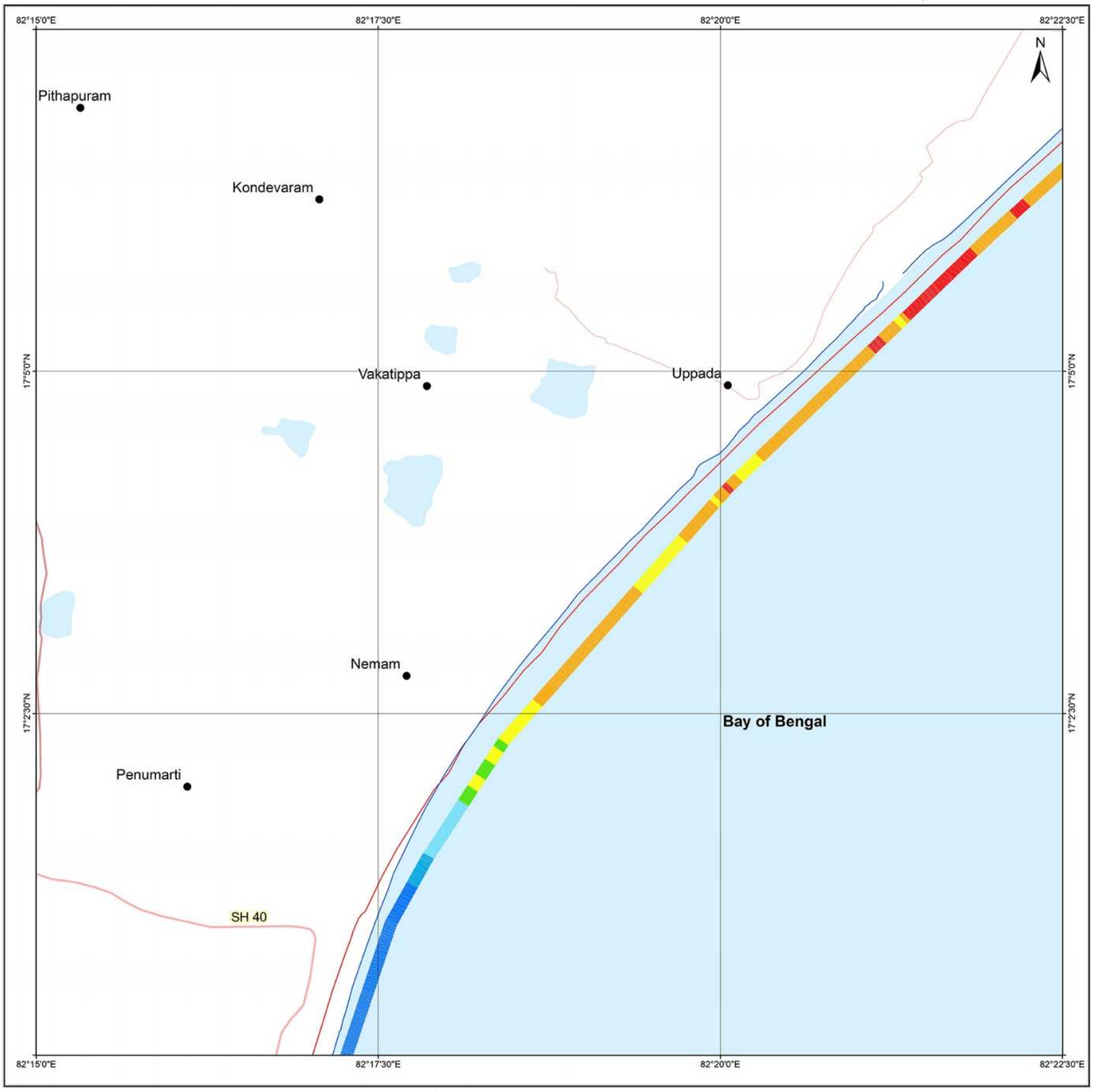
65 K / 8 / SW

Map No. : NCCR/SCM/415



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 02/20/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/20/2018
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LISS-IV	03/23/2012
LISS-III	08/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
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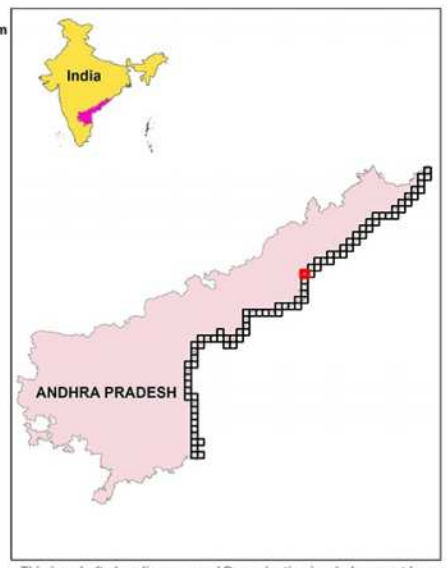

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EAST GODAVARI

SHORELINE CHANGE MAP
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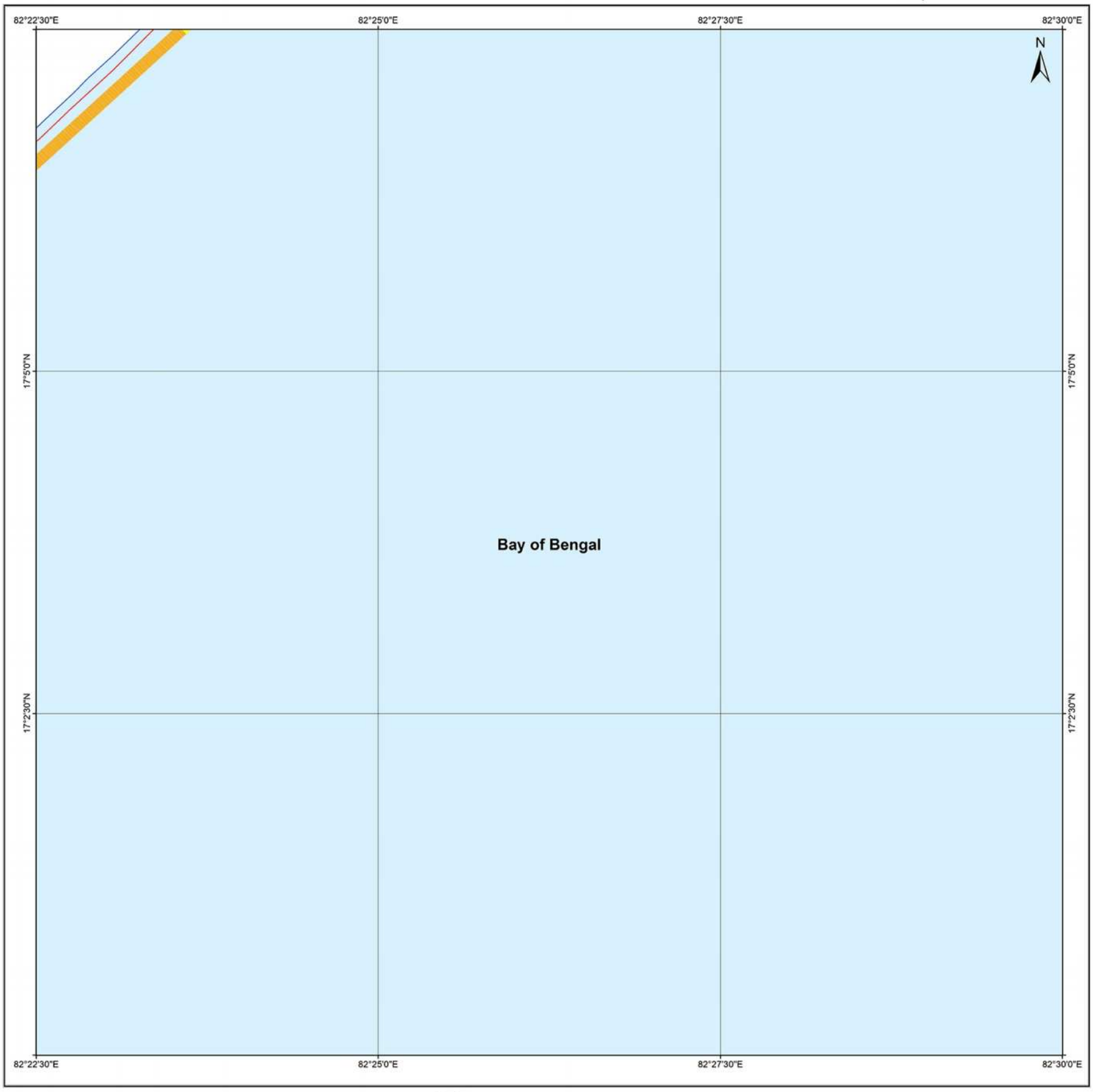
65 K / 8 / SE

Map No. : NCCR/SCM/416



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 02/20/2018

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Scale

1000 m 500 0 1 2 km

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UTM Coordinates Zone 44

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LISS-IV	02/20/2018
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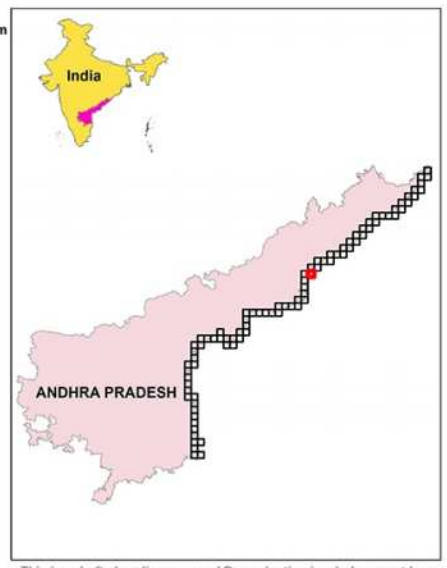

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EAST GODAVARI

SHORELINE CHANGE MAP
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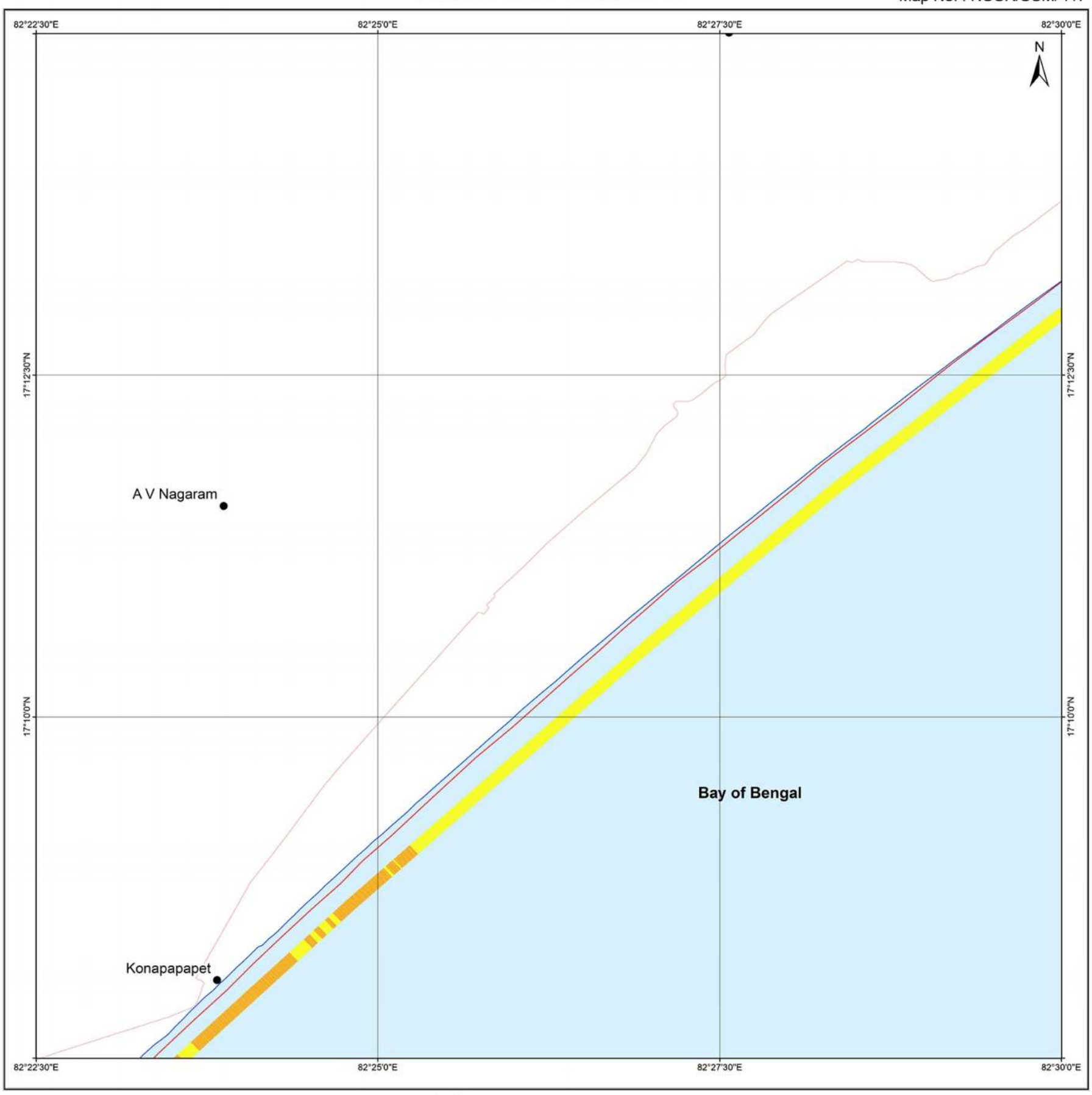
65 K / 8 / NE

Map No. : NCCR/SCM/417



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 02/20/2018

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Scale

1000 m 500 0 1 2 km

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Datum : The World Geodetic System 1984 (WGS84)

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EAST GODAVARI

SHORELINE CHANGE MAP
ANDHRA PRADESH

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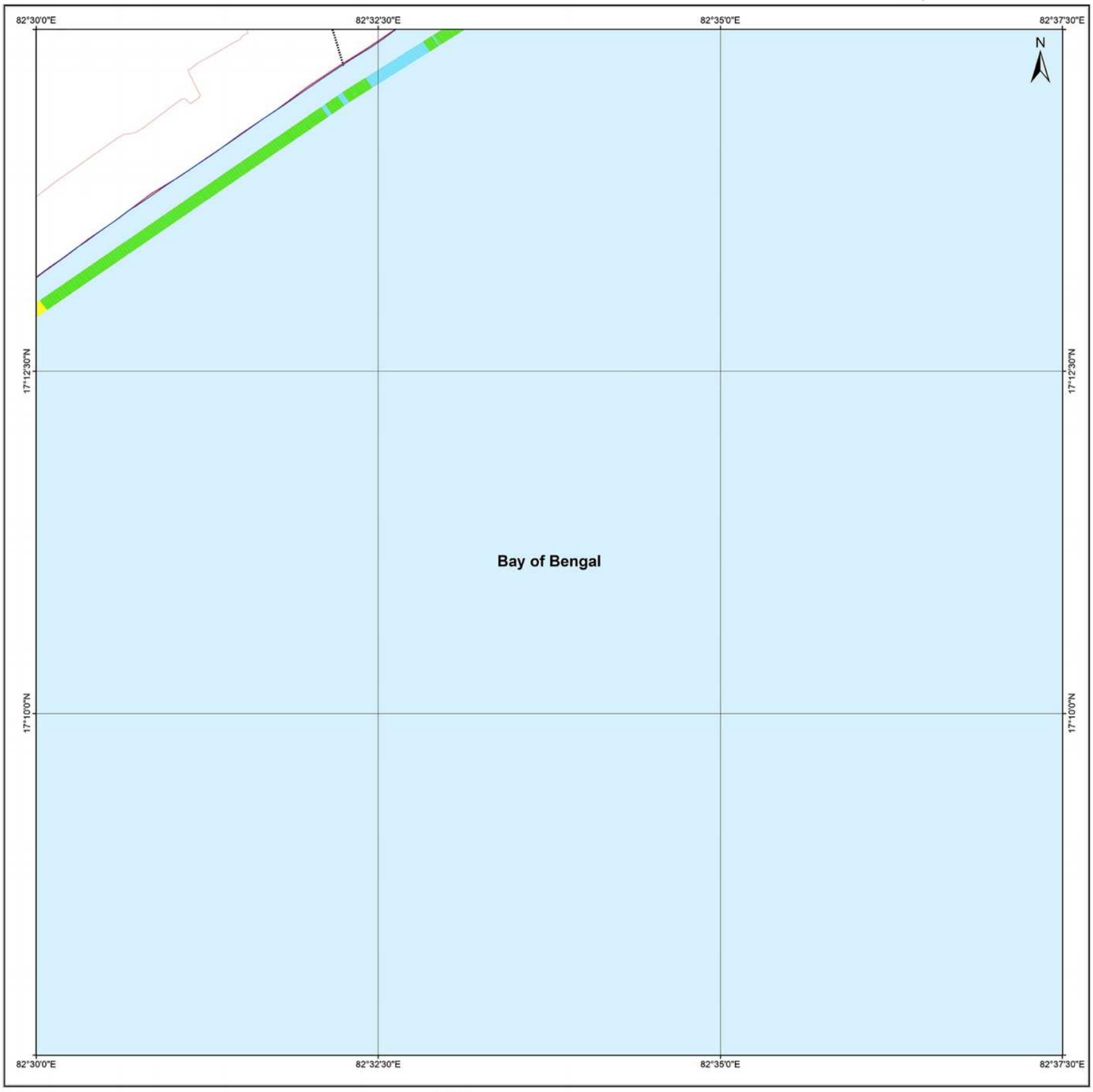
65 K / 12 / NW

Map No. : NCCR/SCM/418



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 02/20/2018

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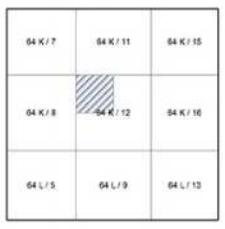


Scale

1000 m 500 0 1 2 km

1:25,000

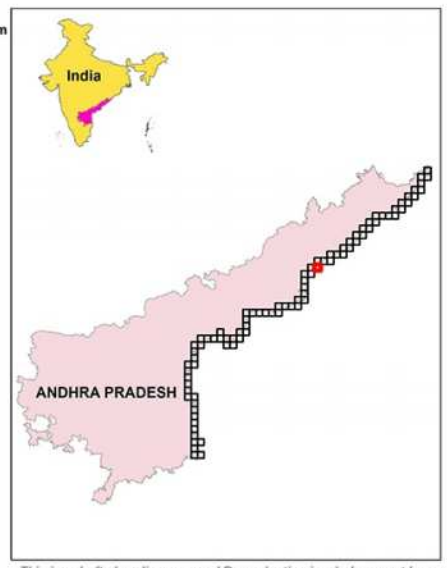
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/20/2018
LISS-IV	01/20/2017 &03/02/2017
LISS-IV	04/19/2016
LISS-IV	02/12/2015
LISS-IV	06/17/2014
LISS-IV	11/04/2013
LISS-IV	03/23/2012
LISS-III	08/03/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



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SHORELINE CHANGE MAP
ANDHRA PRADESH

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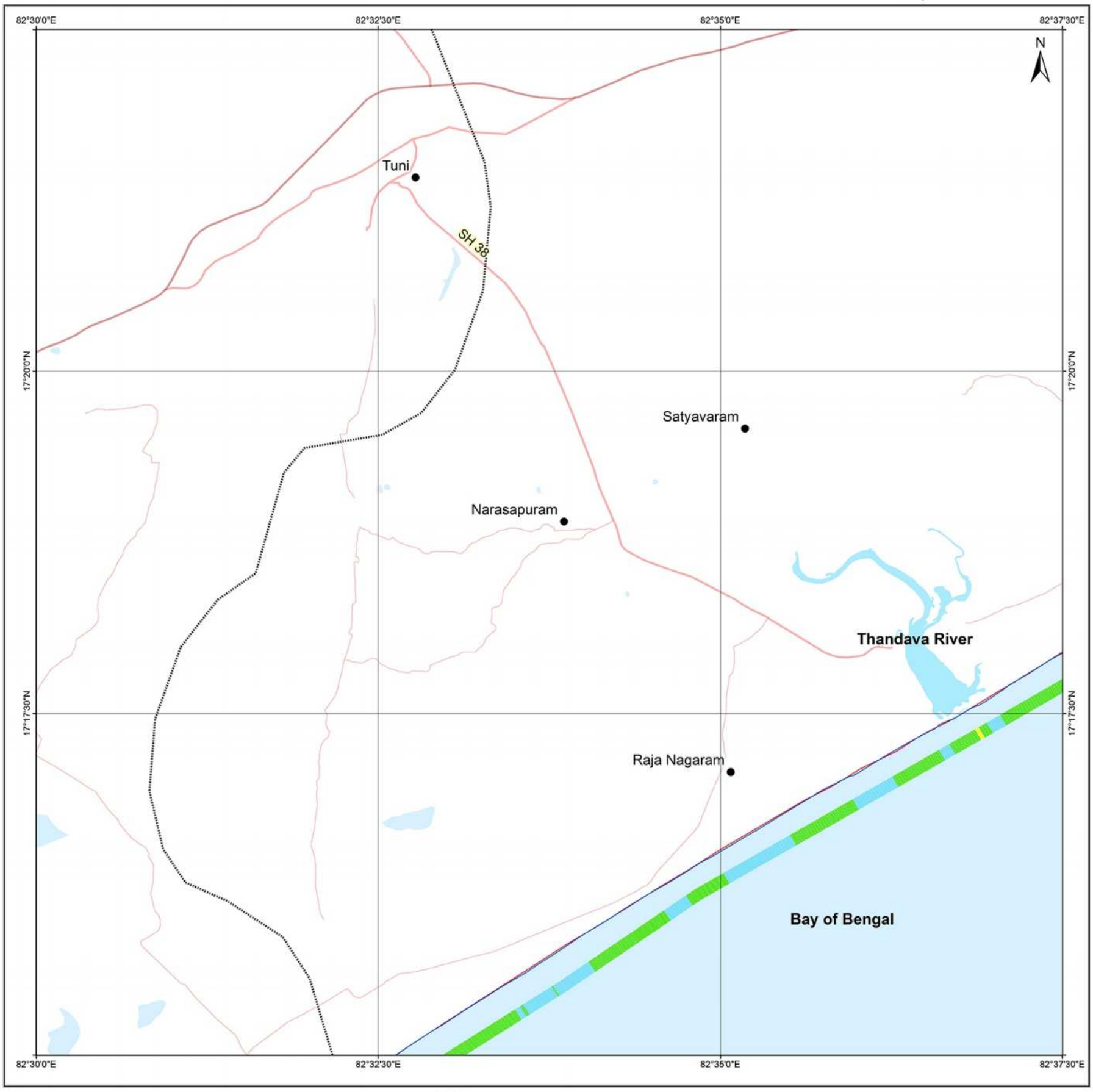
65 K / 11 / SW

Map No. : NCCR/SCM/419



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 02/20/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

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Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/20/2018
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PAN (Cartosat-1)	01/07/2006
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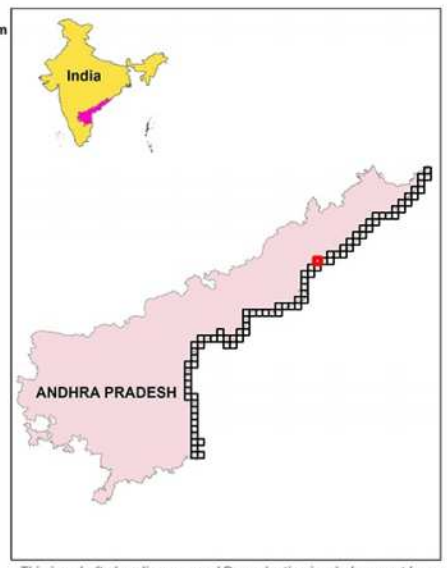

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VISHAKHAPATTINAM

SHORELINE CHANGE MAP
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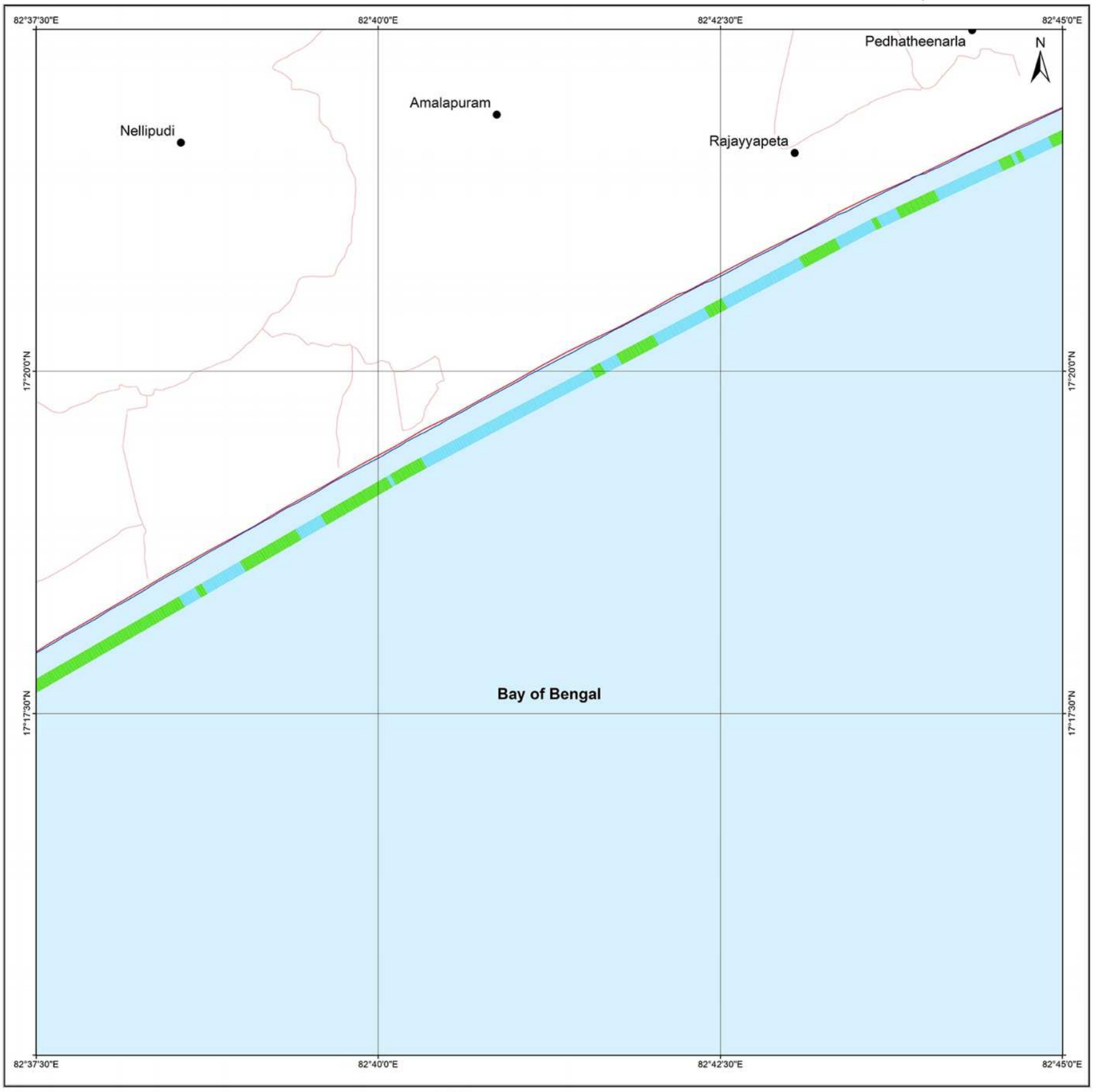
65 K / 11 / SE

Map No. : NCCR/SCM/420



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 03/21/2018

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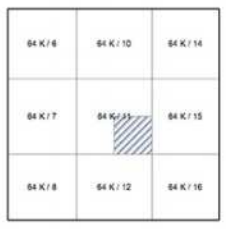

Scale

1000 m 500 0 1 2 km

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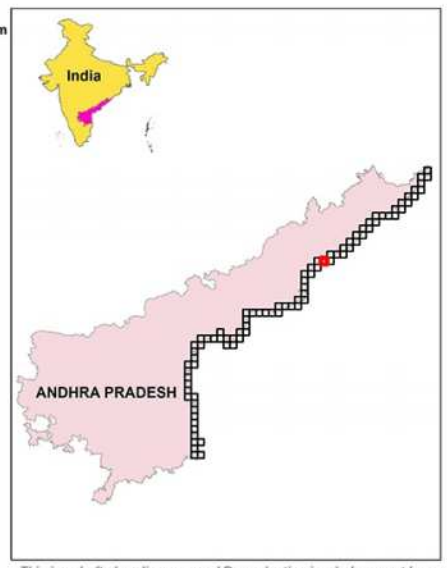
ETM+	08/12/2000
TM	12/10/1988



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VISHAKHAPATTINAM

SHORELINE CHANGE MAP
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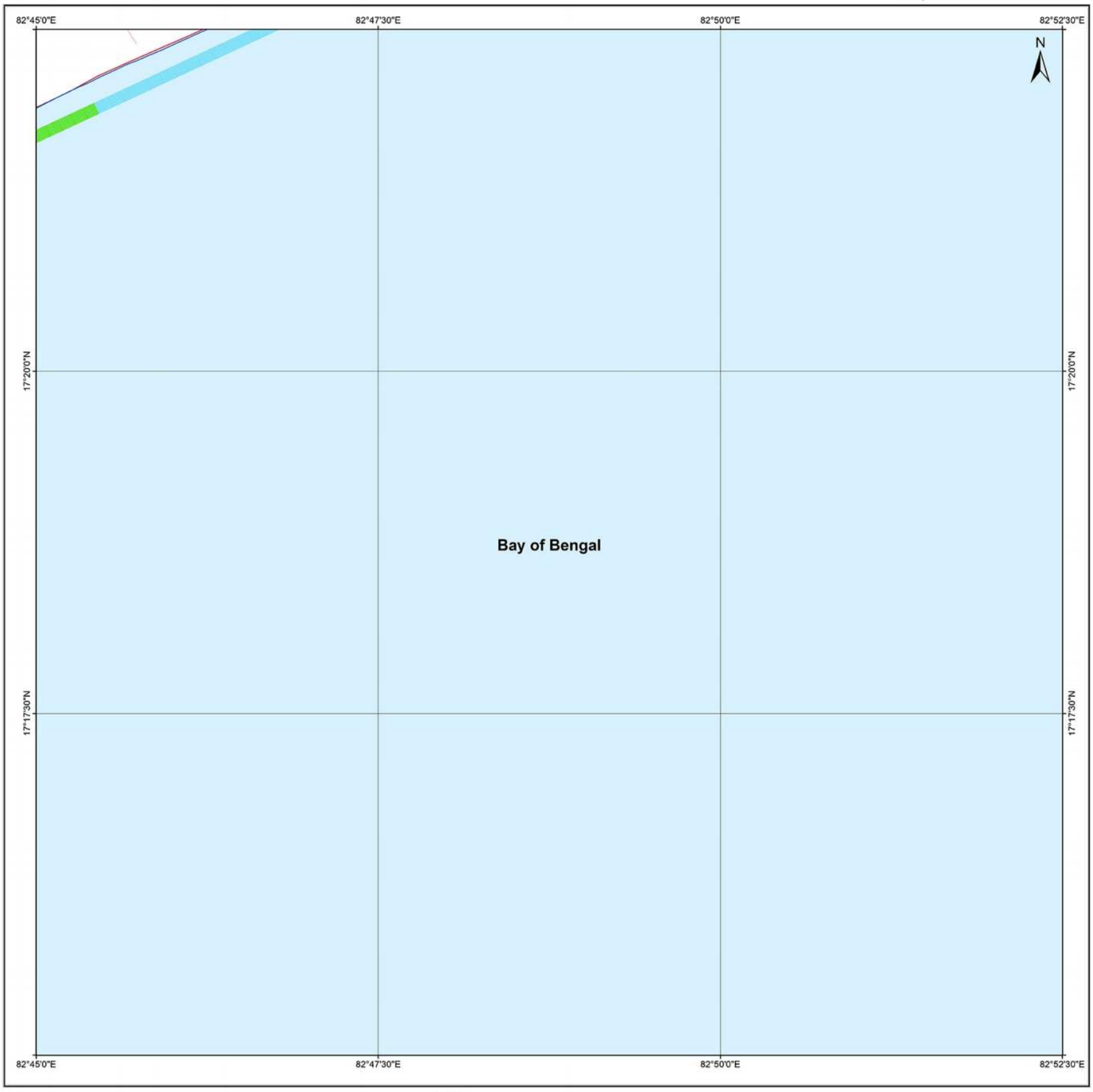
65 K / 15 / SW

Map No. : NCCR/SCM/421



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
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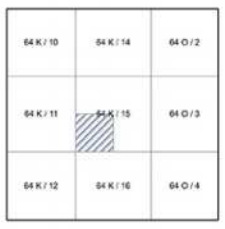

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

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Data Sources: Satellite Data

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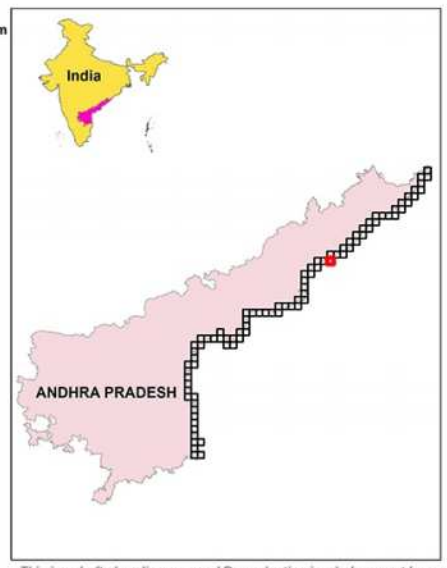
LISS-IV	10/05/2013
LISS-IV	08/06/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



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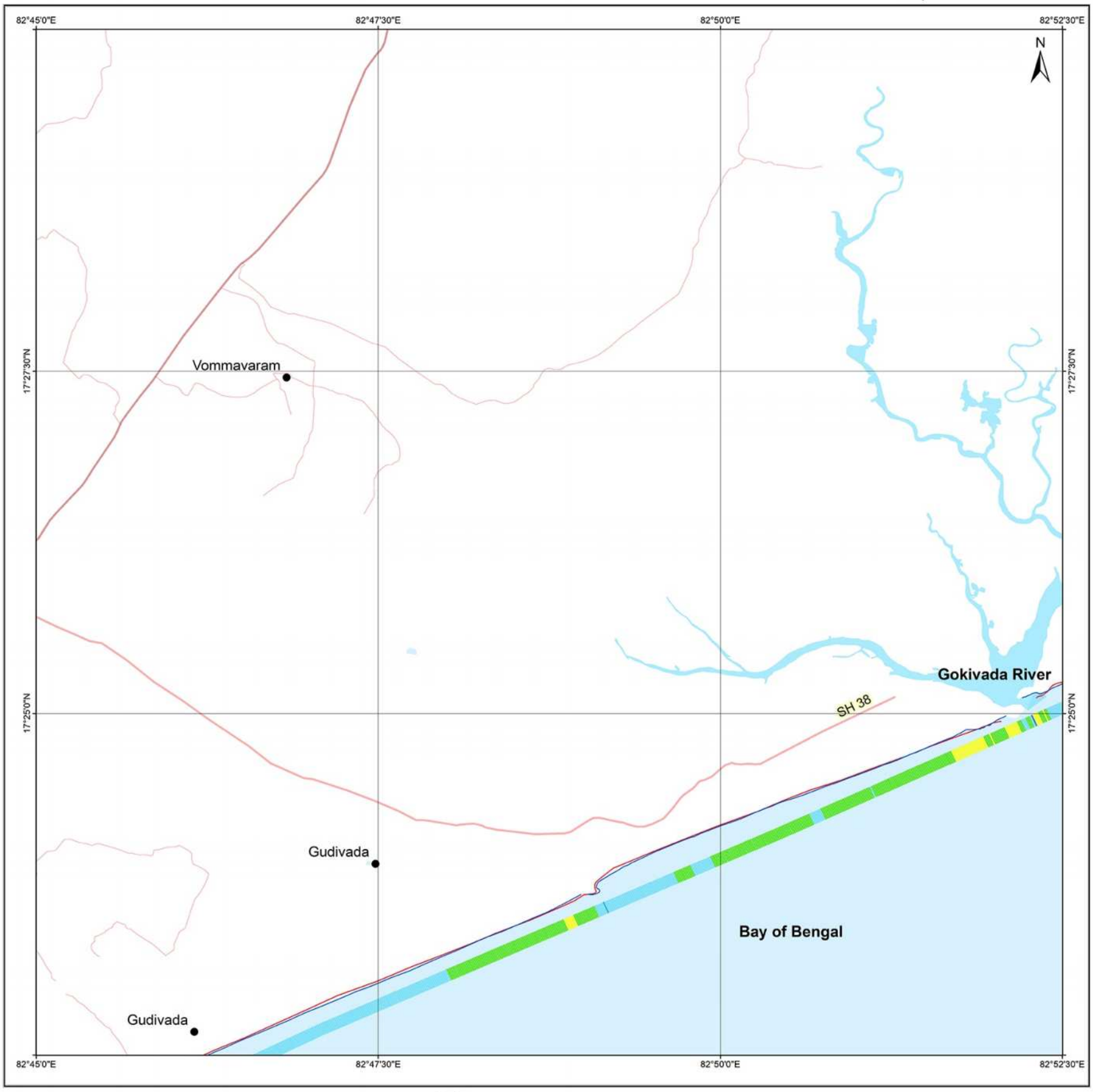
Restricted Use

65 K / 15 / NW

Map No. : NCCR/SCM/422



Shoreline Change Trend for Period 1990 - 2018

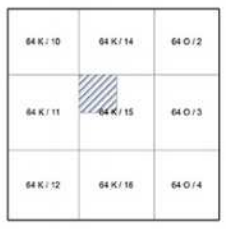
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 03/21/2018

Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

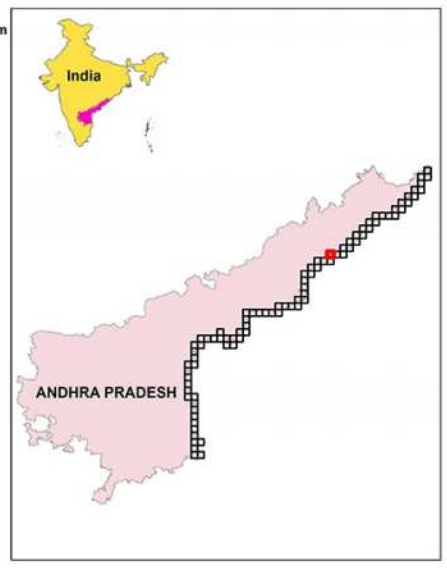
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/21/2018
LISS-IV	03/02/2017
LISS-IV	02/12/2016
LISS-IV	03/13/2015
LISS-IV	11/04/2014
LISS-IV	10/05/2013
LISS-IV	08/06/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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1990 - 2018

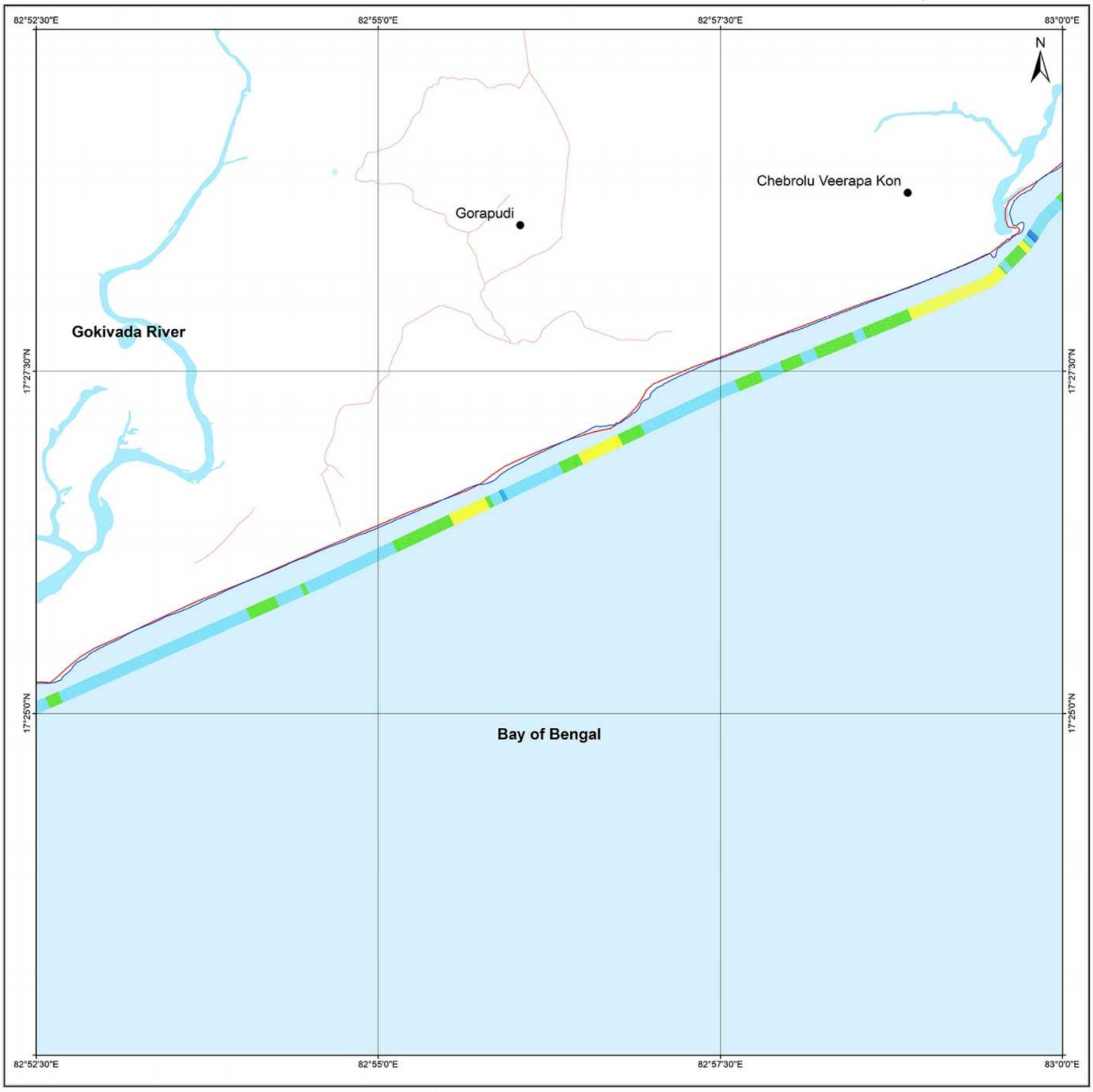
VISHAKHAPATTINAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 K / 15 / NE

Map No. : NCCR/SCM/423



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 03/21/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

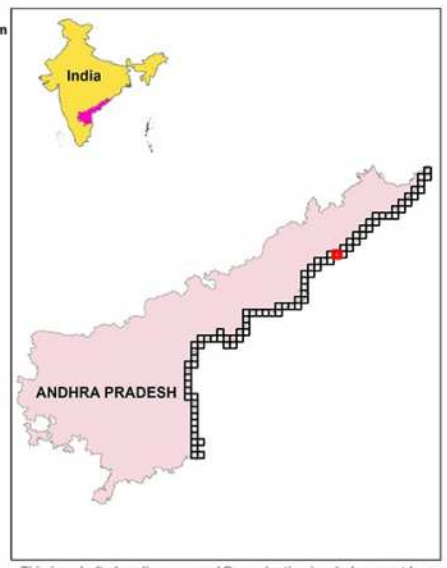
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/21/2018
LISS-IV	03/02/2017
LISS-IV	02/12/2016
LISS-IV	03/13/2015
LISS-IV	11/04/2014
LISS-IV	10/05/2013
LISS-IV	08/06/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
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- Lakes
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1990 - 2018

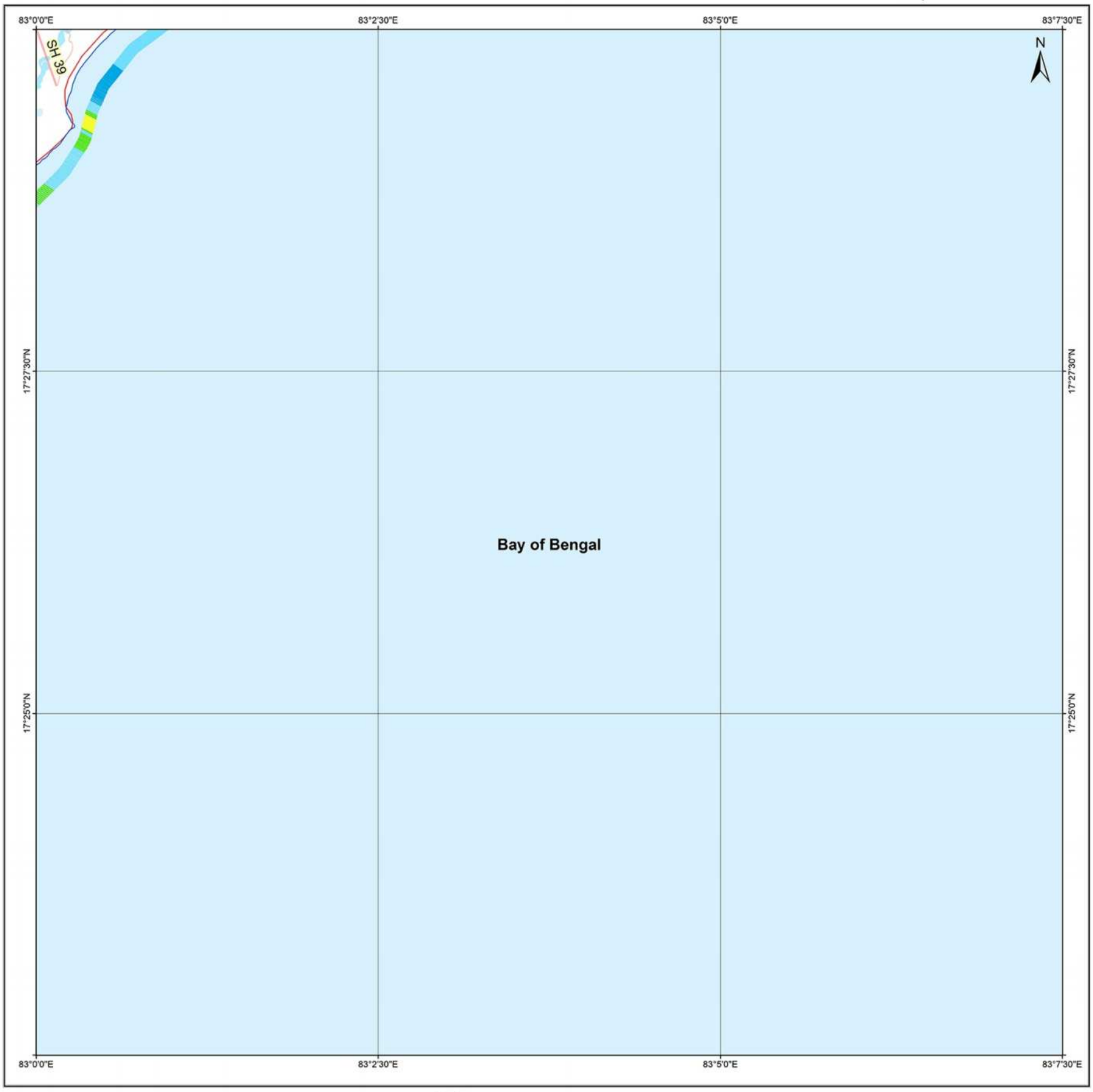
VISHAKHAPATTINAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 O / 3 / NW

Map No. : NCCR/SCM/424



Shoreline Change Trend for Period 1990 - 2018

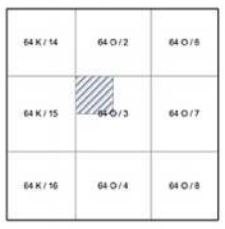
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 03/21/2018

Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

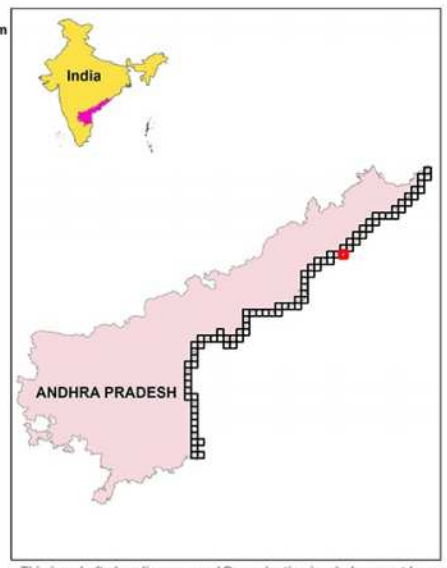
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/21/2018
LISS-IV	03/02/2017
LISS-IV	02/12/2016
LISS-IV	03/13/2015
LISS-IV	11/04/2014
LISS-IV	10/05/2013
LISS-IV	08/06/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



- Settlements
- Port
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- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
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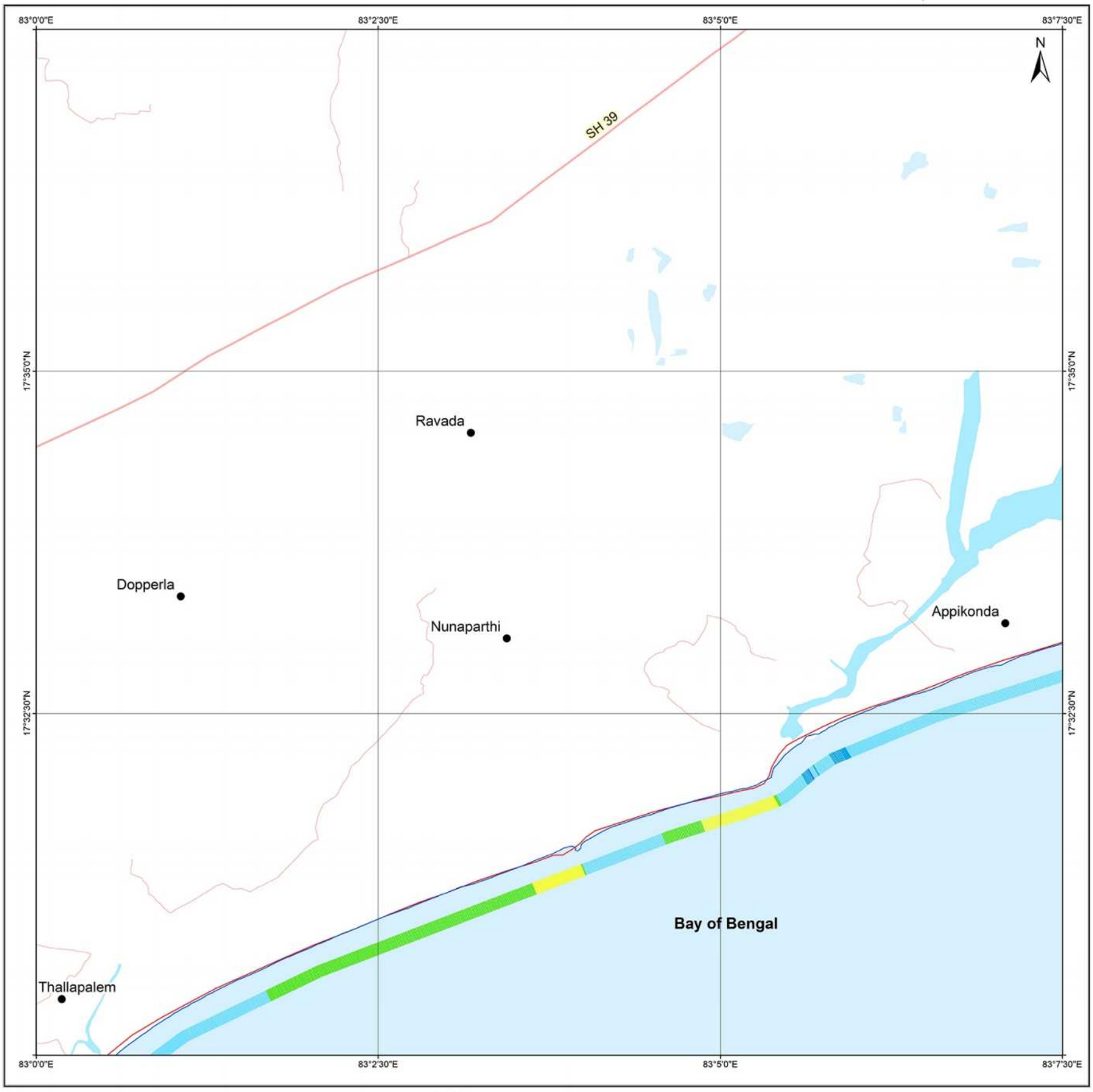
VISHAKHAPATTINAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 O / 2 / SW

Map No. : NCCR/SCM/425



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 03/21/2018 & 02/25/2018

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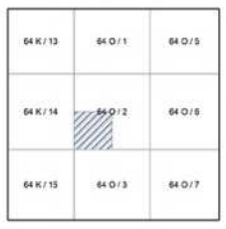
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

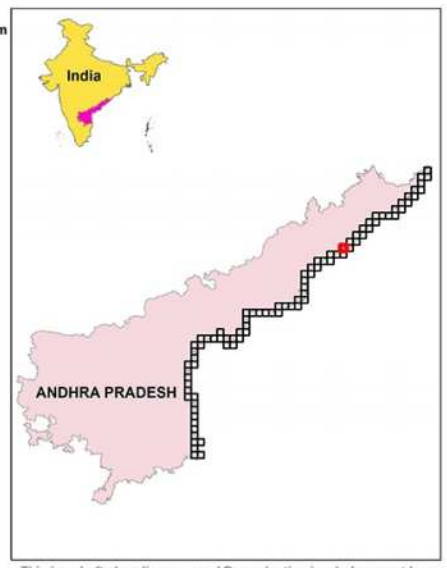
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/21/2018 & 02/25/2018
LISS-IV	03/02/2017 & 03/26/2017
LISS-IV	02/12/2016
LISS-IV	03/13/2015
LISS-IV	11/04/2014
LISS-IV	10/05/2013
LISS-IV	05/15/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Riprapes
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
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- Lakes
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1990 - 2018

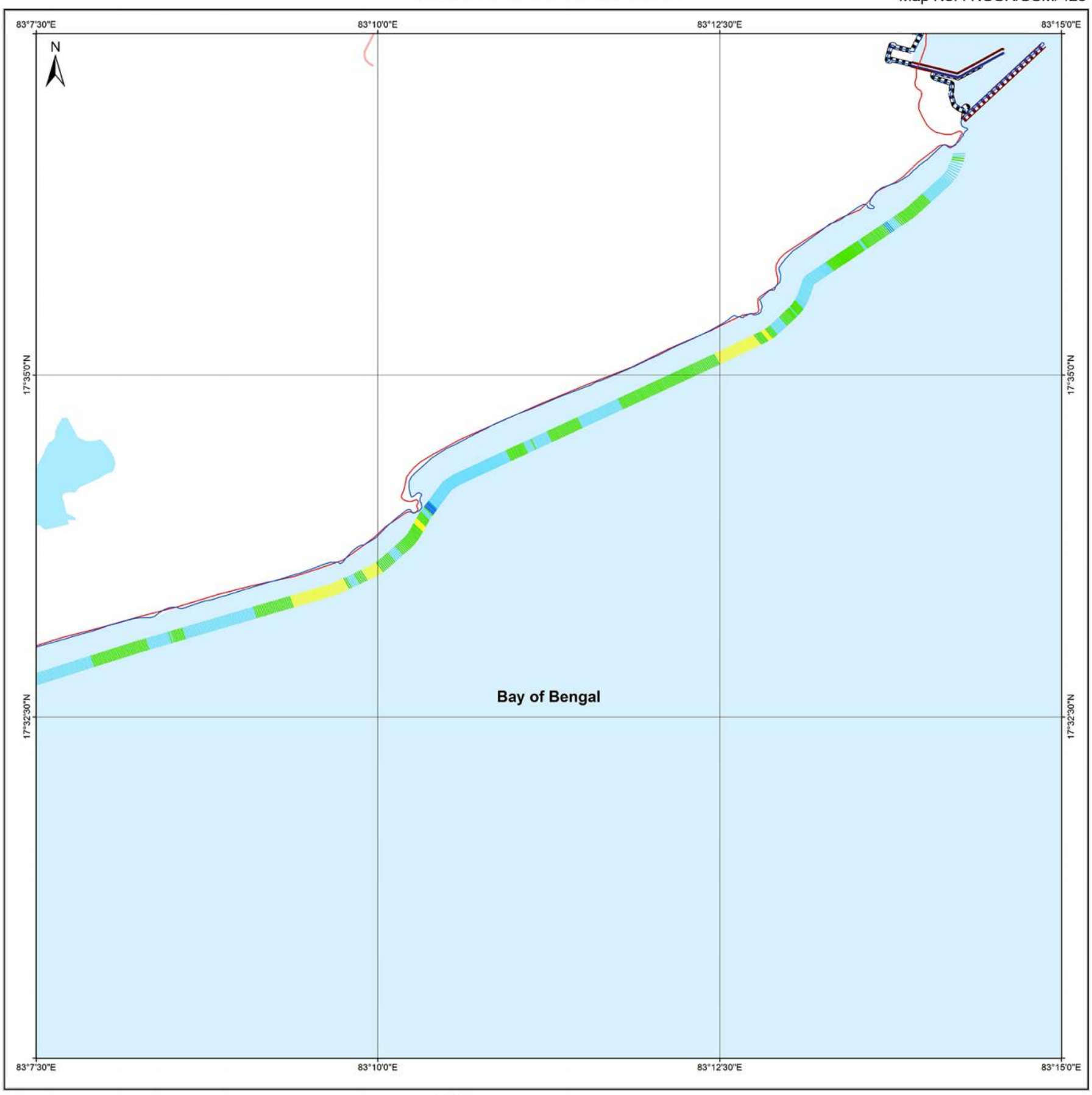
VISHAKHAPATTINAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 O / 2 / SE

Map No. : NCCR/SCM/426



Shoreline Change Trend for Period 1990 - 2018

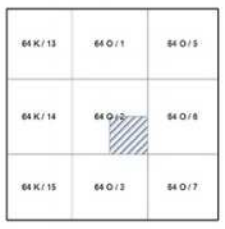
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 02/25/2018

Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

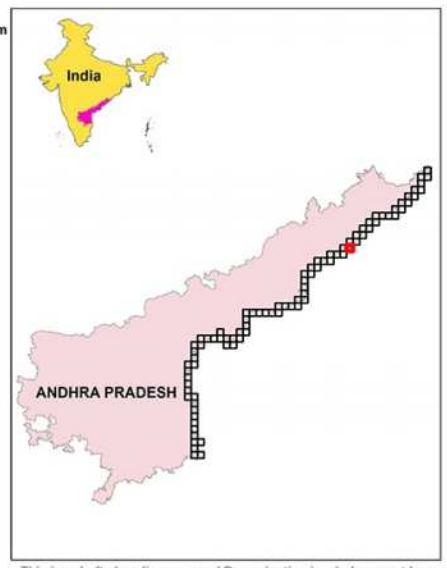
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/25/2018
LISS-IV	03/26/2017
LISS-IV	02/12/2016
LISS-IV	05/24/2015
LISS-IV	03/18/2014
LISS-IV	10/05/2013
LISS-IV	05/15/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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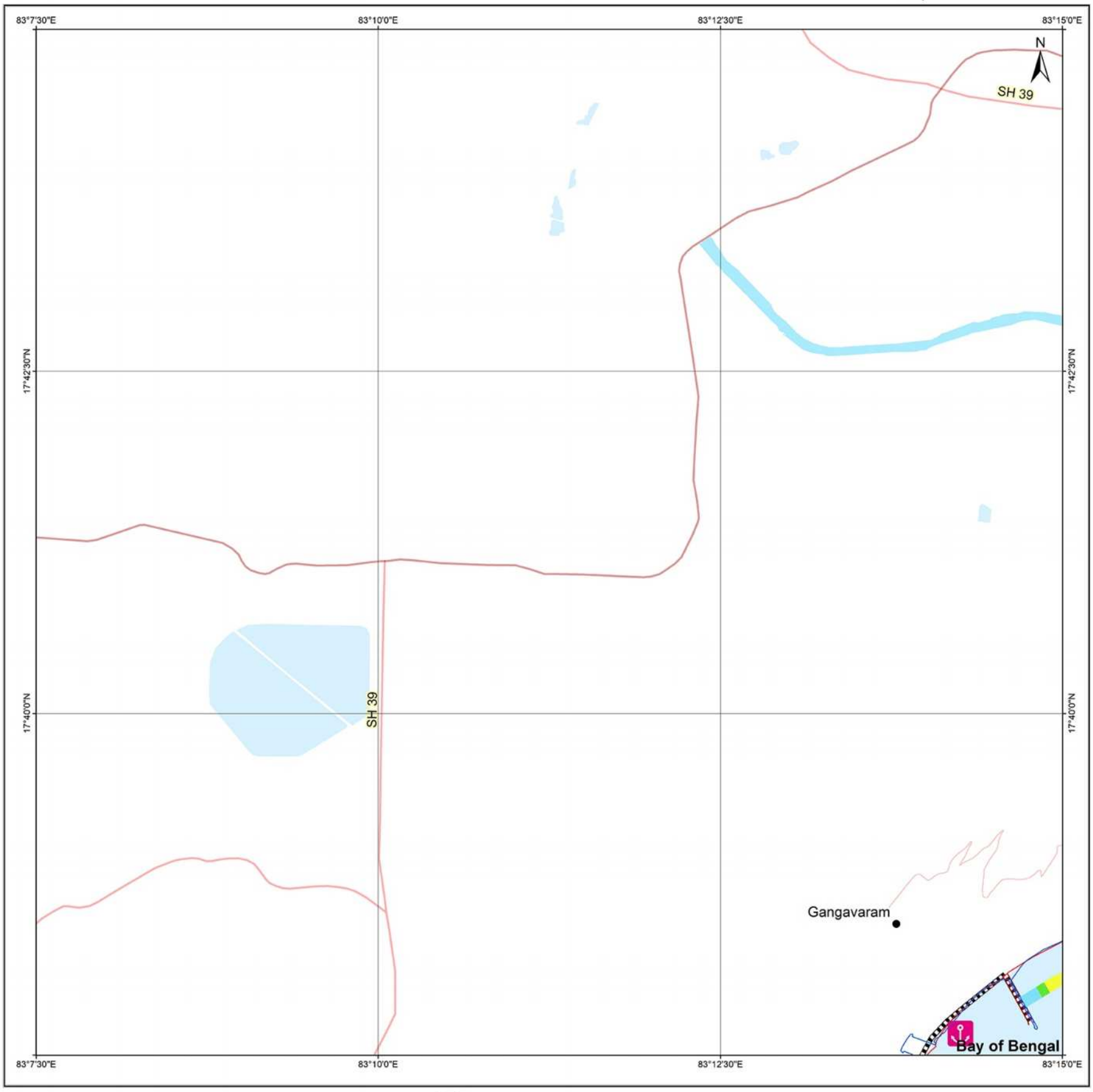
SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 O / 2 / NE

Map No. : NCCR/SCM/427



Shoreline Change Trend for Period 1990 - 2018

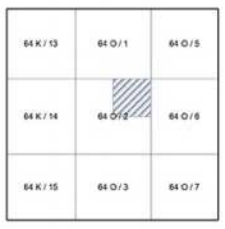
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 02/25/2018

Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

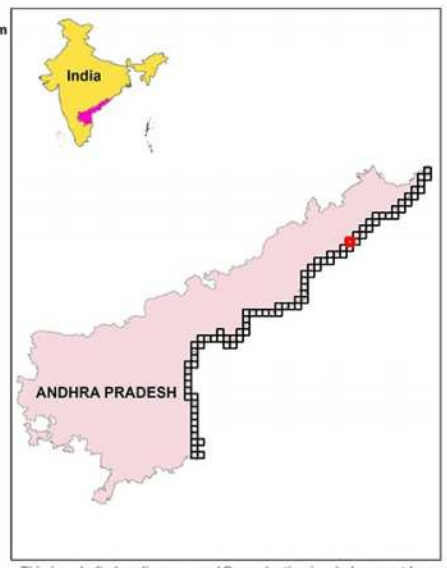
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/25/2018
LISS-IV	03/26/2017
LISS-IV	02/12/2016
LISS-IV	05/24/2015
LISS-IV	03/18/2014
LISS-IV	02/27/2013
LISS-IV	05/15/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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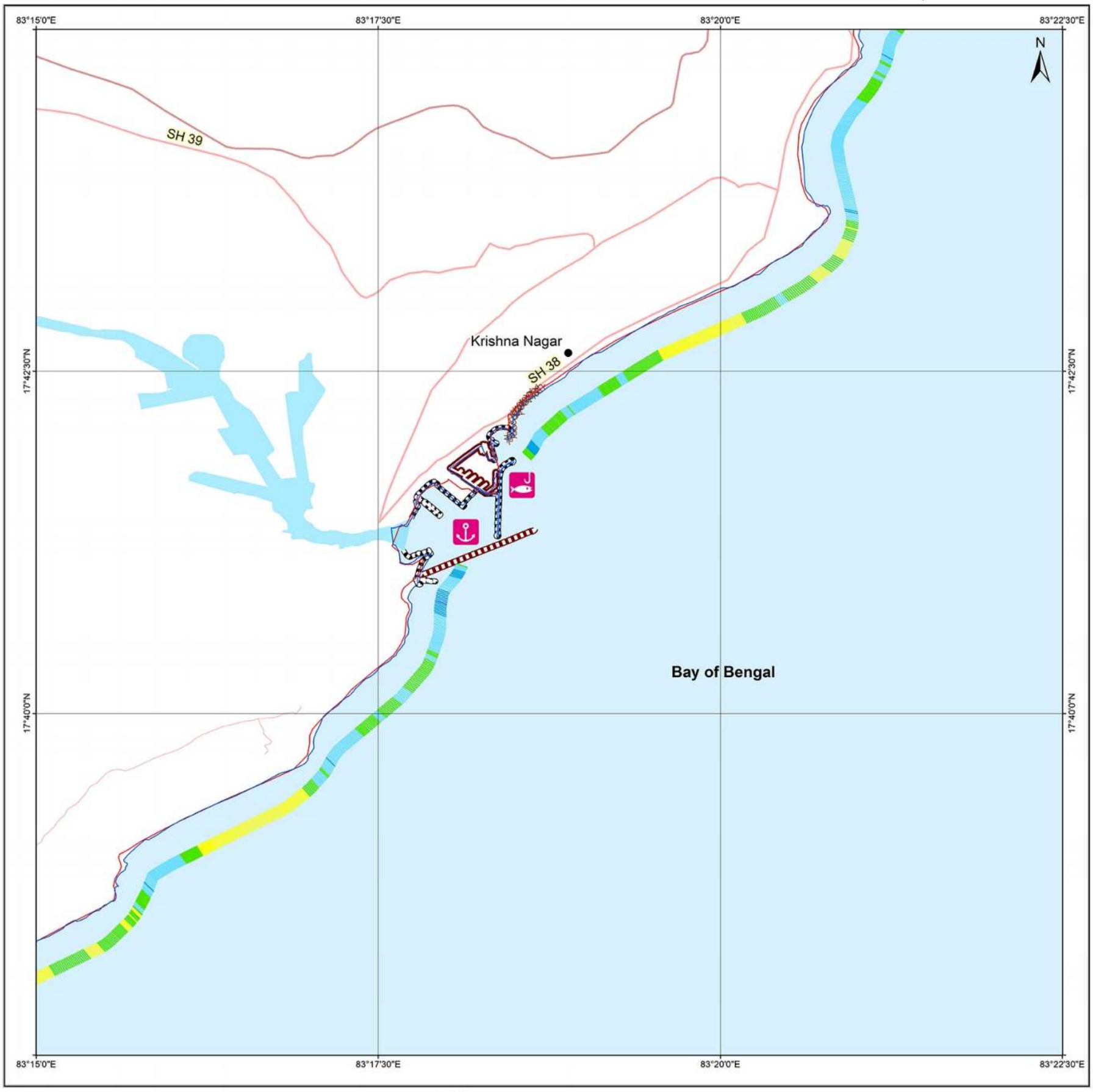
VISHAKHAPATTINAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 O / 6 / NW

Map No. : NCCR/SCM/428



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 02/25/2018

Index to sheets

Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

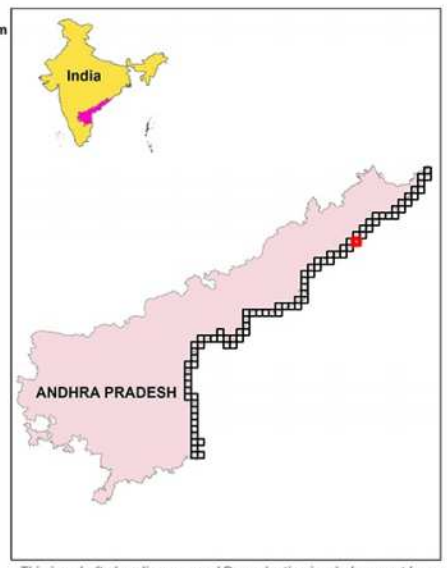
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/25/2018
LISS-IV	03/26/2017
LISS-IV	03/07/2016
LISS-IV	05/24/2015
LISS-IV	03/18/2014
LISS-IV	02/27/2013
LISS-IV	05/15/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



- Settlements
- Port
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- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
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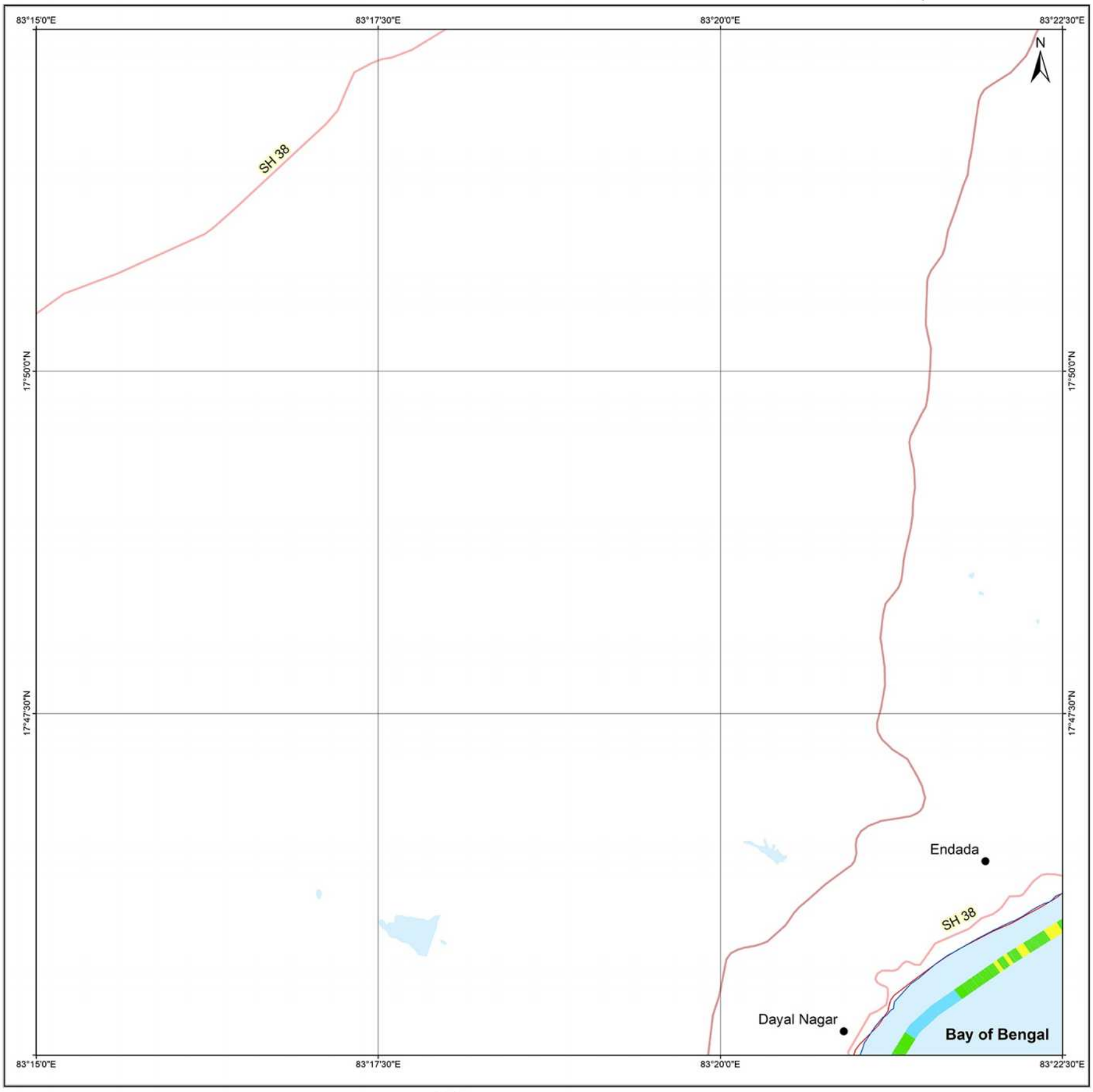
VISHAKHAPATTINAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 O / 5 / SW

Map No. : NCCR/SCM/429



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 02/25/2018

Index to sheets

Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

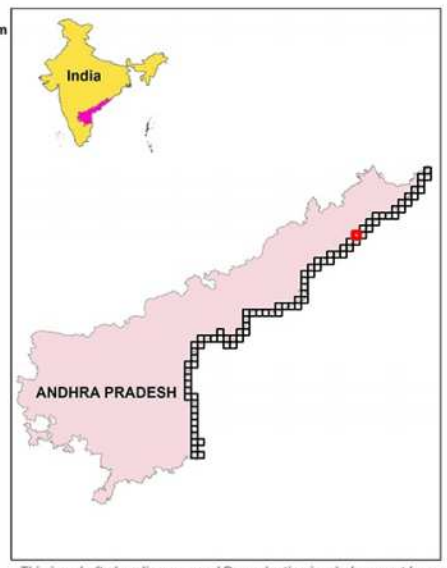
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/25/2018
LISS-IV	03/26/2017
LISS-IV	03/07/2016
LISS-IV	05/24/2015
LISS-IV	03/18/2014
LISS-IV	02/27/2013
LISS-IV	05/15/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



- Settlements
- Port
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- Breakwater
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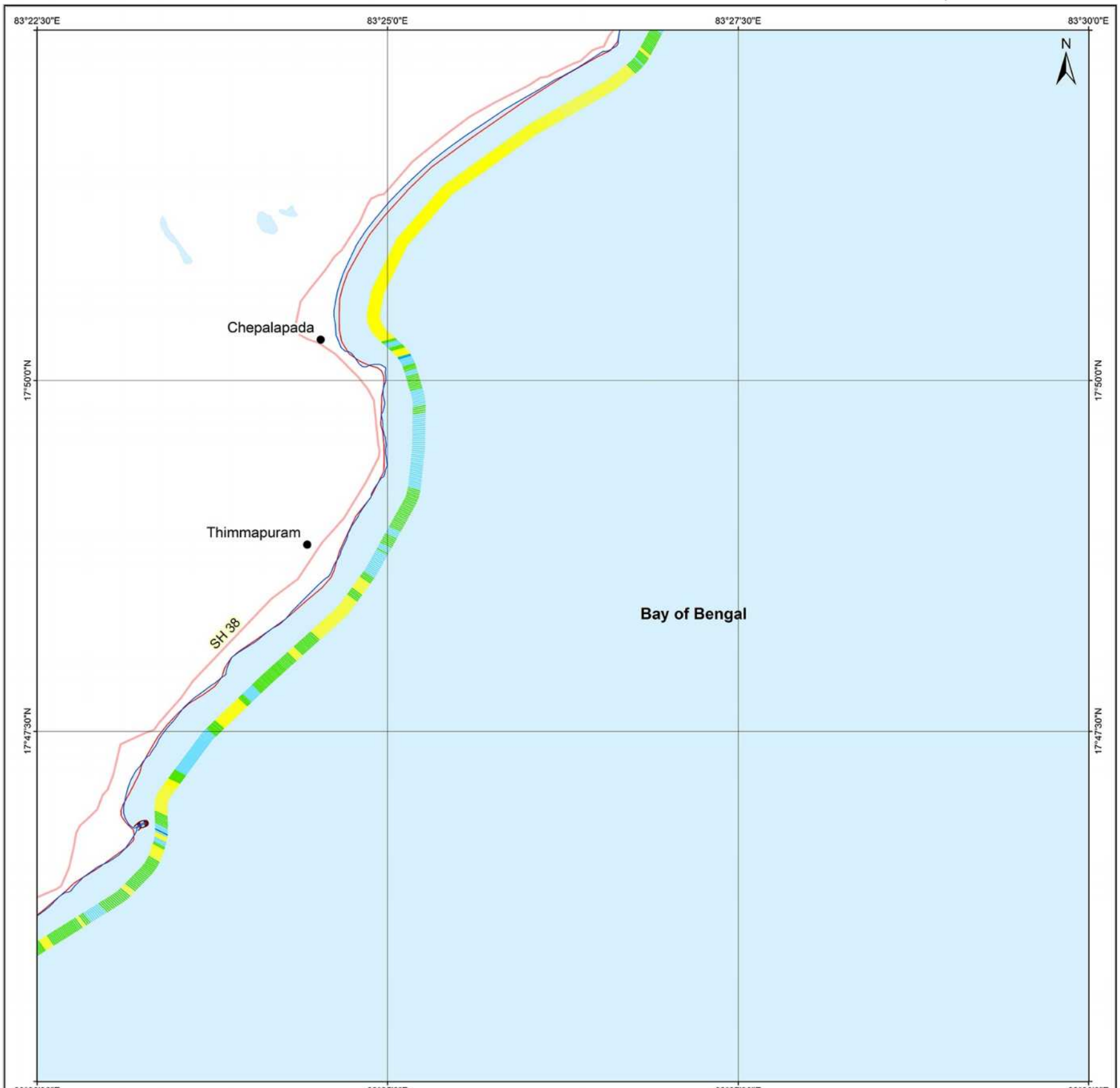
VISHAKHAPATTINAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 O / 5 / SE

Map No. : NCCR/SCM/430



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 12/10/1988
- 02/25/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

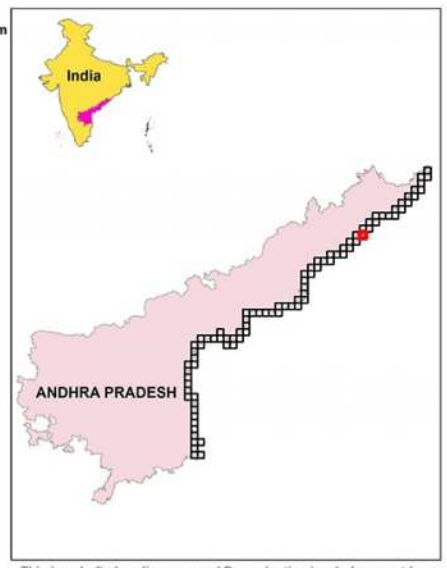
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/25/2018
LISS-IV	03/26/2017
LISS-IV	03/07/2016
LISS-IV	05/24/2015
LISS-IV	03/18/2014
LISS-IV	02/27/2013
LISS-IV	05/15/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	12/10/1988



- Settlements
- Port
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- Breakwater
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1990 - 2018

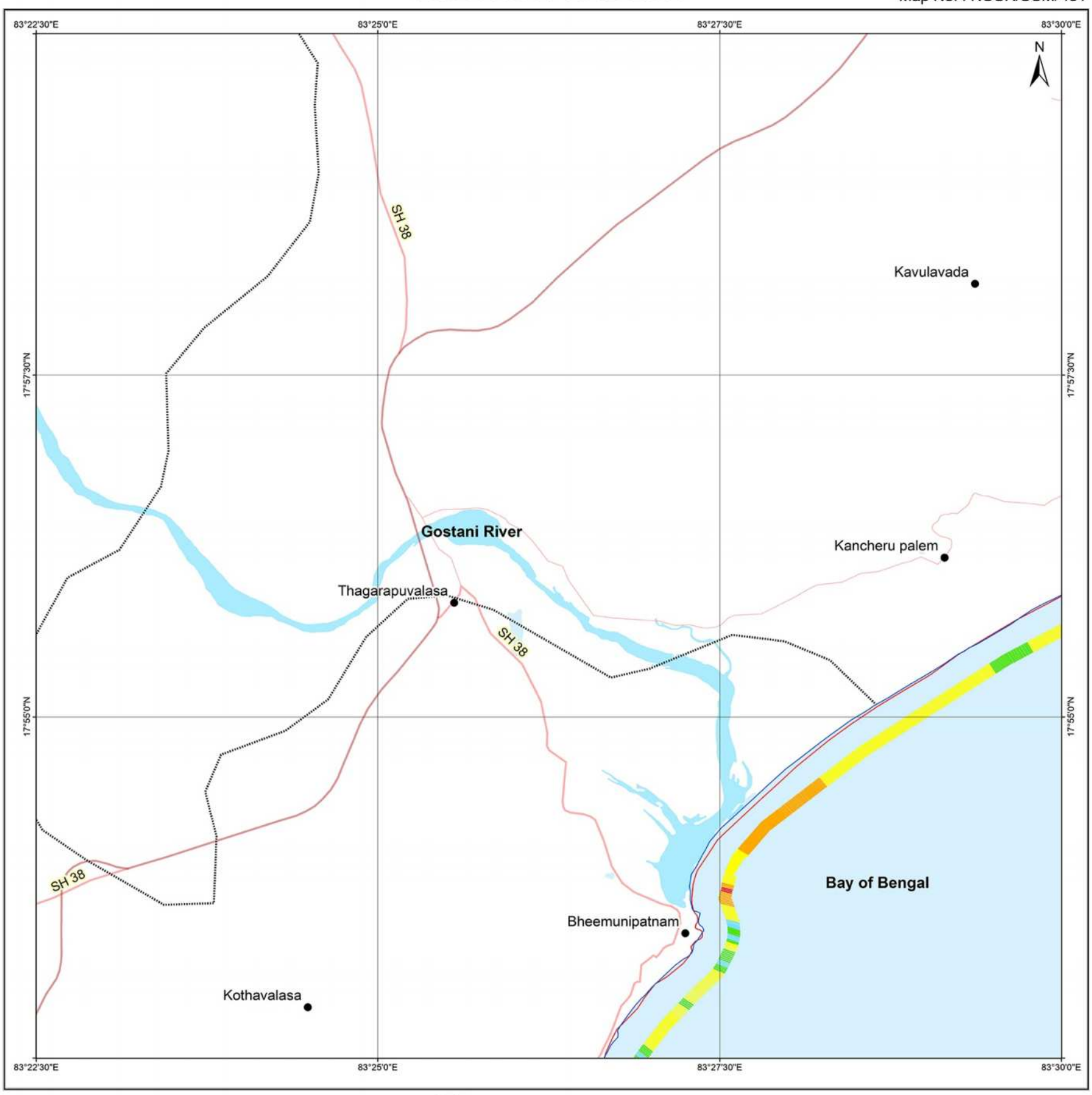
VIZHIYANAGARAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 O / 5 / NE

Map No. : NCCR/SCM/431



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 31/10/1989
- 02/25/2018

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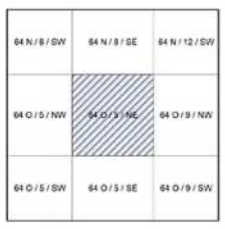
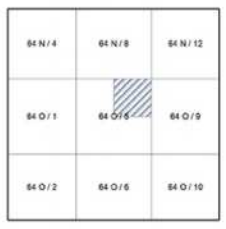


Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

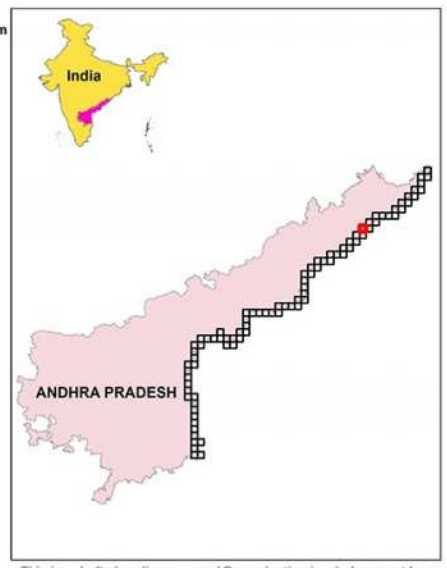
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/25/2018
LISS-IV	03/26/2017
LISS-IV	03/07/2016
LISS-IV	05/24/2015
LISS-IV	03/18/2014
LISS-IV	02/27/2013
LISS-IV	05/15/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	31/10/1989



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
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- Lakes
- Rivers

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1990 - 2018

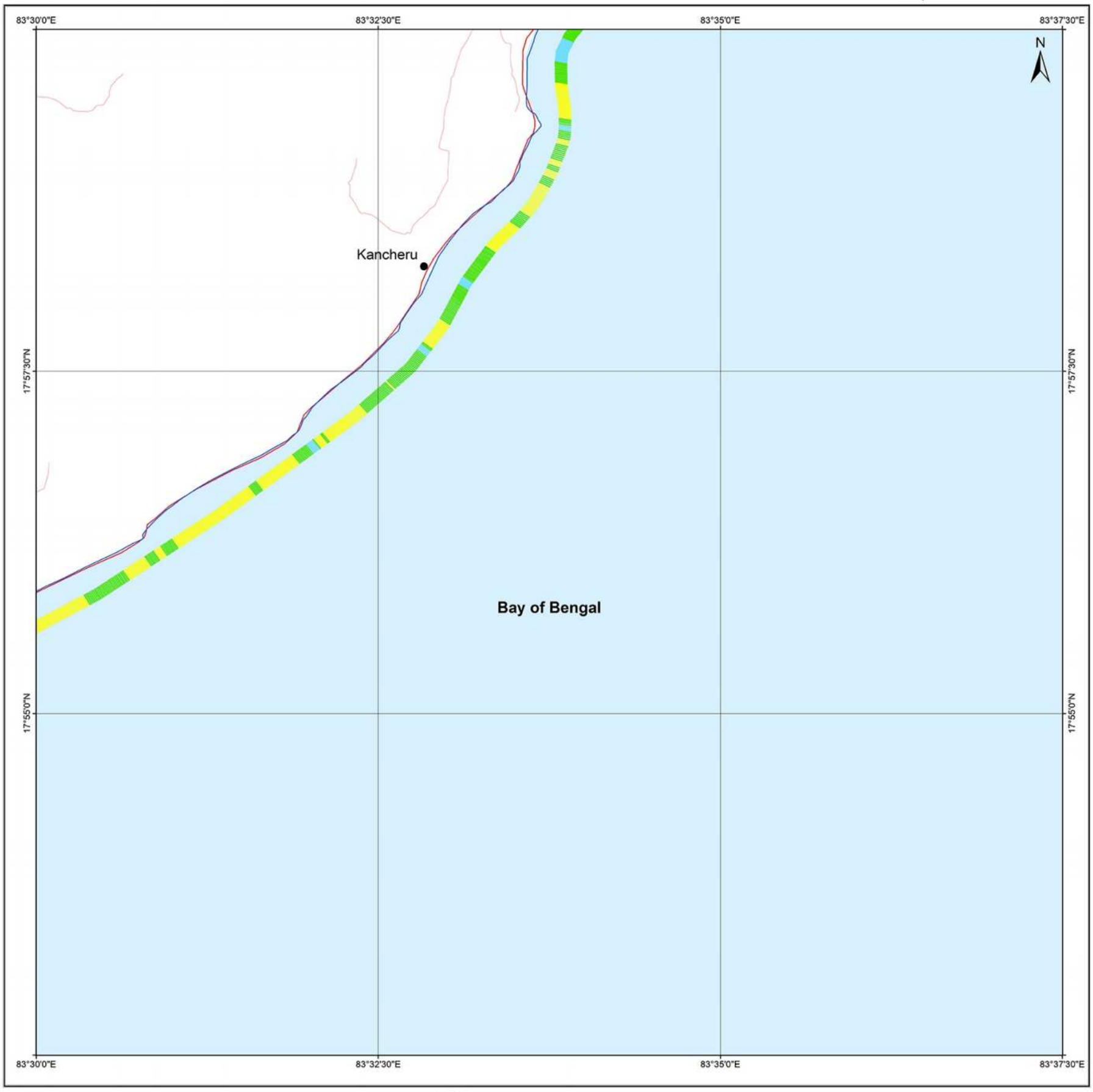
VIZHIYANAGARAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 O / 9 / NW

Map No. : NCCR/SCM/432



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 31/10/1989
- 02/25/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

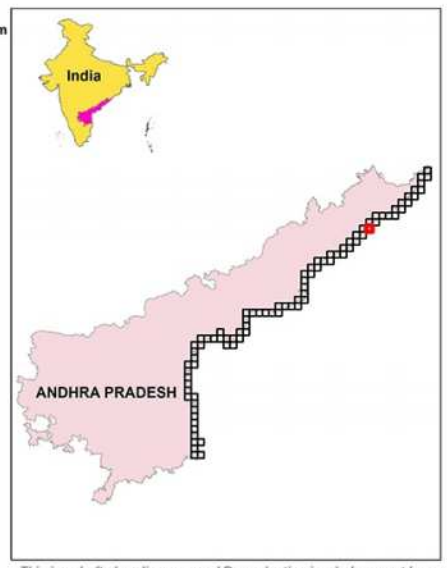
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/25/2018
LISS-IV	03/26/2017
LISS-IV	03/07/2016
LISS-IV	05/19/2015
LISS-IV	03/18/2014
LISS-IV	02/27/2013
LISS-IV	05/15/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	31/10/1989



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
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1990 - 2018

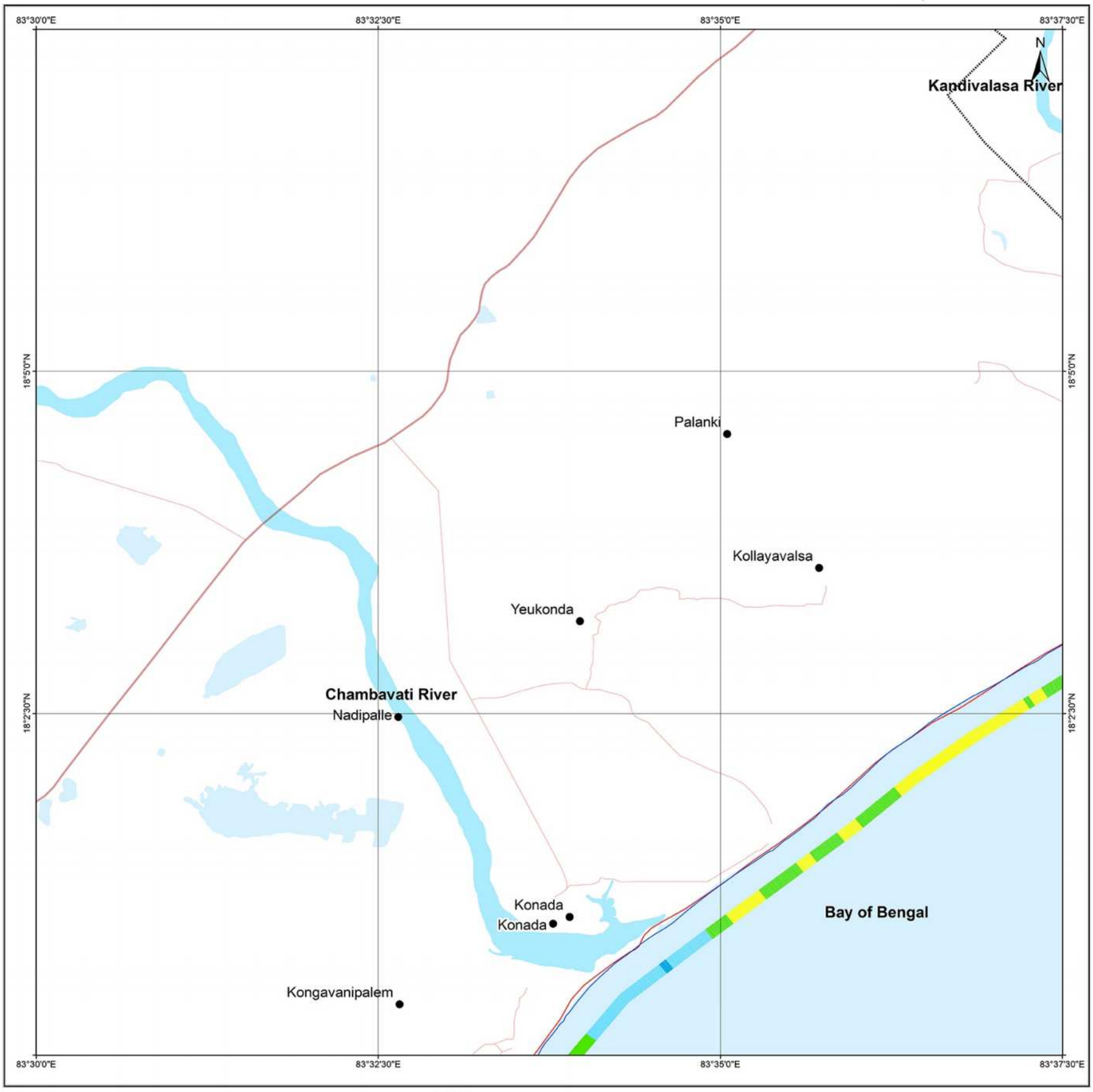
VIZHIYANAGARAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 N / 12 / SW

Map No. : NCCR/SCM/433



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 31/10/1989
- 02/25/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

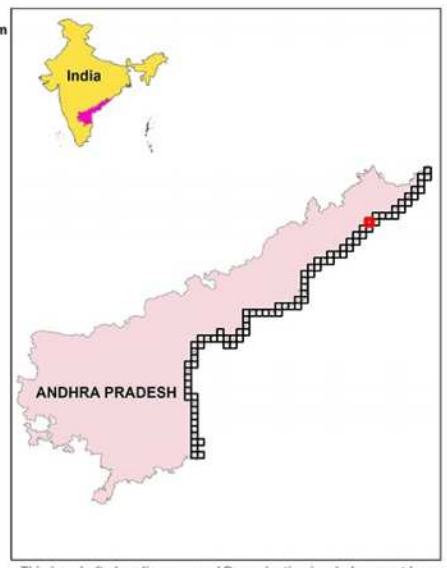
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/25/2018
LISS-IV	03/26/2017
LISS-IV	03/07/2016
LISS-IV	05/24/2015
LISS-IV	03/18/2014
LISS-IV	02/27/2013
LISS-IV	05/15/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	31/10/1989



- Settlements
- Port
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- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
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1990 - 2018

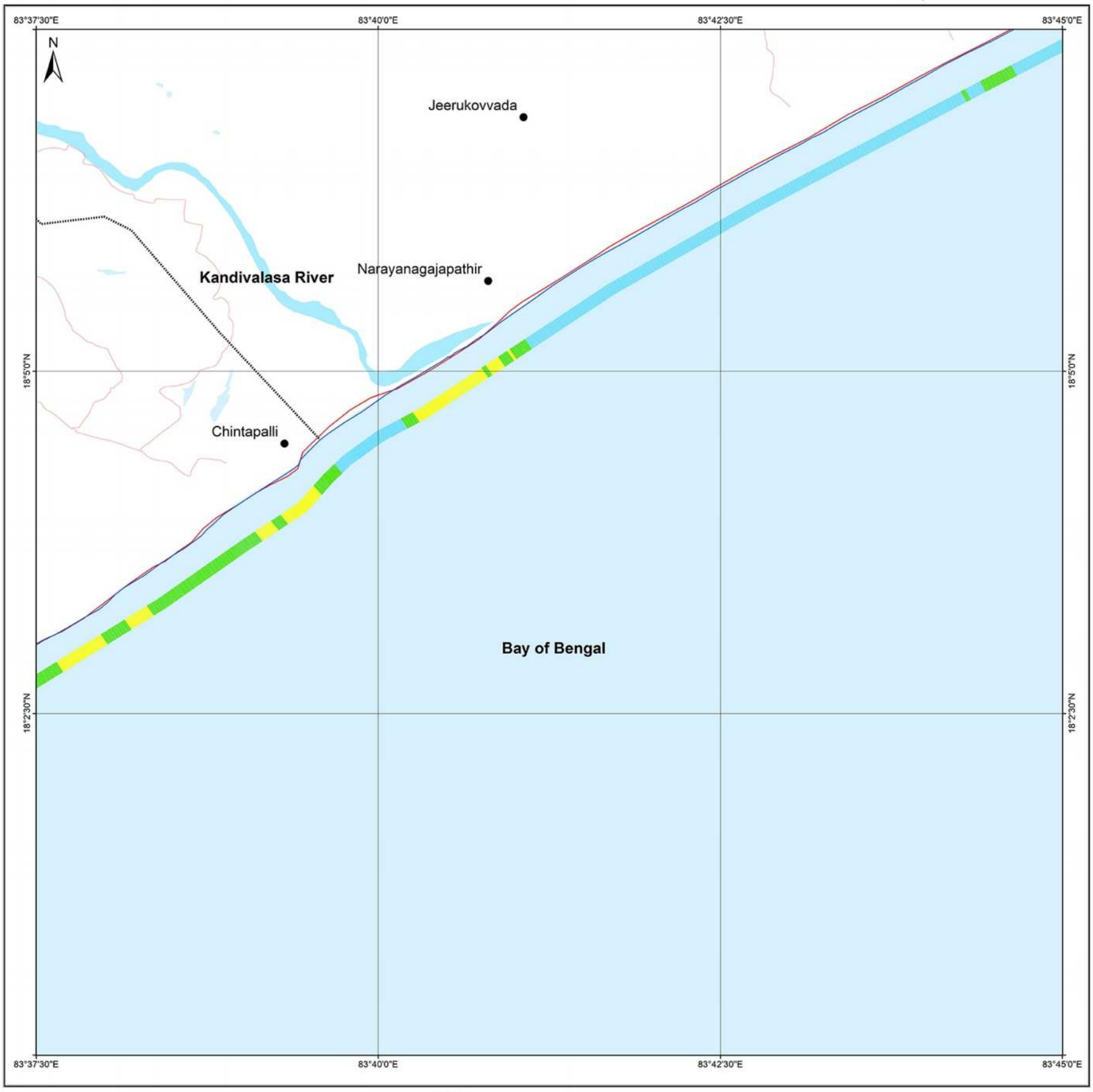
VIZHIYANAGARAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 N / 12 / SE

Map No. : NCCR/SCM/434



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 02/25/2018

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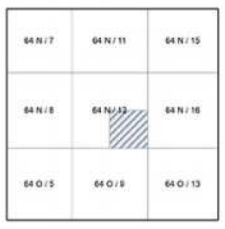


Scale

1000 m 500 0 1 2 km

1:25,000

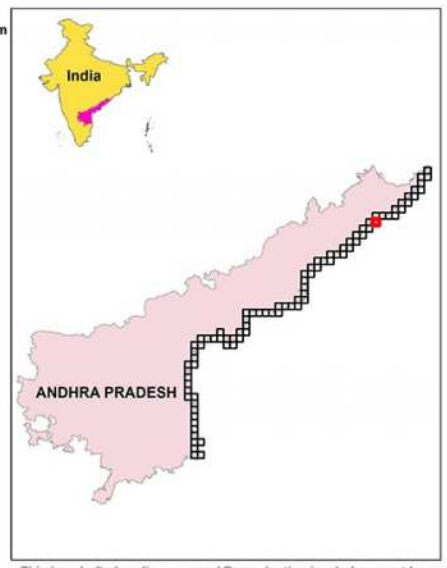
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/25/2018
LISS-IV	03/26/2017
LISS-IV	03/07/2016
LISS-IV	05/19/2015
LISS-IV	03/18/2014
LISS-IV	02/27/2013
LISS-IV	05/15/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	28/11/1990



- Settlements
- Port
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- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
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1990 - 2018

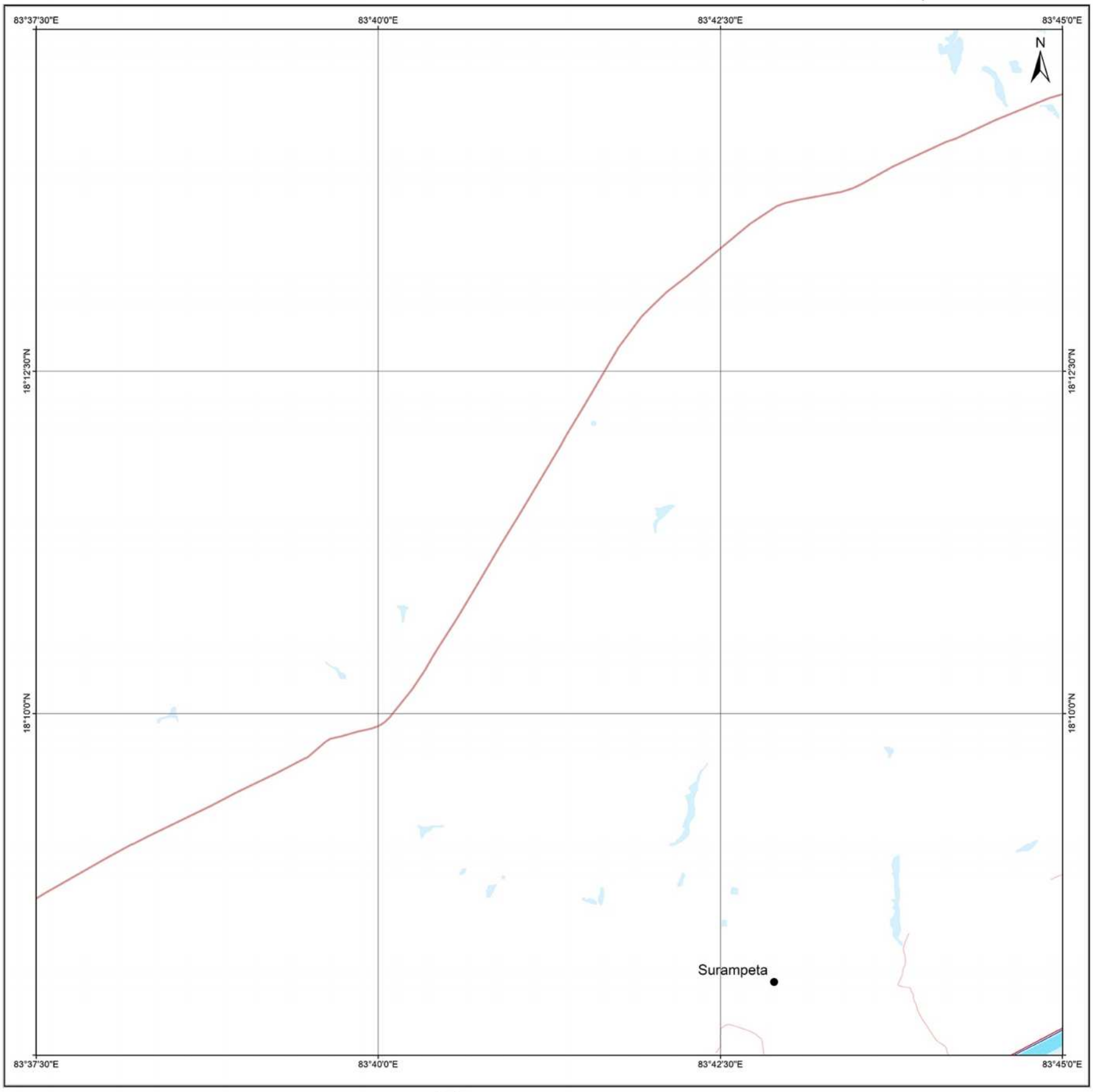
SRIKAKULAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 N / 12 / NE

Map No. : NCCR/SCM/435



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 02/25/2018

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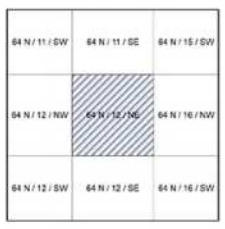
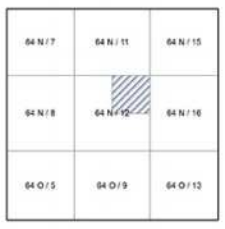


Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/25/2018
LISS-IV	03/26/2017
LISS-IV	03/07/2016
LISS-IV	05/19/2015
LISS-IV	03/18/2014
LISS-IV	02/27/2013
LISS-IV	05/15/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	08/12/2000
TM	28/11/1990

- Settlements
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- Seawall/Ripraps
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SHORELINE CHANGE MAP
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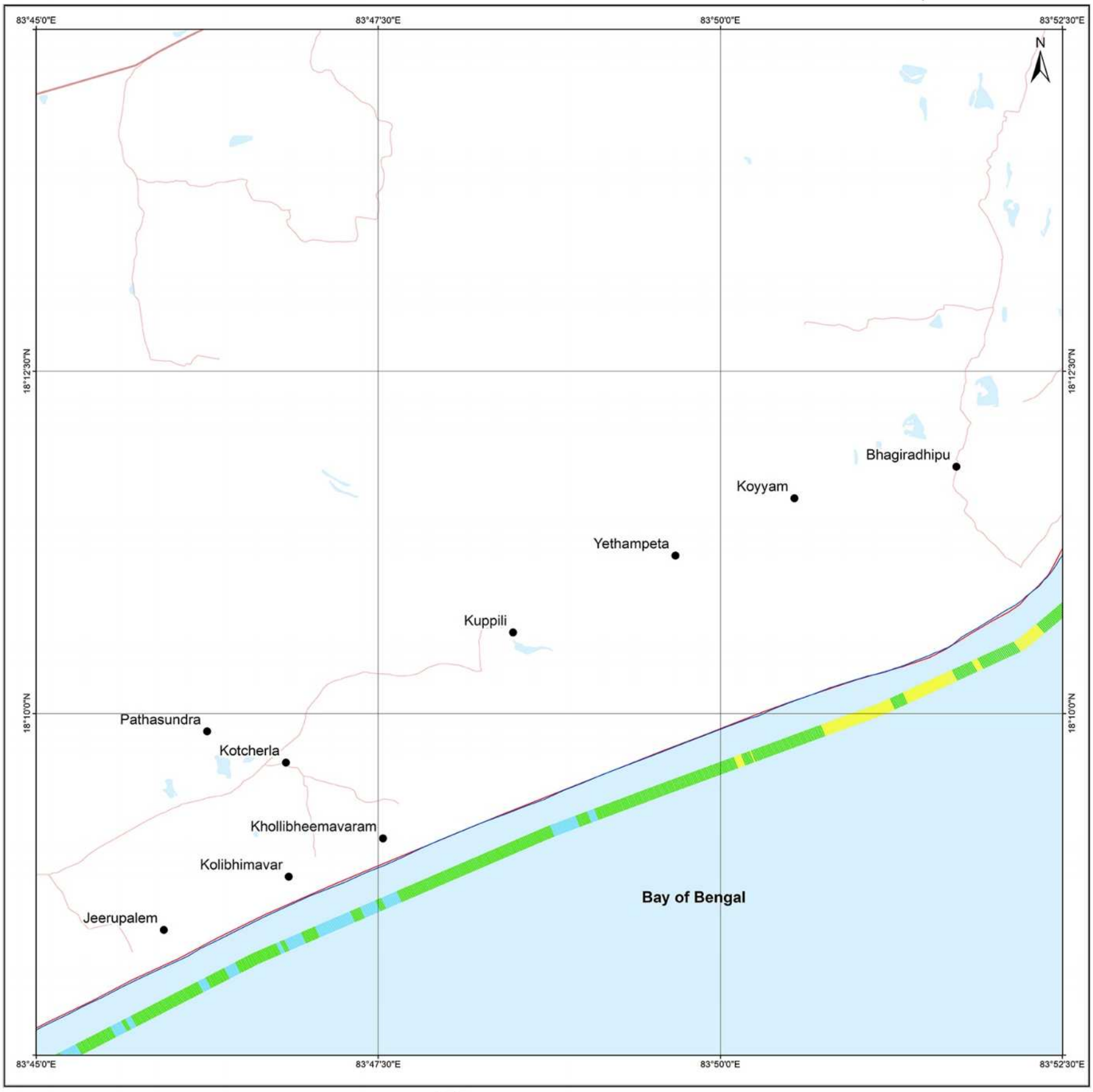
65 N / 16 / NW

Map No. : NCCR/SCM/436



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 02/25/2018

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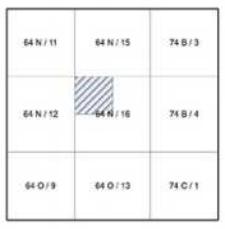
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

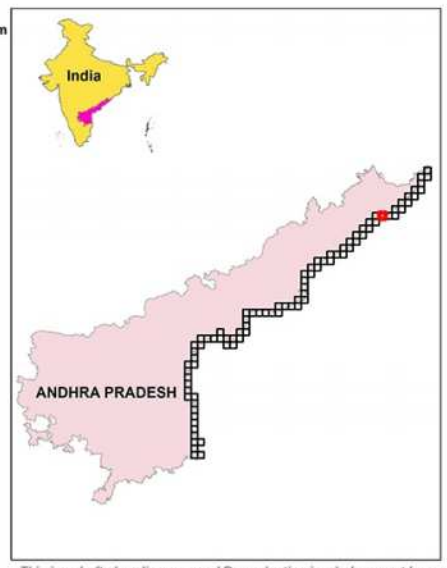
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/25/2018
LISS-IV	03/26/2017 & 01/18/2017
LISS-IV	03/07/2016
LISS-IV	05/19/2015
LISS-IV	03/18/2014
LISS-IV	02/27/2013
LISS-IV	08/02/2012
LISS-III	06/04/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



- Settlements
- Port
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1990 - 2018

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SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

65 N / 16 / NE

Map No. : NCCR/SCM/437

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 02/25/2018 & 02/06/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

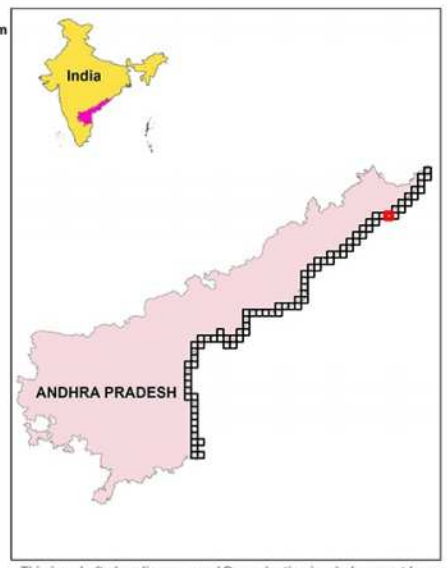
UTM Coordinates Zone 44

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/25/2018 &02/06/2018
LISS-IV	01/18/2017
LISS-IV	02/17/2016
LISS-IV	05/19/2015
LISS-IV	02/27/2014
LISS-IV	03/28/2013
LISS-IV	08/02/2012
LISS-III	04/13/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



- Settlements
- Port
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- Breakwater
- Seawall/Ripraps
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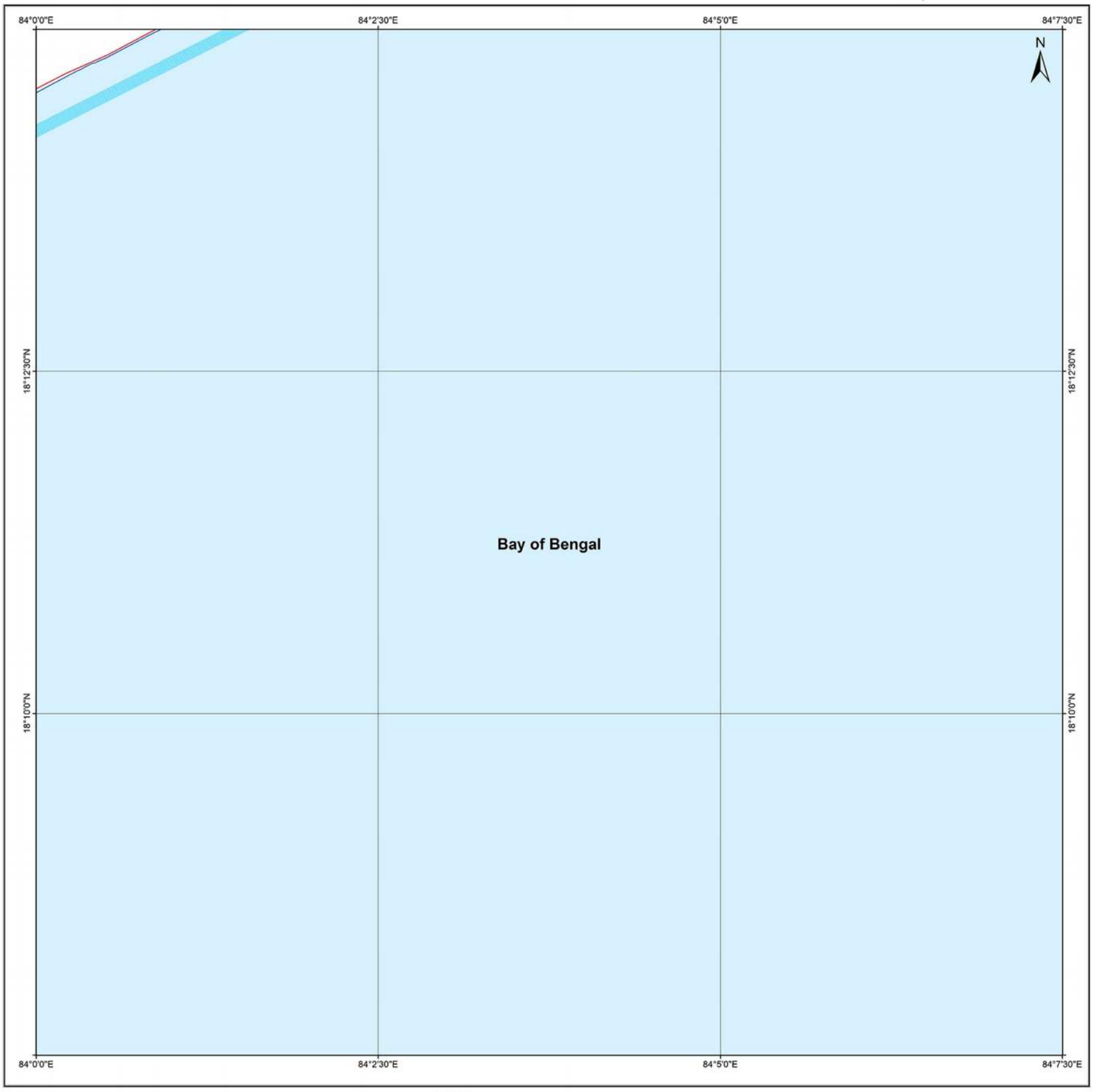
SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

74 B / 4 / NW

Map No. : NCCR/SCM/438



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 02/06/2018

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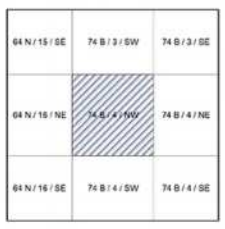


Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

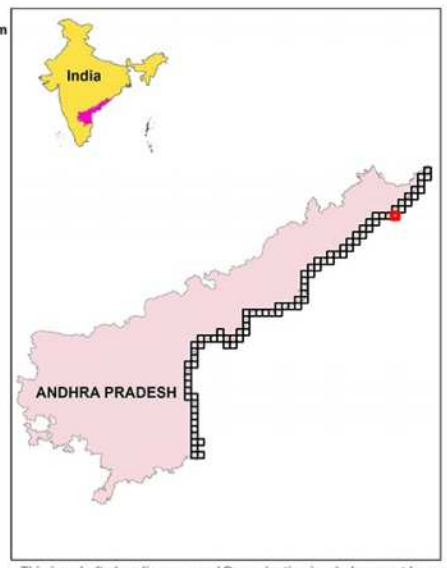
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/06/2018
LISS-IV	01/18/2017
LISS-IV	02/17/2016
LISS-IV	05/19/2015
LISS-IV	02/27/2014
LISS-IV	03/28/2013
LISS-IV	08/02/2012
LISS-III	04/13/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



- Settlements
- Port
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- Jetty
- Breakwater
- Seawall/Ripraps
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1990 - 2018

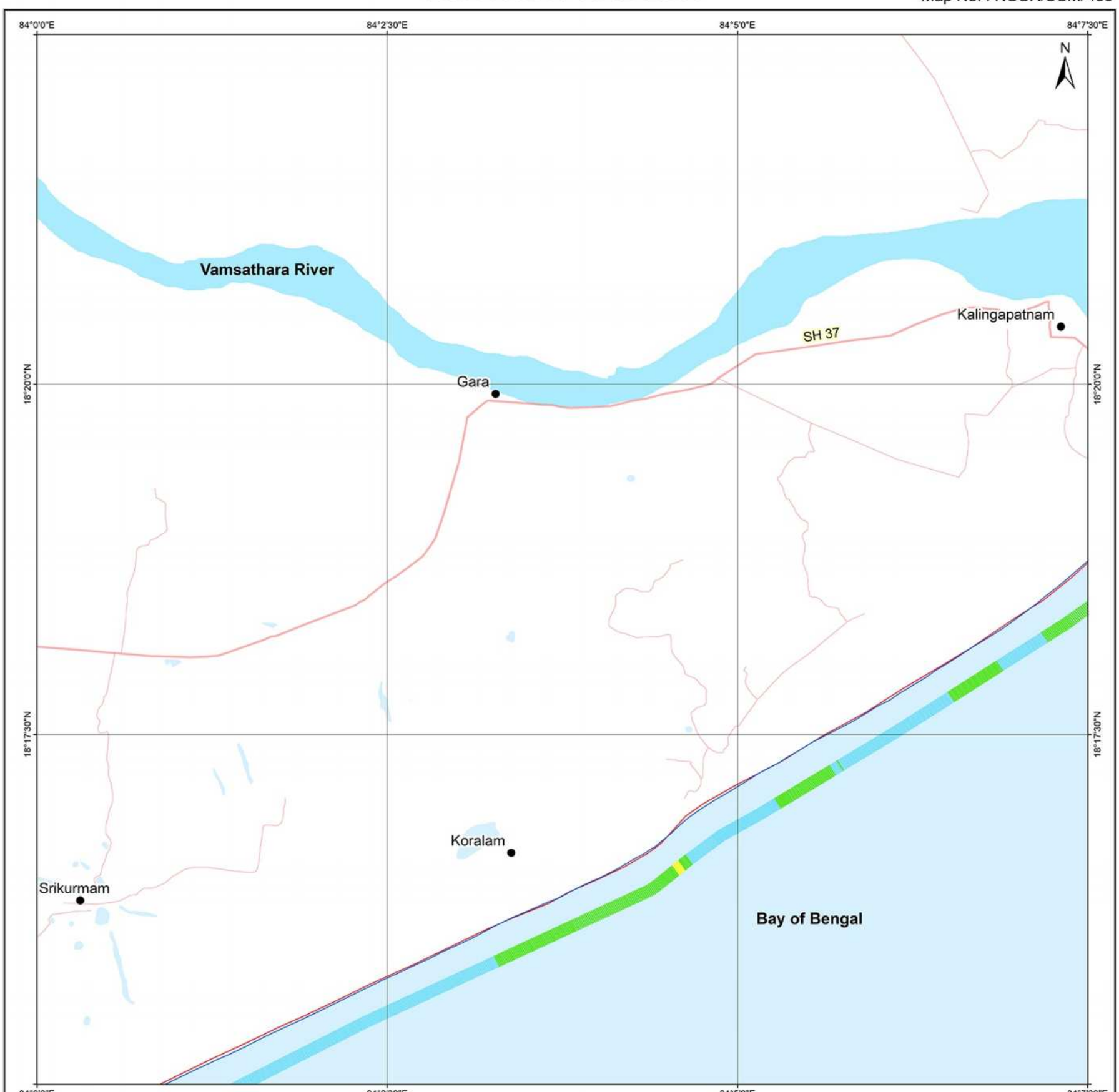
SRIKAKULAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

74 B / 3 / SW

Map No. : NCCR/SCM/439



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 02/06/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

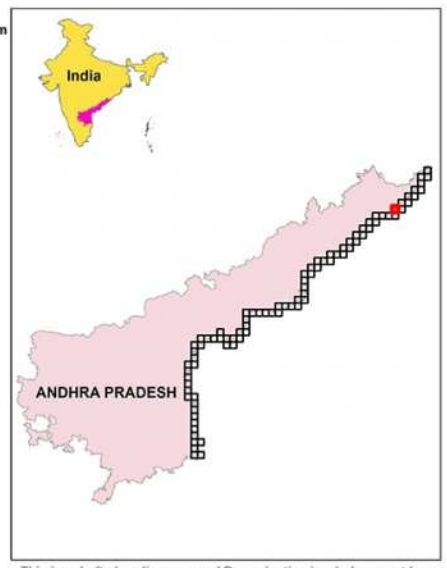
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/06/2018
LISS-IV	01/18/2017
LISS-IV	02/17/2016
LISS-IV	05/19/2015
LISS-IV	02/27/2014
LISS-IV	03/28/2013
LISS-IV	08/02/2012
LISS-III	07/02/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



- Settlements
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SRIKAKULAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

Restricted Use

74 B / 3 / SE

Map No. : NCCR/SCM/440

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 02/06/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

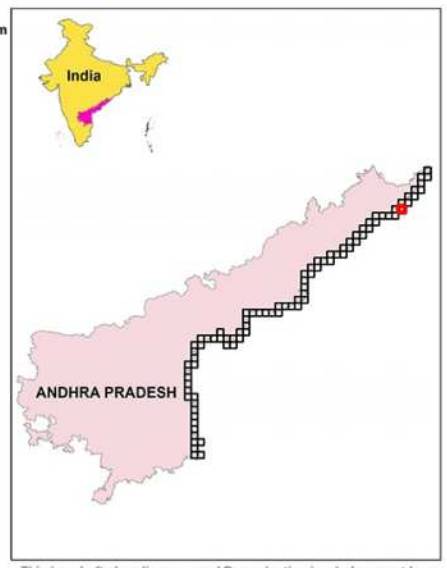
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/06/2018
LISS-IV	01/18/2017
LISS-IV	02/17/2016
LISS-IV	05/19/2015
LISS-IV	02/27/2014
LISS-IV	03/28/2013
LISS-IV	08/02/2012
LISS-III	07/02/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



- Settlements
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SRIKAKULAM

SHORELINE CHANGE MAP
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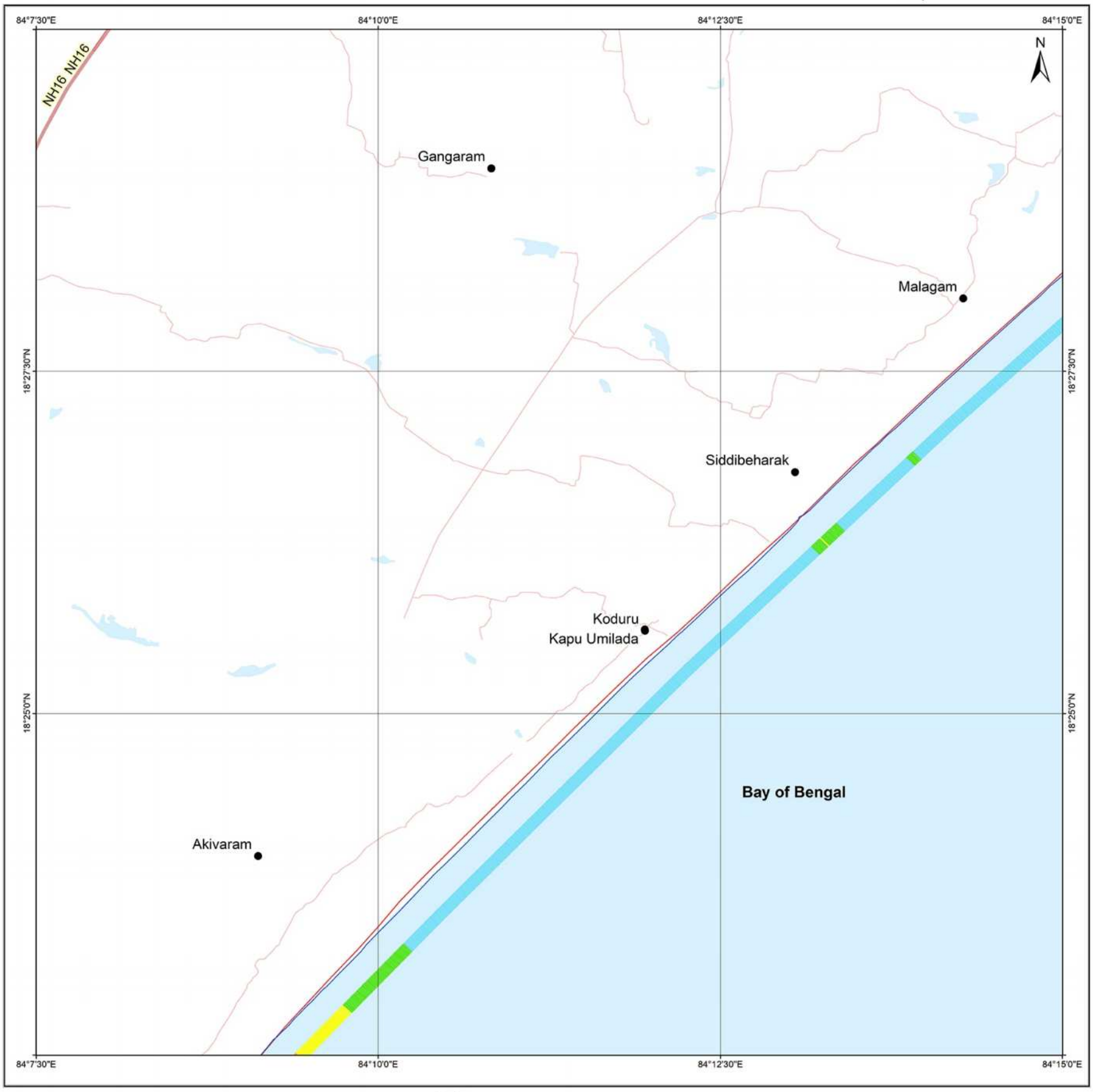
Restricted Use

74 B / 3 / NE

Map No. : NCCR/SCM/441



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 02/06/2018

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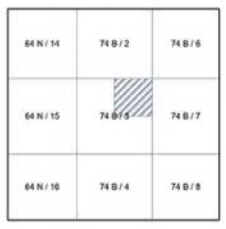


Scale

1000 m 500 0 1 2 km

1:25,000

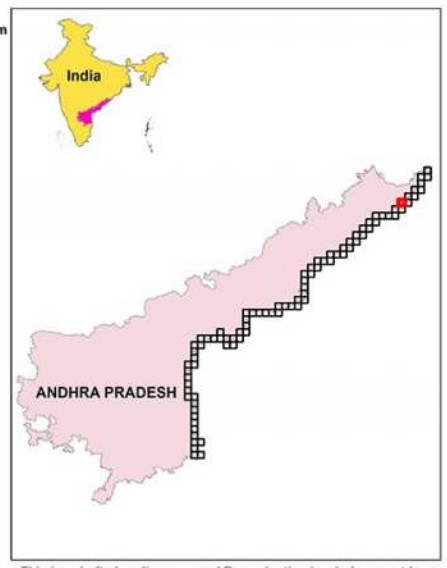
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/06/2018
LISS-IV	01/18/2017
LISS-IV	02/17/2016
LISS-IV	03/22/2015
LISS-IV	02/27/2014
LISS-IV	03/28/2013
LISS-IV	08/02/2012
LISS-III	07/02/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Breakwater
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
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1990 - 2018

SRIKAKULAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

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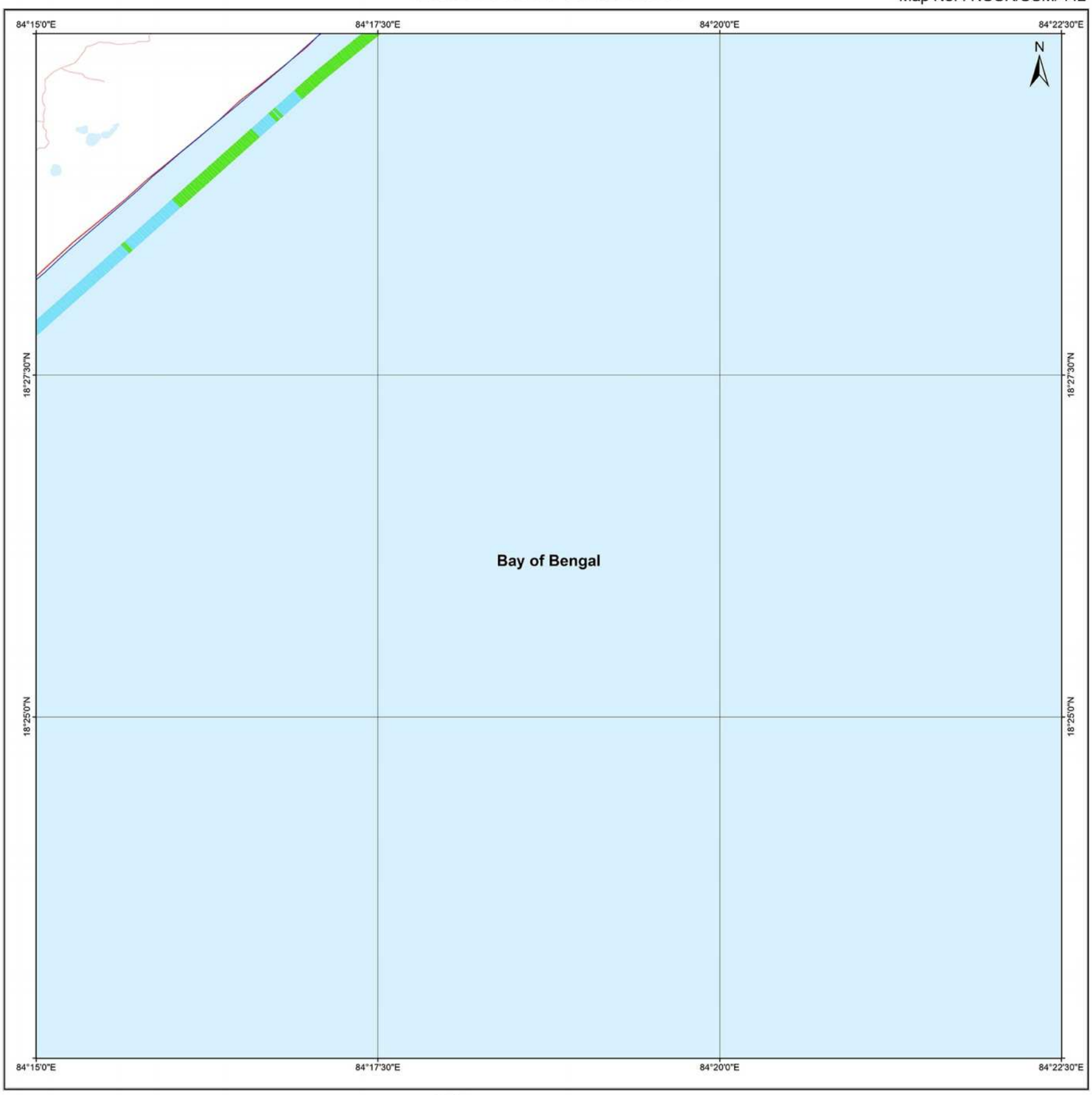
Map No. : NCCR/SCM/442



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 02/06/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

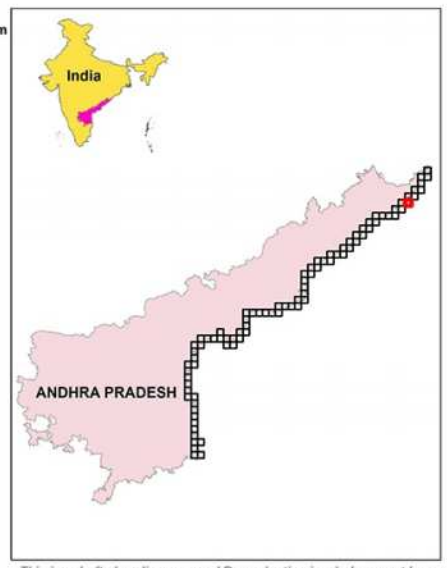
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/06/2018
LISS-IV	01/18/2017
LISS-IV	02/17/2016
LISS-IV	03/22/2015
LISS-IV	02/27/2014
LISS-IV	03/28/2013
LISS-IV	08/02/2012
LISS-III	06/01/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



- Settlements
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- Breakwater
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1990 - 2018

SRIKAKULAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

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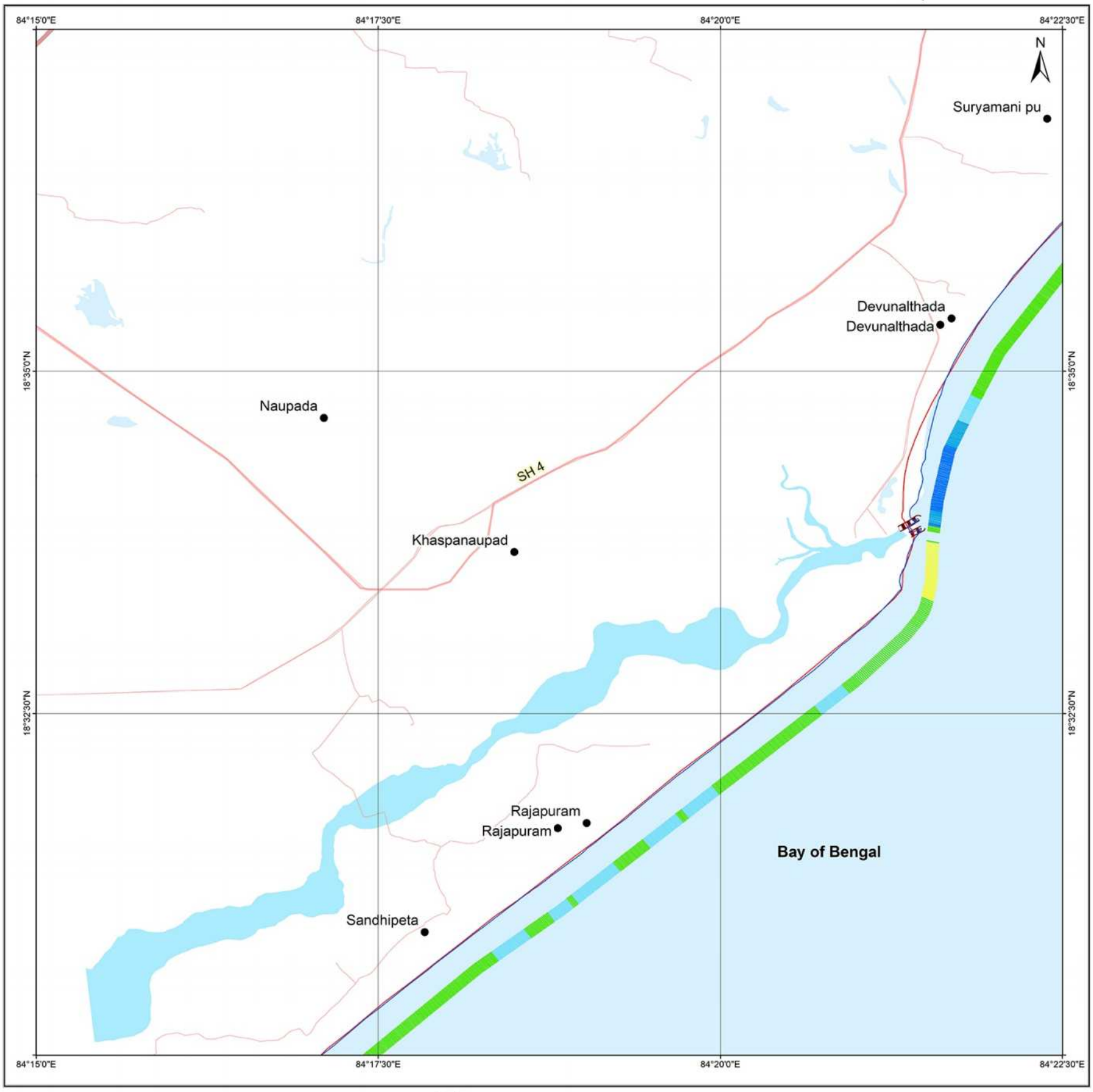
74 B / 6 / SW

Map No. : NCCR/SCM/443



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 02/06/2018 & 03/02/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

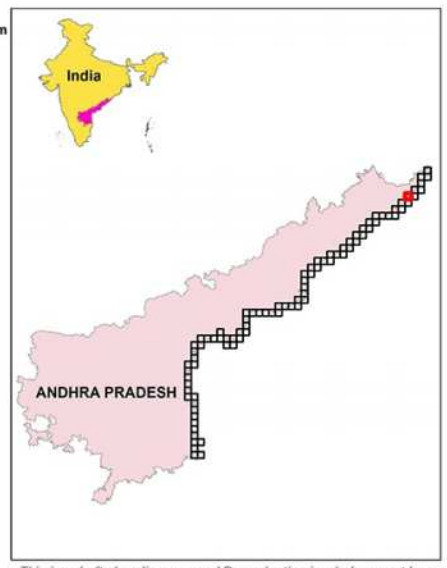
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	02/06/2018 & 03/02/2018
LISS-IV	01/18/2017
LISS-IV	02/17/2016
LISS-IV	03/22/2015
LISS-IV	02/27/2014
LISS-IV	03/28/2013
LISS-IV	08/02/2012
LISS-III	06/01/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



- Settlements
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SRIKAKULAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

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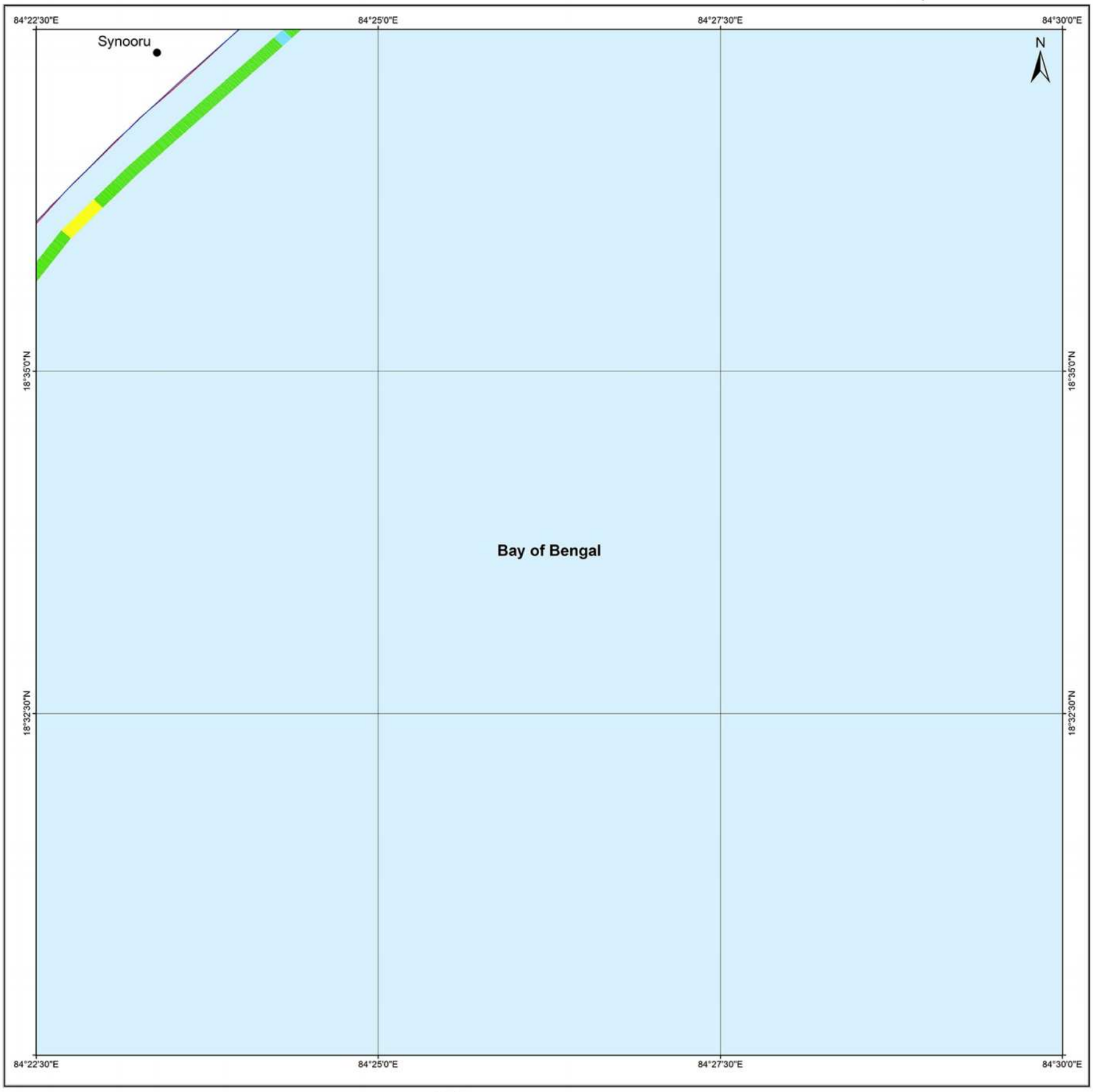
74 B / 6 / SE

Map No. : NCCR/SCM/444



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 03/02/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

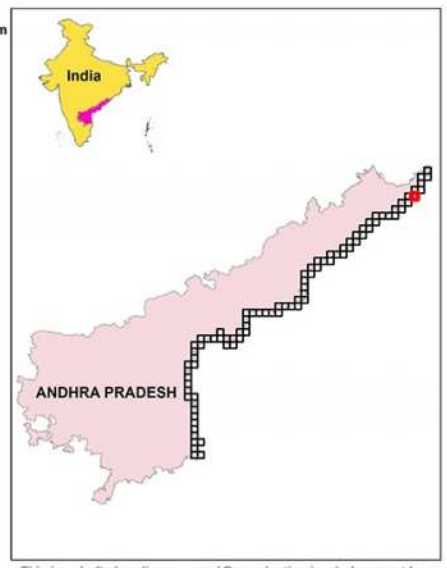
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/02/2018
LISS-IV	02/11/2017 & 01/18/2017
LISS-IV	01/23/2016
LISS-IV	03/22/2015
LISS-IV	02/27/2014
LISS-IV	03/28/2013
LISS-IV	02/04/2012
LISS-III	06/01/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



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SHORELINE CHANGE MAP
ANDHRA PRADESH

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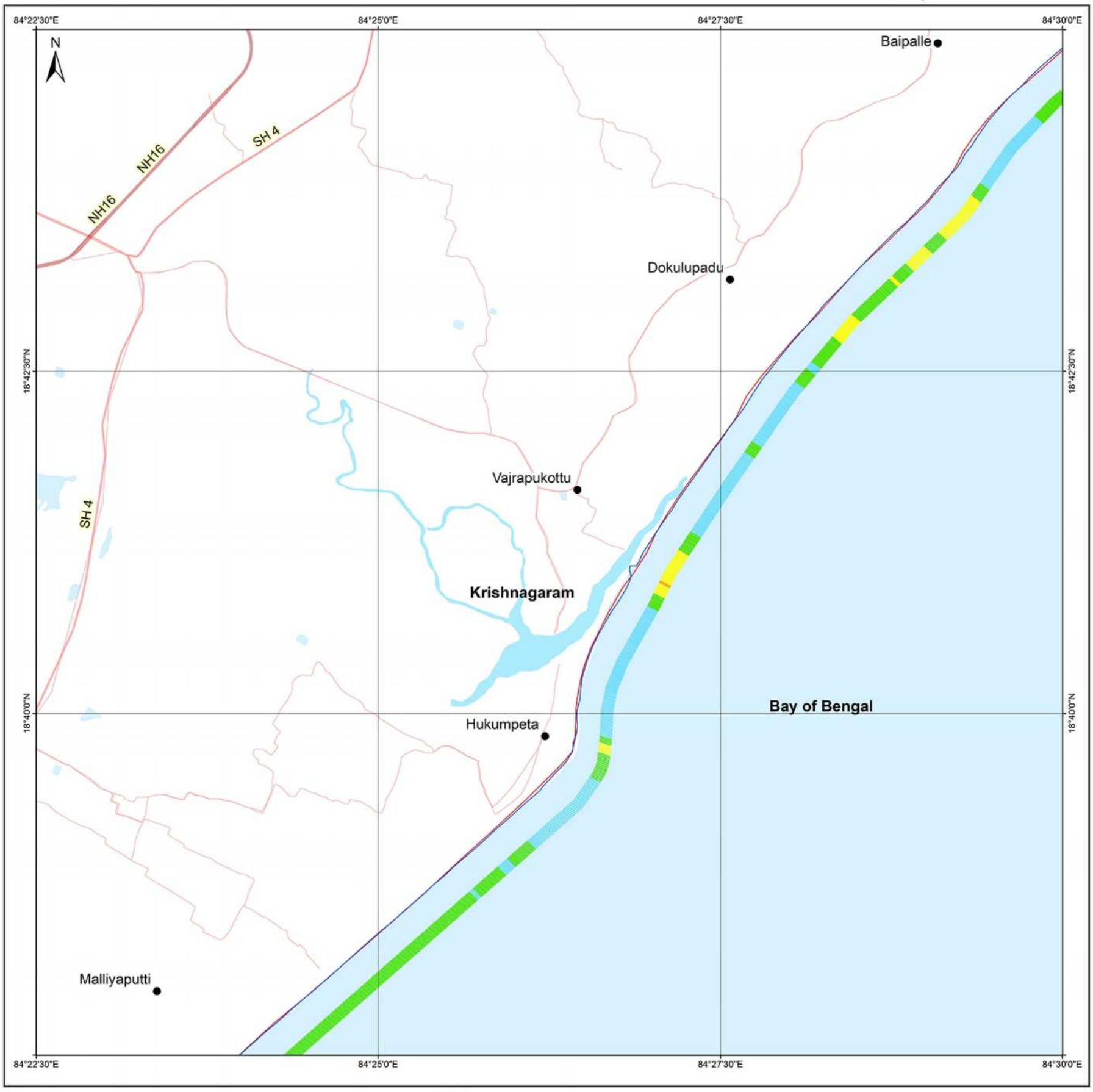
Map No. : NCCR/SCM/445



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 03/02/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

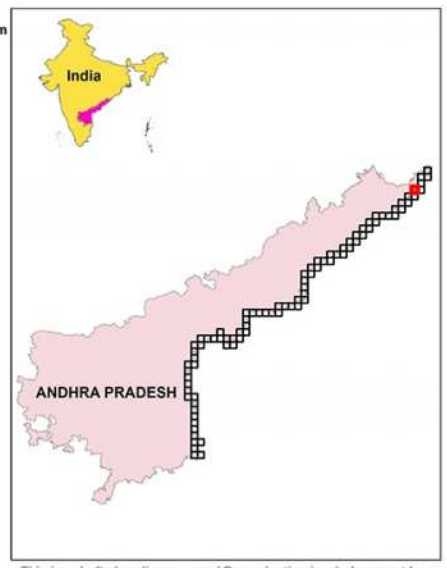
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/02/2018
LISS-IV	02/11/2017
LISS-IV	01/23/2016
LISS-IV	05/29/2015
LISS-IV	03/02/2014
LISS-IV	04/03/2013
LISS-IV	02/04/2012
LISS-III	06/01/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



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SHORELINE CHANGE MAP
ANDHRA PRADESH

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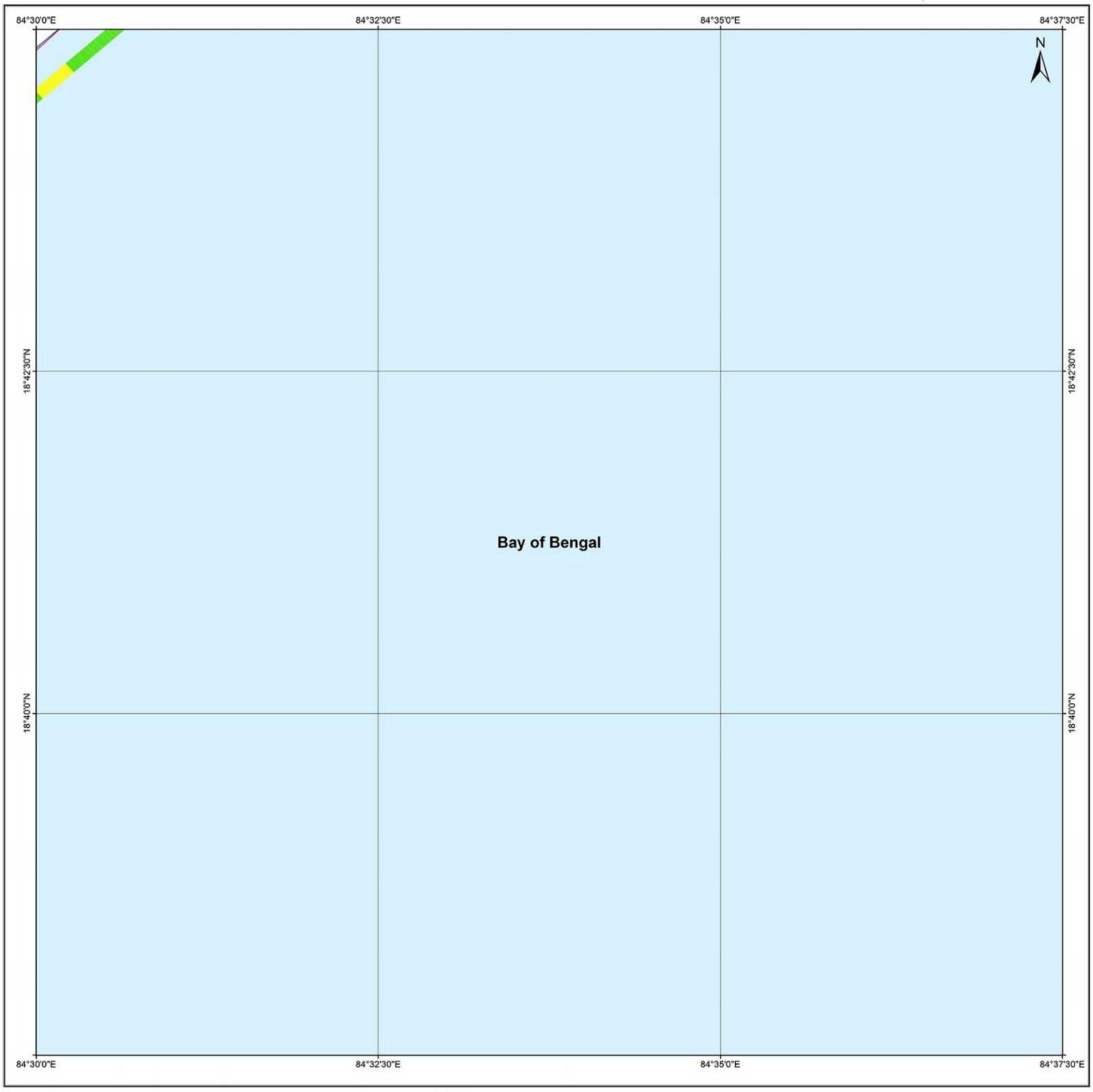
Map No. : NCCR/SCM/446



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 03/02/2018

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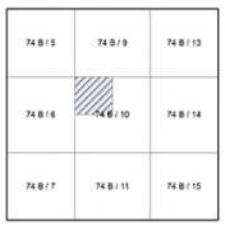


Scale

1000 m 500 0 1 2 km

1:25,000

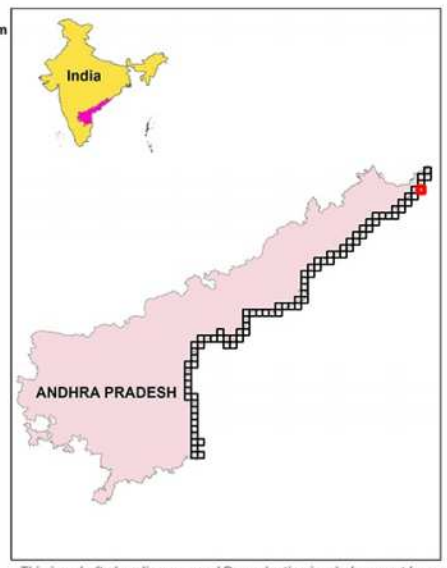
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/02/2018
LISS-IV	02/11/2017
LISS-IV	01/23/2016
LISS-IV	05/29/2015
LISS-IV	03/02/2014
LISS-IV	04/03/2013
LISS-IV	02/04/2012
LISS-III	06/01/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



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SHORELINE CHANGE MAP
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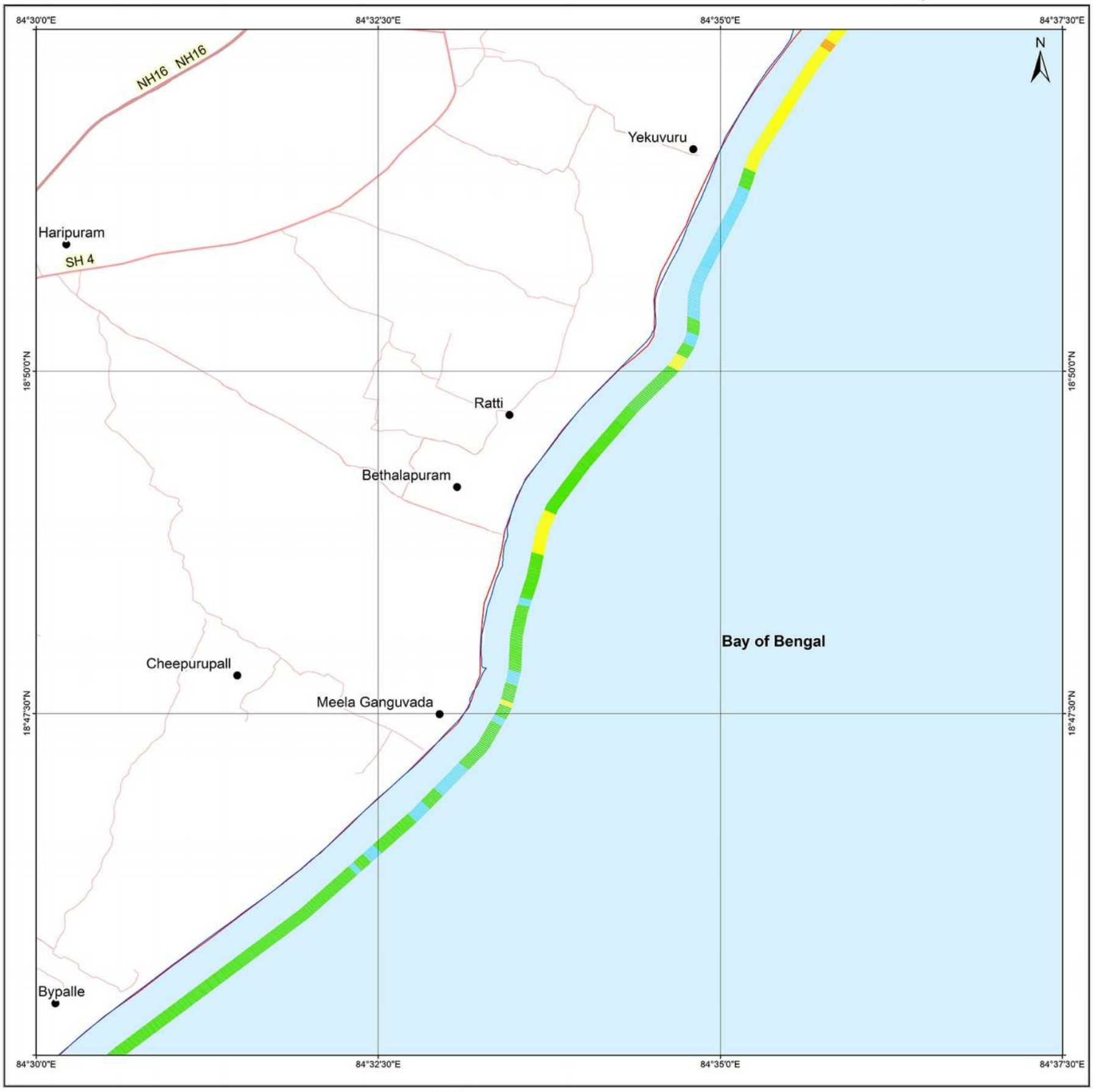
Map No. : NCCR/SCM/447



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 03/02/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

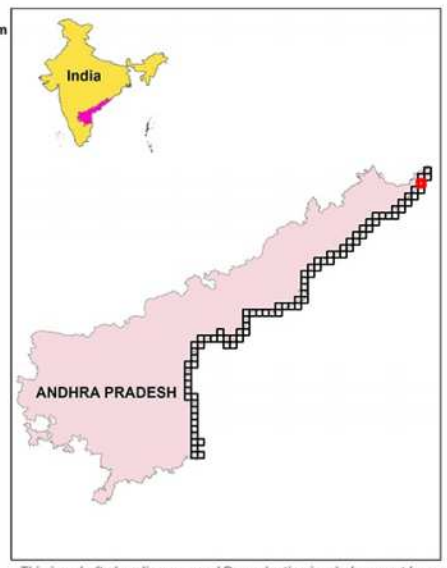
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/02/2018
LISS-IV	02/11/2017
LISS-IV	01/23/2016
LISS-IV	05/29/2015
LISS-IV	03/02/2014
LISS-IV	04/03/2013
LISS-IV	02/04/2012
LISS-III	06/01/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



- Settlements
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- Breakwater
- Seawall/Ripraps
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SHORELINE CHANGE MAP
ANDHRA PRADESH

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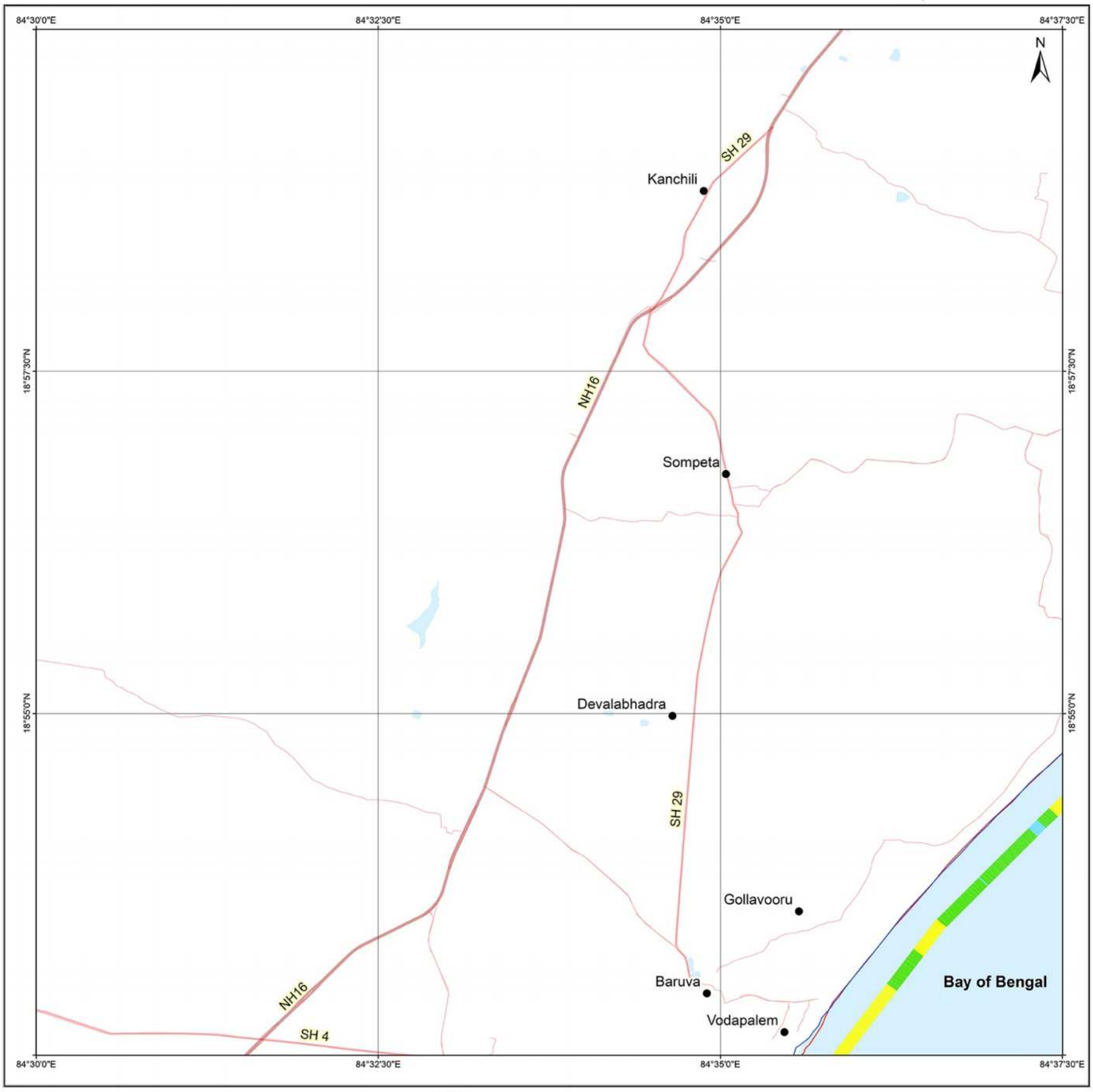
Map No. : NCCR/SCM/448



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

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- 03/02/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

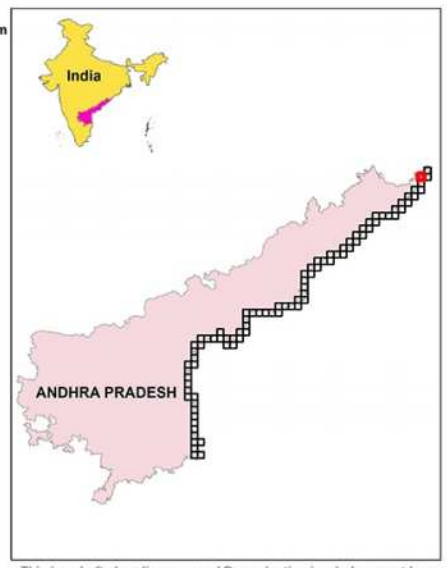
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/02/2018
LISS-IV	02/11/2017
LISS-IV	01/23/2016
LISS-IV	05/29/2015
LISS-IV	03/02/2014
LISS-IV	04/03/2013
LISS-IV	02/04/2012
LISS-III	06/01/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



1990 - 2018

SRIKAKULAM

SHORELINE CHANGE MAP
ANDHRA PRADESH

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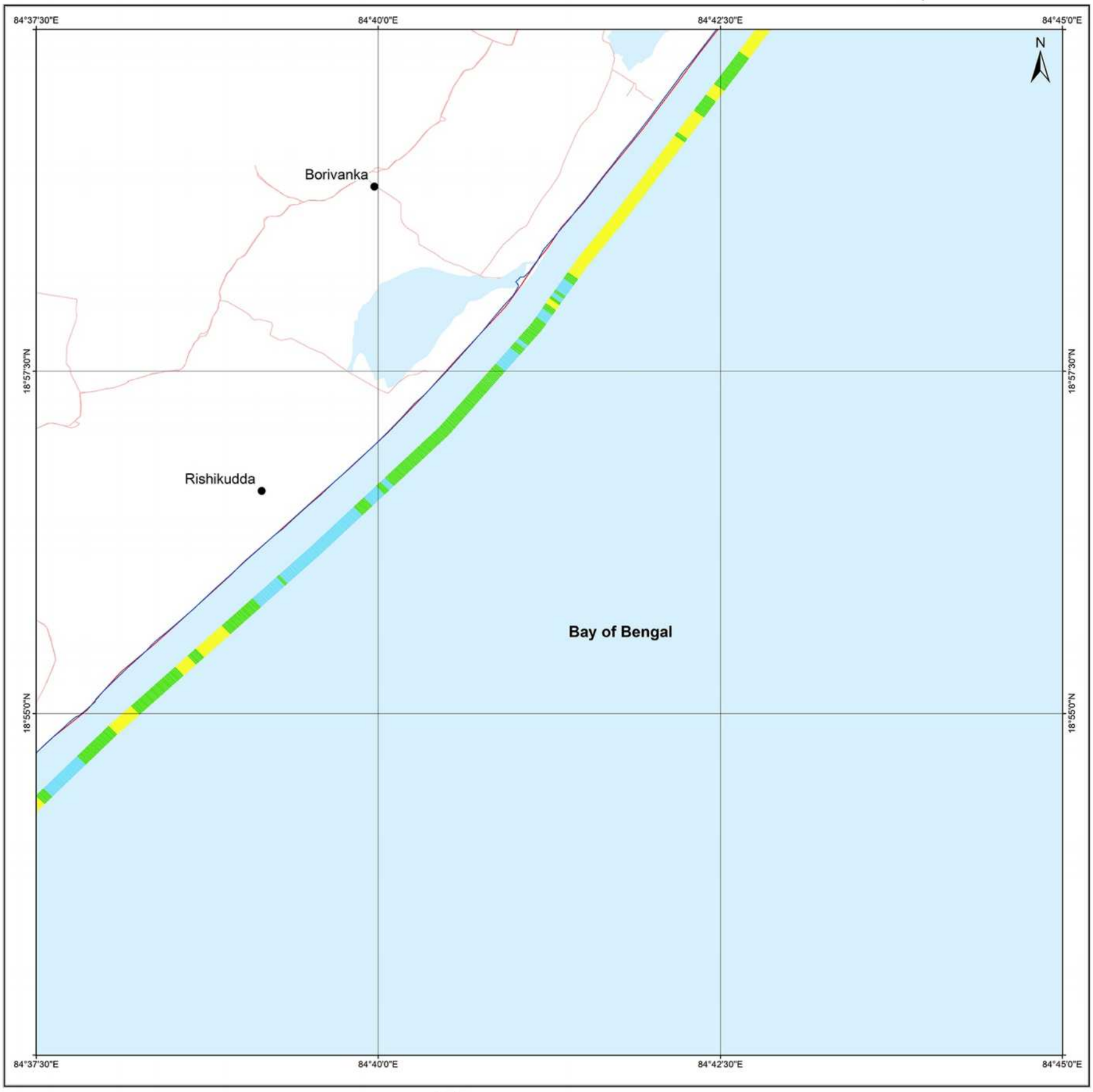
Map No. : NCCR/SCM/449



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 28/11/1990
- 03/02/2018

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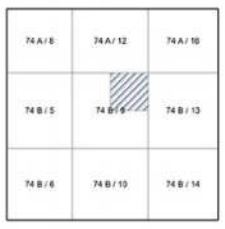


Scale

1000 m 500 0 1 2 km

1:25,000

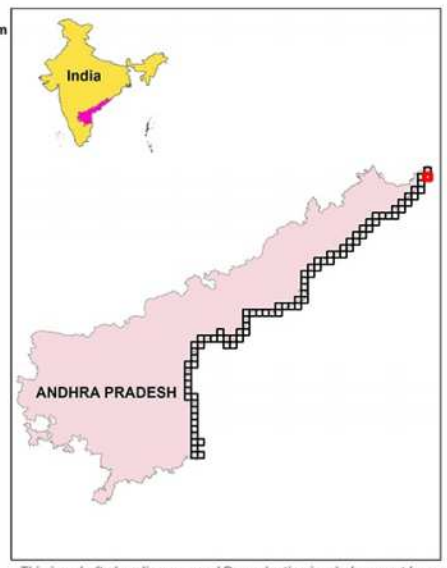
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/02/2018
LISS-IV	02/11/2017
LISS-IV	01/23/2016
LISS-IV	05/29/2015
LISS-IV	03/02/2014
LISS-IV	04/03/2013
LISS-IV	02/04/2012
LISS-III	06/01/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



- Settlements
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SHORELINE CHANGE MAP
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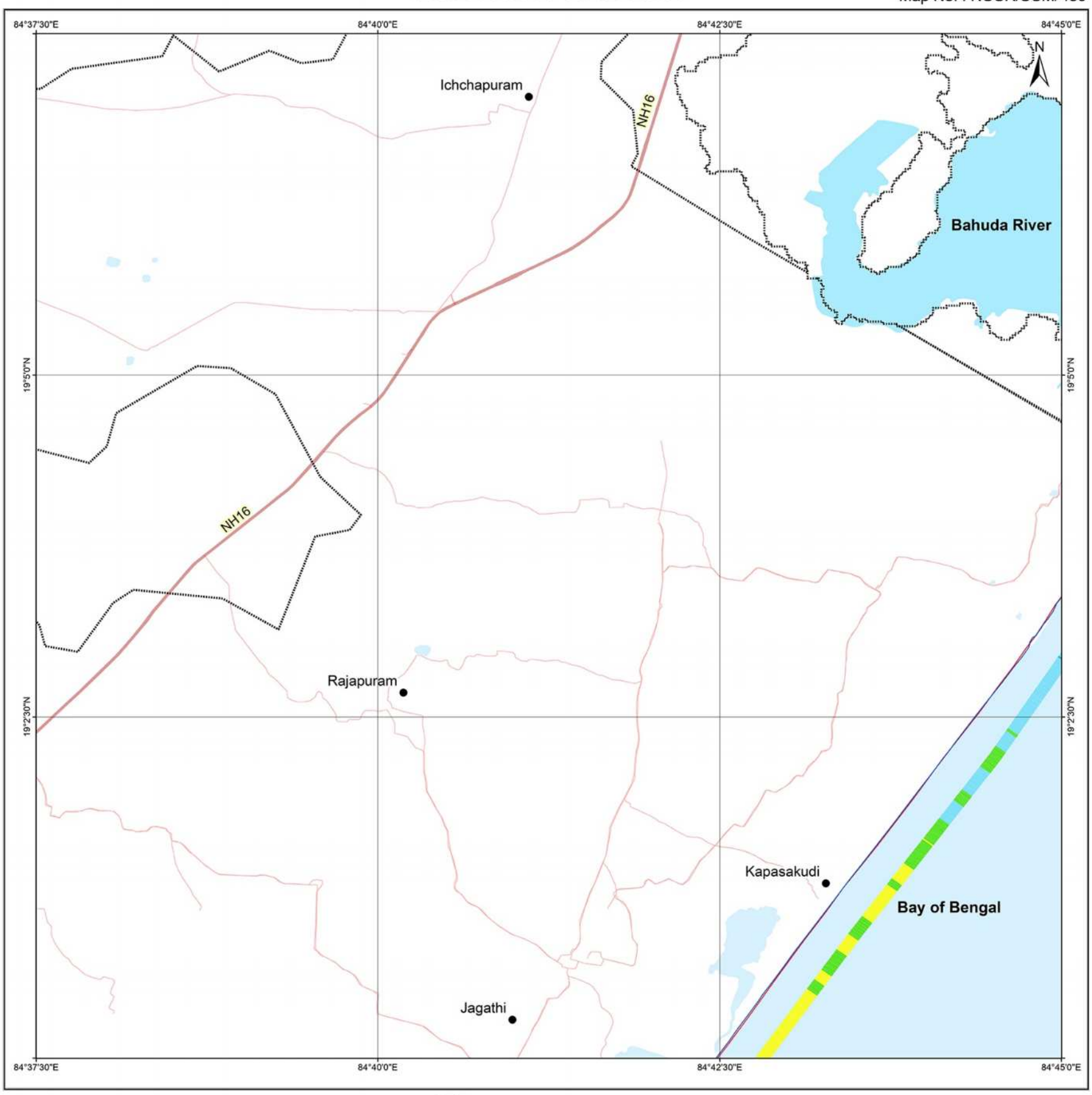
Map No. : NCCR/SCM/450



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

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Scale

1000 m 500 0 1 2 km

1:25,000

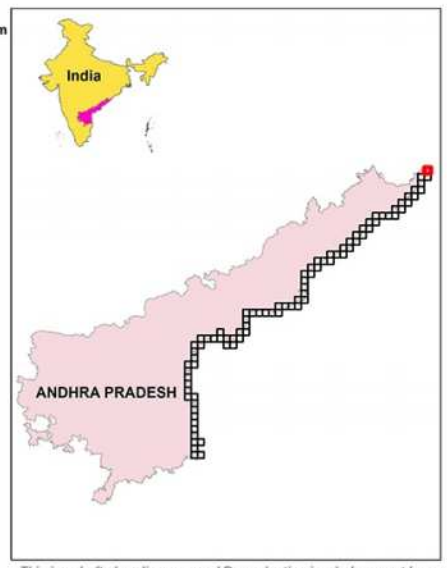
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/02/2018
LISS-IV	02/11/2017
LISS-IV	01/23/2016
LISS-IV	05/29/2015
LISS-IV	03/02/2014
LISS-IV	04/03/2013
LISS-IV	02/04/2012
LISS-III	06/01/2008
PAN (Cartosat-1)	01/07/2006
ETM+	11/13/2000
TM	28/11/1990



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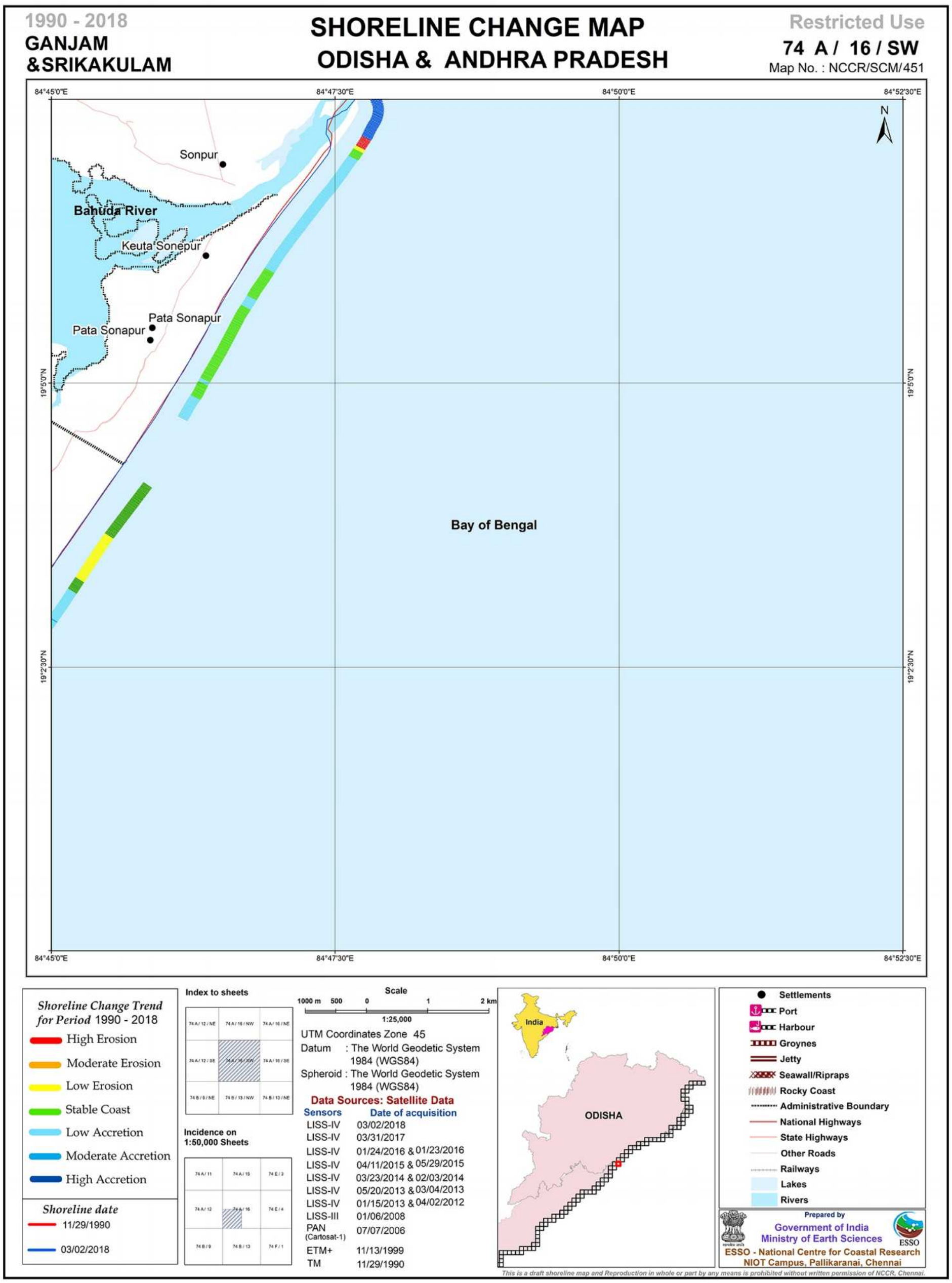
Odisha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GANJAM
&SRIKAKULAM
SHORELINE CHANGE MAP
ODISHA & ANDHRA PRADESH
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Map No. : NCCR/SCM/451
84°45'0"E
84°47'30"E
84°50'0"E
84°52'30"E
N
19°5'0"N
19°2'30"N
Sonpur
Bahuda River
Keuta Sonepur
Pata Sonapur
Pata Sonapur
Bay of Bengal
Shoreline Change Trend for Period 1990 - 2018
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Moderate Erosion
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Stable Coast
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74 A / 16 / NE
74 A / 12 / SE
74 A / 16 / SW
74 A / 16 / SE
74 B / 9 / NE
74 B / 13 / NW
74 B / 13 / NE
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74 A / 15
74 E / 3
74 A / 12
74 A / 16
74 E / 4
74 B / 9
74 B / 13
74 F / 1
Scale
1000 m 500 0 1 2 km
1:25,000
UTM Coordinates Zone 45
Datum : The World Geodetic System 1984 (WGS84)
Spheroid : The World Geodetic System 1984 (WGS84)
Data Sources: Satellite Data
Sensors Date of acquisition
LISS-IV 03/02/2018
LISS-IV 03/31/2017
LISS-IV 01/24/2016 & 01/23/2016
LISS-IV 04/11/2015 & 05/29/2015
LISS-IV 03/23/2014 & 02/03/2014
LISS-IV 05/20/2013 & 03/04/2013
LISS-IV 01/15/2013 & 04/02/2012
LISS-III 01/06/2008
PAN (Cartosat-1) 07/07/2006
ETM+ 11/13/1999
TM 11/29/1990
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Jetty
Seawall/Ripraps
Rocky Coast
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GANJAM

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ODISHA

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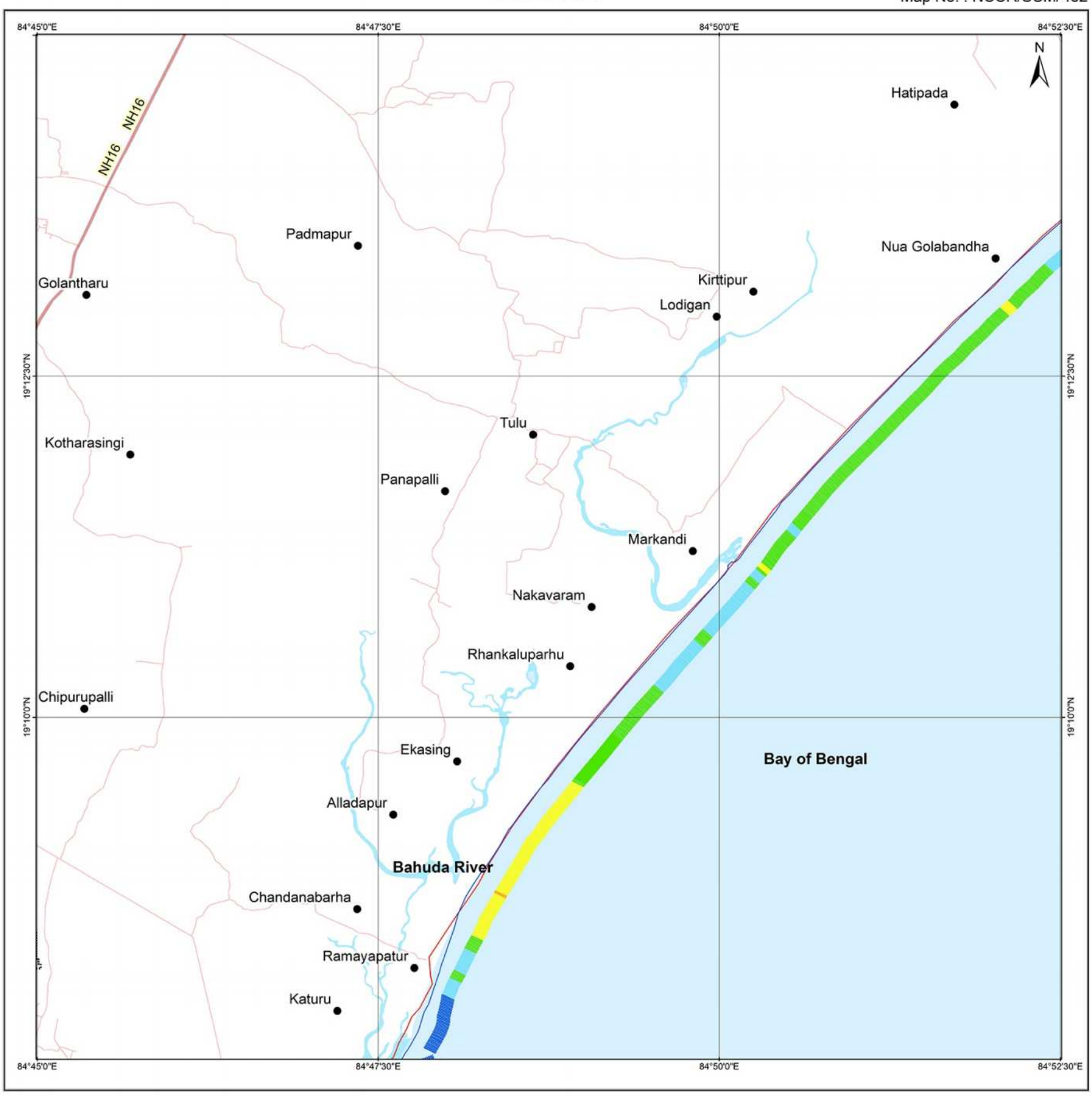
74 A / 16 / NW

Map No. : NCCR/SCM/452



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/02/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/02/2018
LISS-IV	03/31/2017
LISS-IV	01/24/2016
LISS-IV	04/11/2015
LISS-IV	03/23/2014
LISS-IV	05/20/2013
LISS-IV	01/15/2013
LISS-III	01/06/2008
PAN (Cartosat-1)	07/07/2006
ETM+	11/13/1999
TM	11/29/1990

- Settlements
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- Jetty
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- Lakes
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1990 - 2018

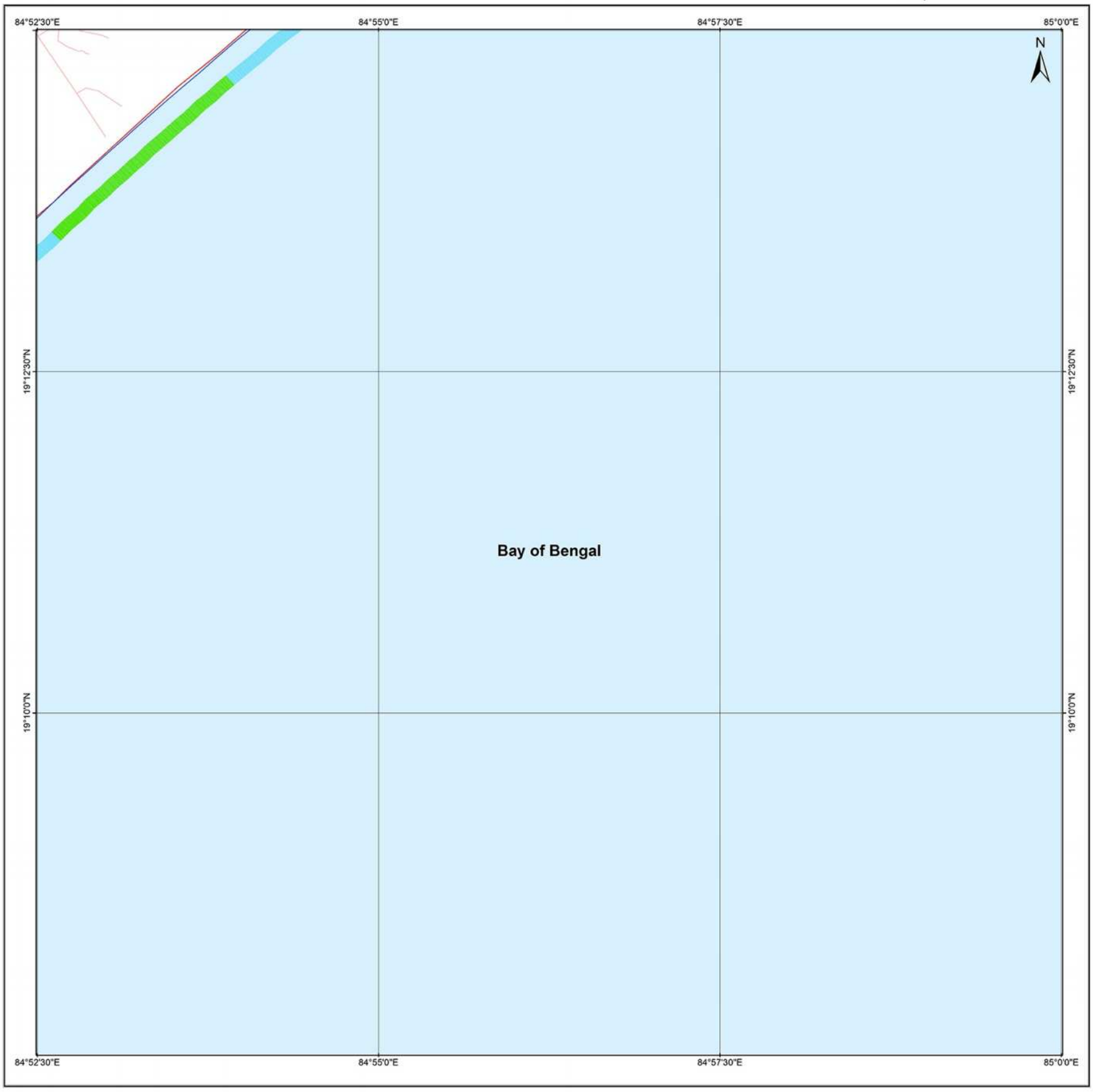
GANJAM

SHORELINE CHANGE MAP
ODISHA

Restricted Use

74 A / 16 / NE

Map No. : NCCR/SCM/453



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/31/2018 & 03/02/2018

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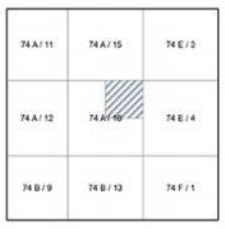

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/31/2018 & 03/02/2018
LISS-IV	03/31/2017
LISS-IV	01/24/2016
LISS-IV	04/11/2015
LISS-IV	03/23/2014
LISS-IV	05/20/2013
LISS-IV	01/15/2013
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SHORELINE CHANGE MAP
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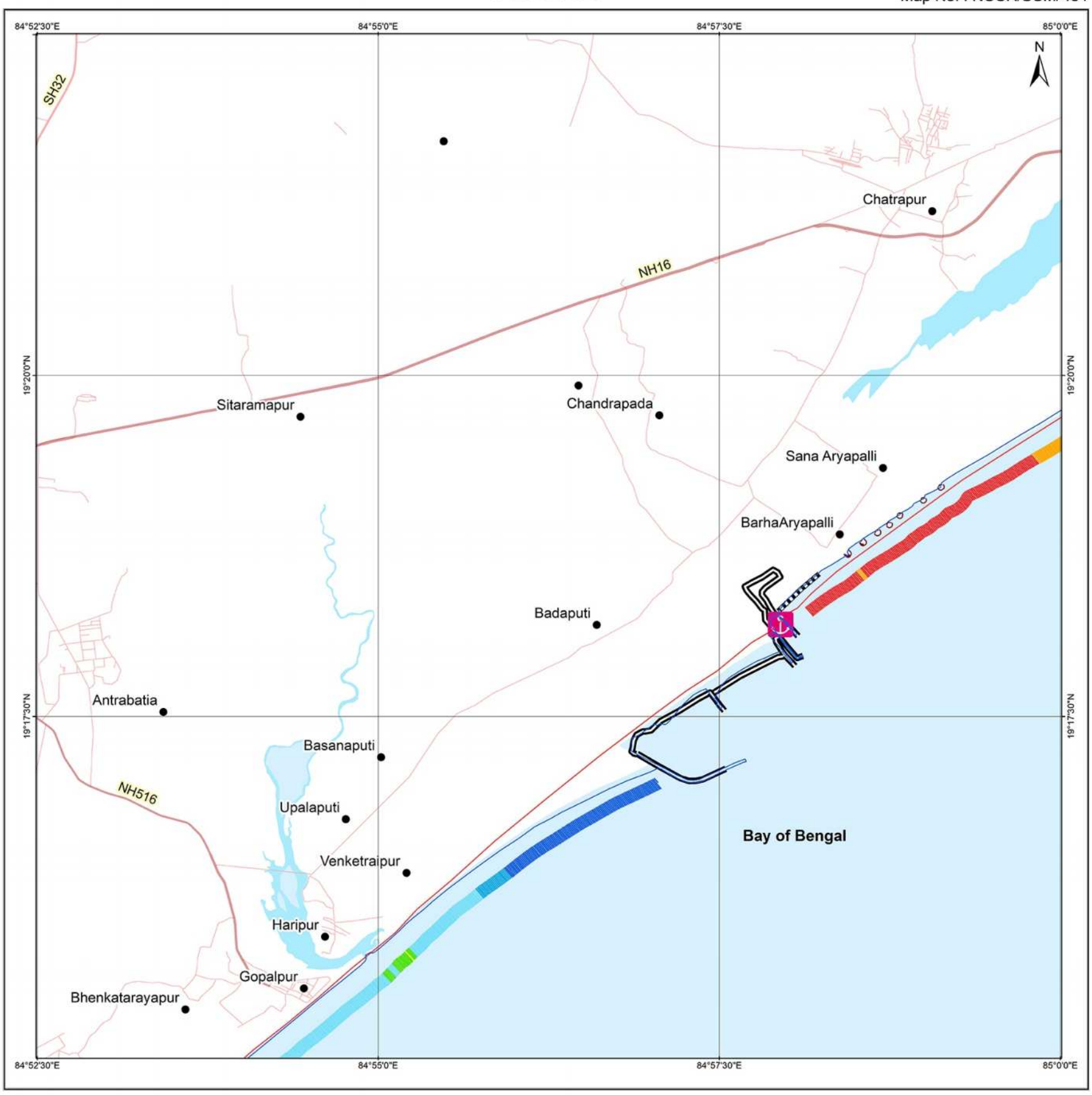
74 A / 15 / SE

Map No. : NCCR/SCM/454



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/31/2018

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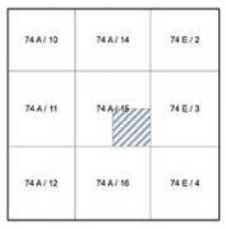

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/31/2018
LISS-IV	03/31/2017 & 02/26/2017
LISS-IV	01/24/2016 & 02/22/2016
LISS-IV	04/11/2015
LISS-IV	03/23/2014
LISS-IV	05/20/2013
LISS-IV	01/15/2013
LISS-III	01/06/2008
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SHORELINE CHANGE MAP
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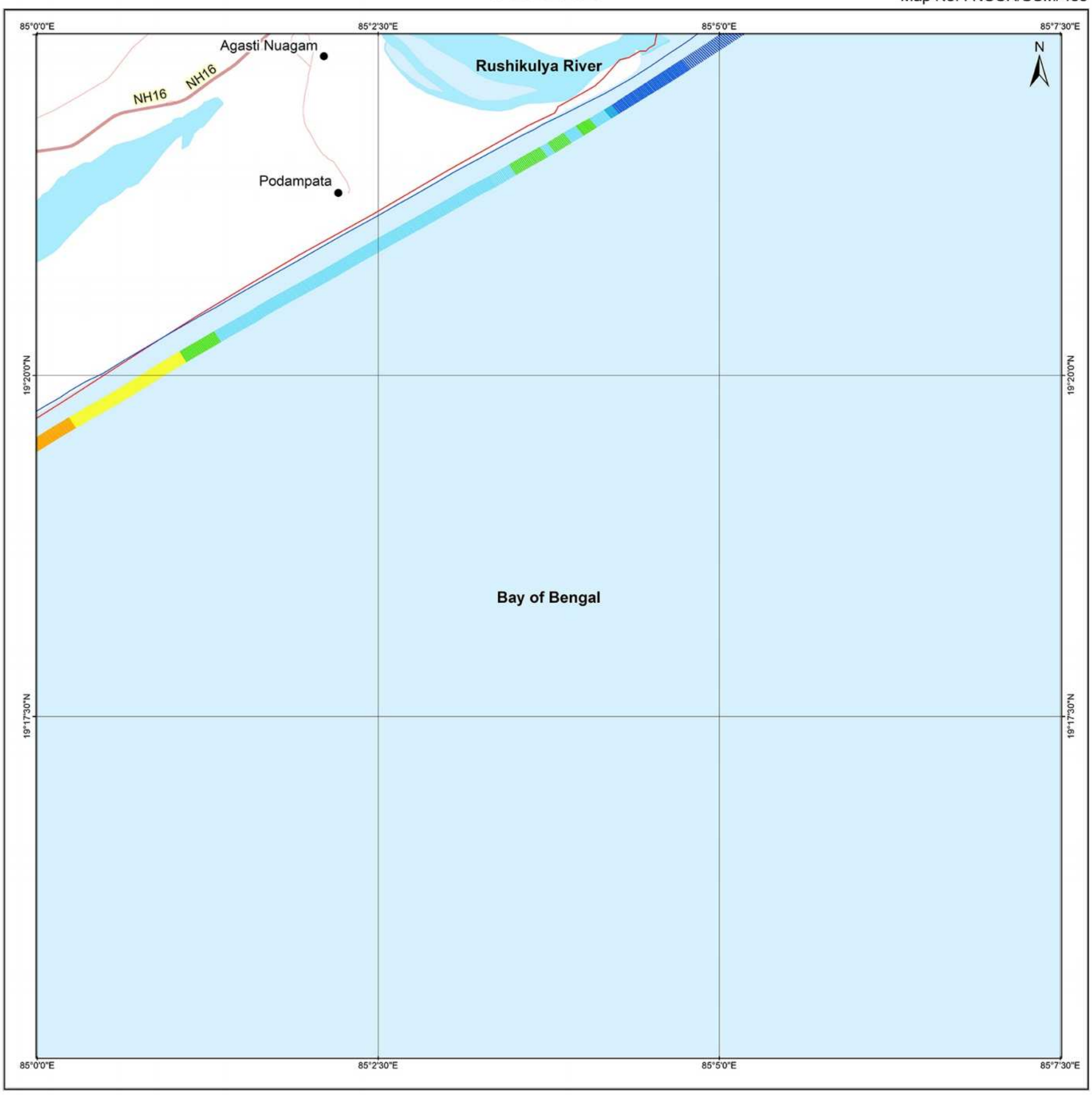
Map No. : NCCR/SCM/455



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/31/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

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LISS-IV	03/31/2018
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SHORELINE CHANGE MAP
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74 E / 3 / NW

Map No. : NCCR/SCM/456

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/31/2018

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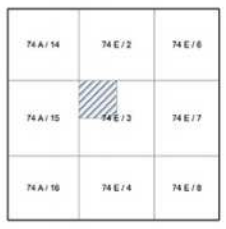

Scale

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UTM Coordinates Zone 45

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LISS-IV	01/15/2013
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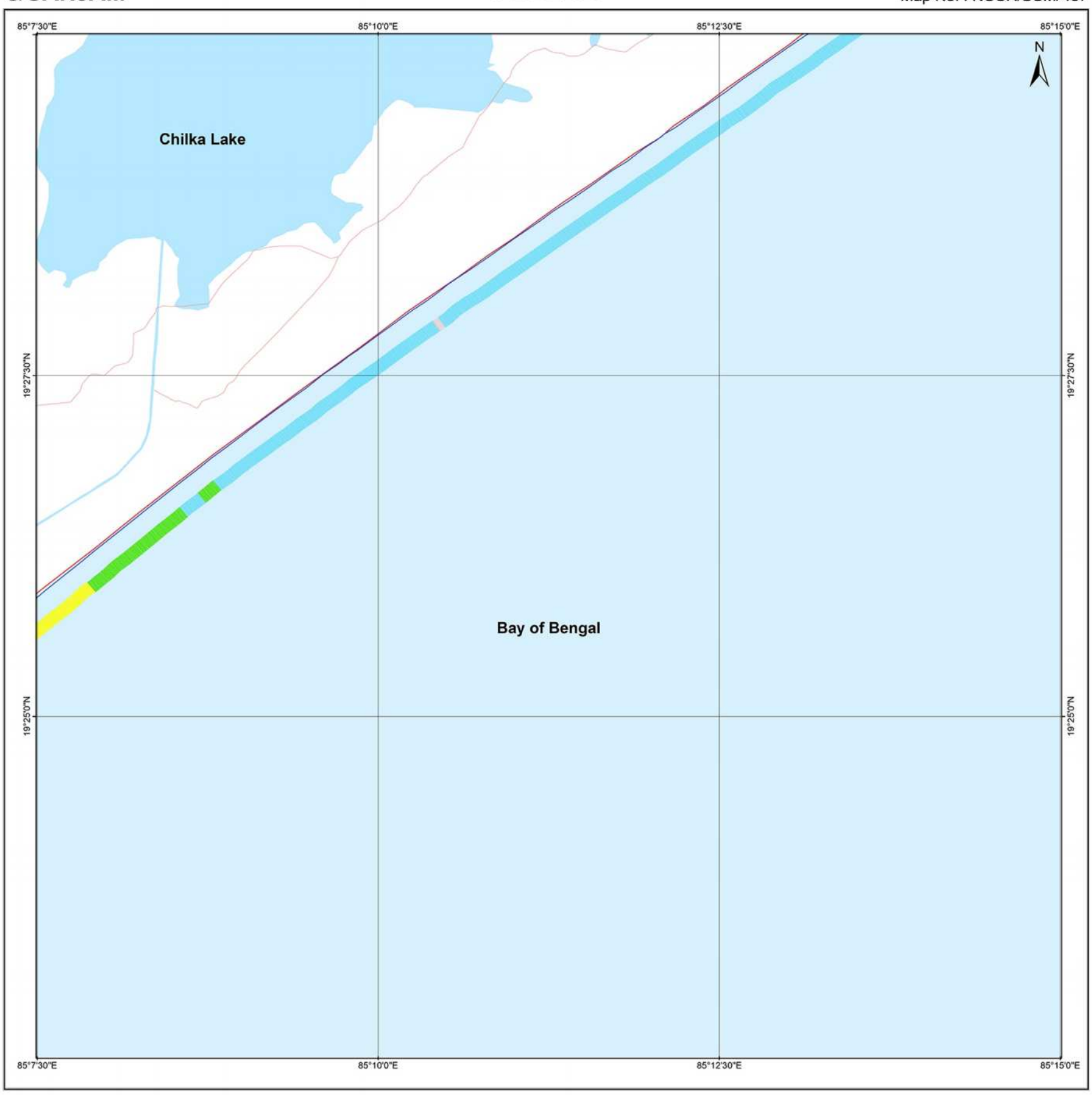
Map No. : NCCR/SCM/457



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/31/2018

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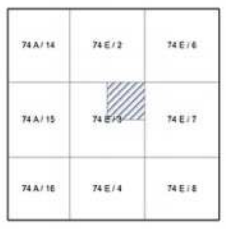

Scale

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UTM Coordinates Zone 45

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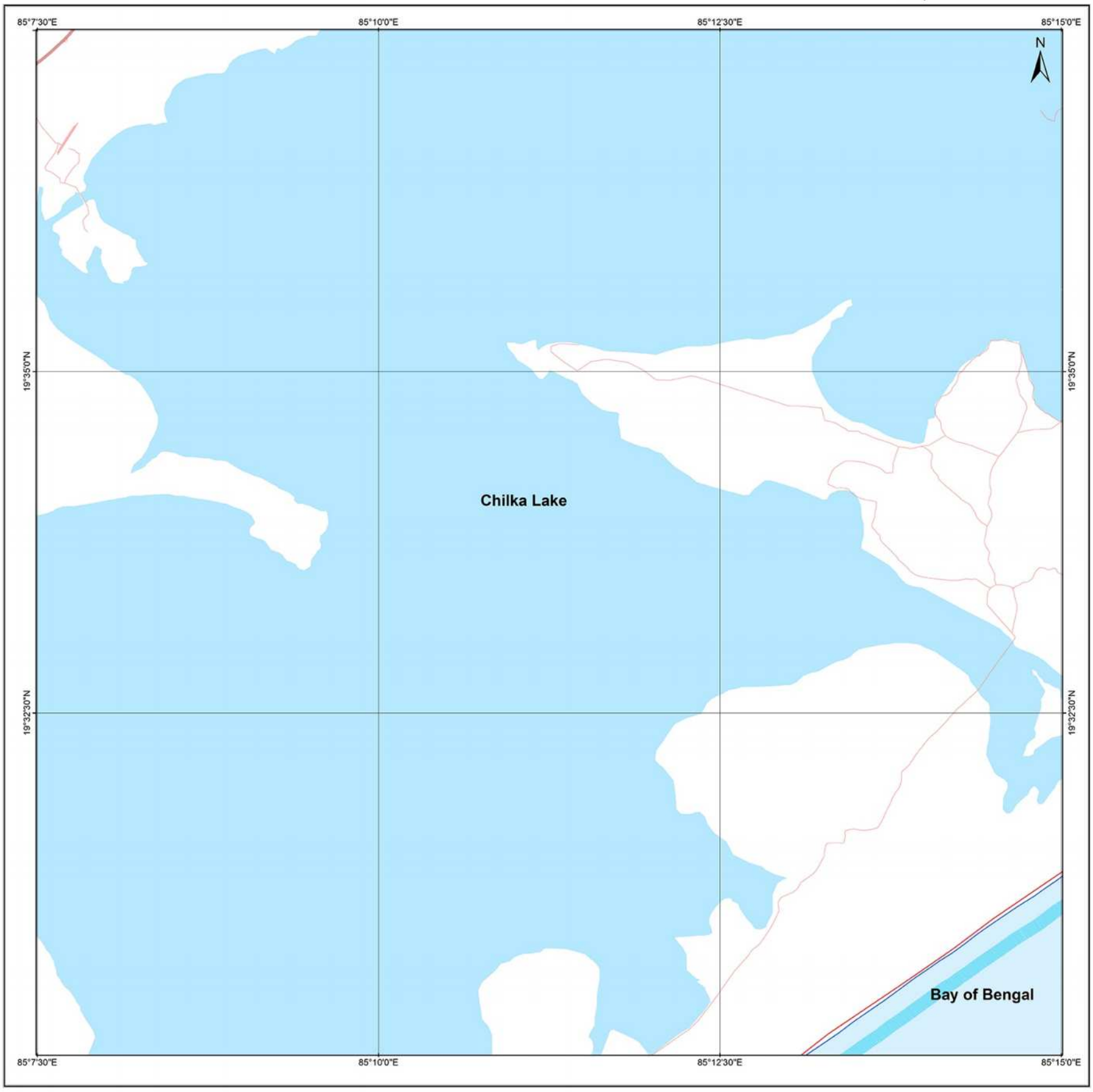
74 E / 2 / SE

Map No. : NCCR/SCM/458



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/31/2018

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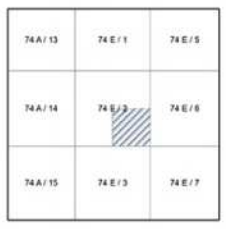
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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LISS-IV	03/31/2018
LISS-IV	02/26/2017
LISS-IV	02/22/2016
LISS-IV	04/11/2015
LISS-IV	03/23/2014
LISS-IV	05/20/2013
LISS-IV	01/15/2013
LISS-III	01/06/2008 & 29/05/2008
PAN (Cartosat-1)	07/07/2006
ETM+	11/13/1999
TM	11/29/1990

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SHORELINE CHANGE MAP
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Map No. : NCCR/SCM/459

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/31/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/31/2018
LISS-IV	02/26/2017
LISS-IV	02/22/2016
LISS-IV	04/11/2015 & 03/23/2015
LISS-IV	03/23/2014
LISS-IV	05/20/2013
LISS-IV	03/14/2012
LISS-III	29/05/2008 & 04/20/2008
PAN (Cartosat-1)	07/07/2006
ETM+	11/13/1999
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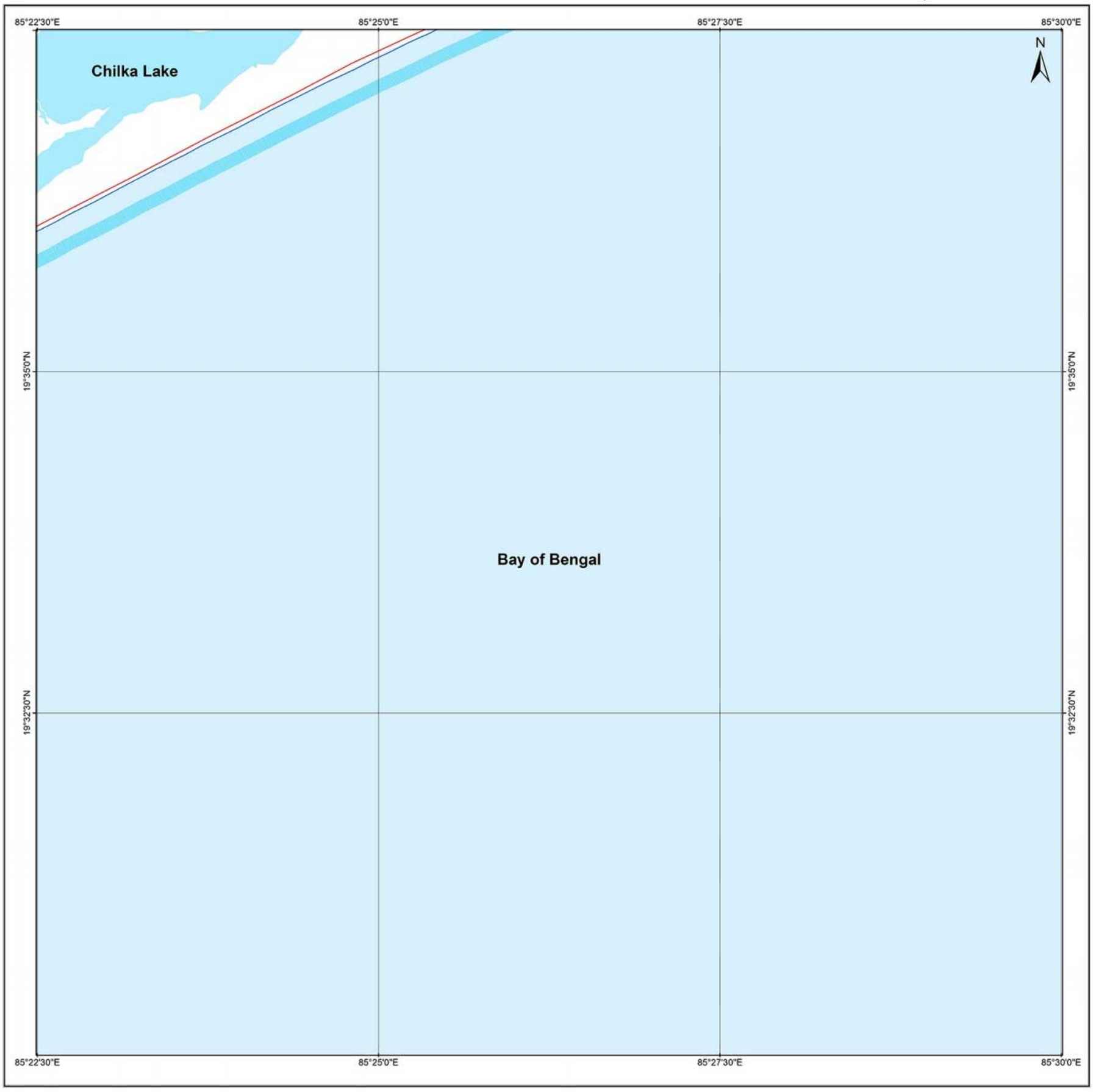
Map No. : NCCR/SCM/460



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
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- High Accretion

Shoreline date

- 11/29/1990
- 03/31/2018

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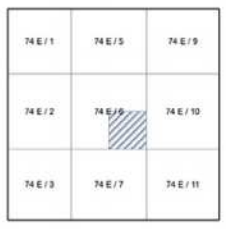

Scale

1000 m 500 0 1 2 km

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UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

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LISS-IV	03/31/2018
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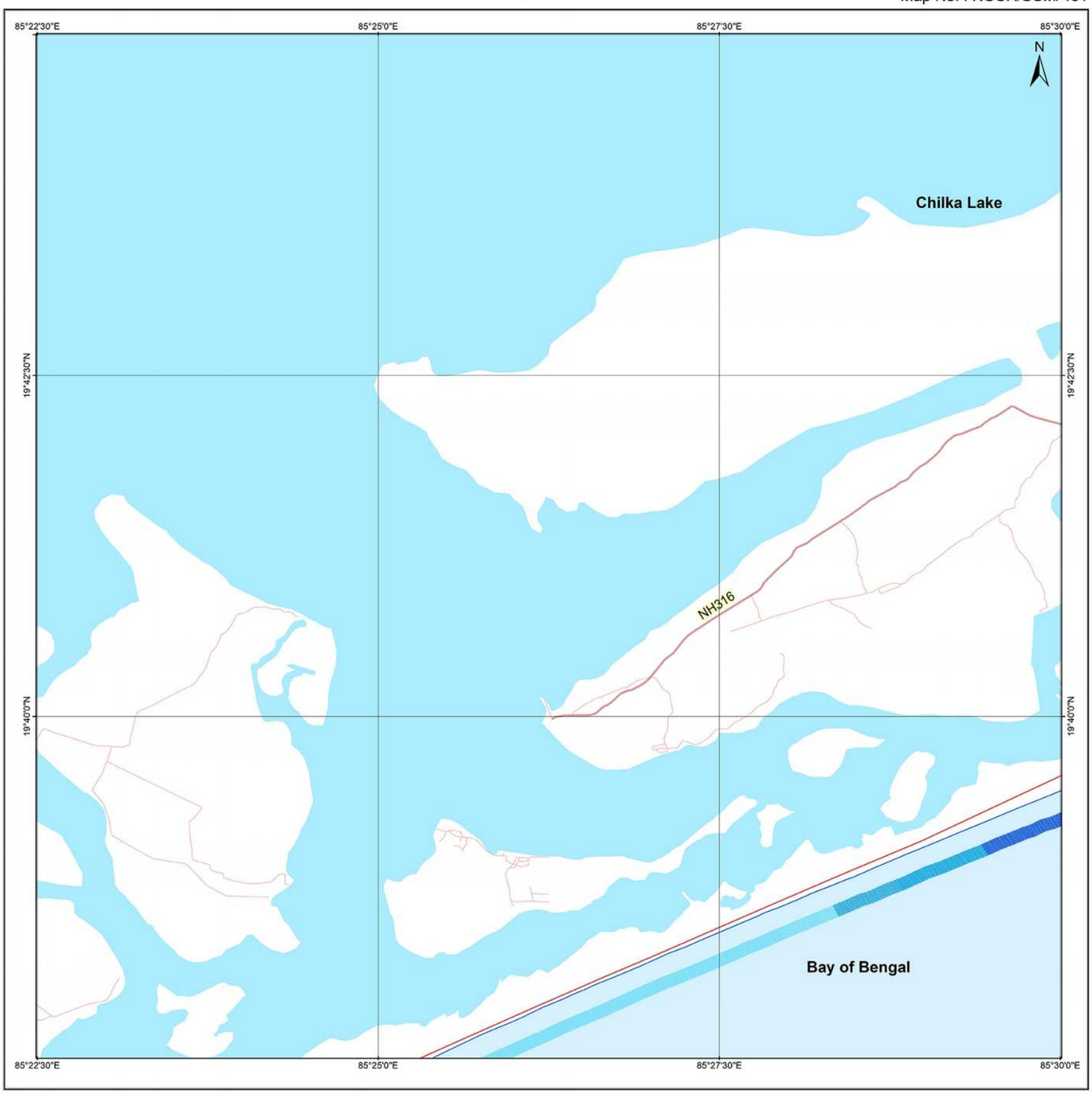
Map No. : NCCR/SCM/461



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/31/2018

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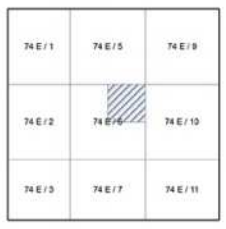

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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LISS-IV	02/22/2016
LISS-IV	03/23/2015
LISS-IV	03/23/2014
LISS-IV	05/20/2013
LISS-IV	03/14/2012
LISS-III	04/20/2008
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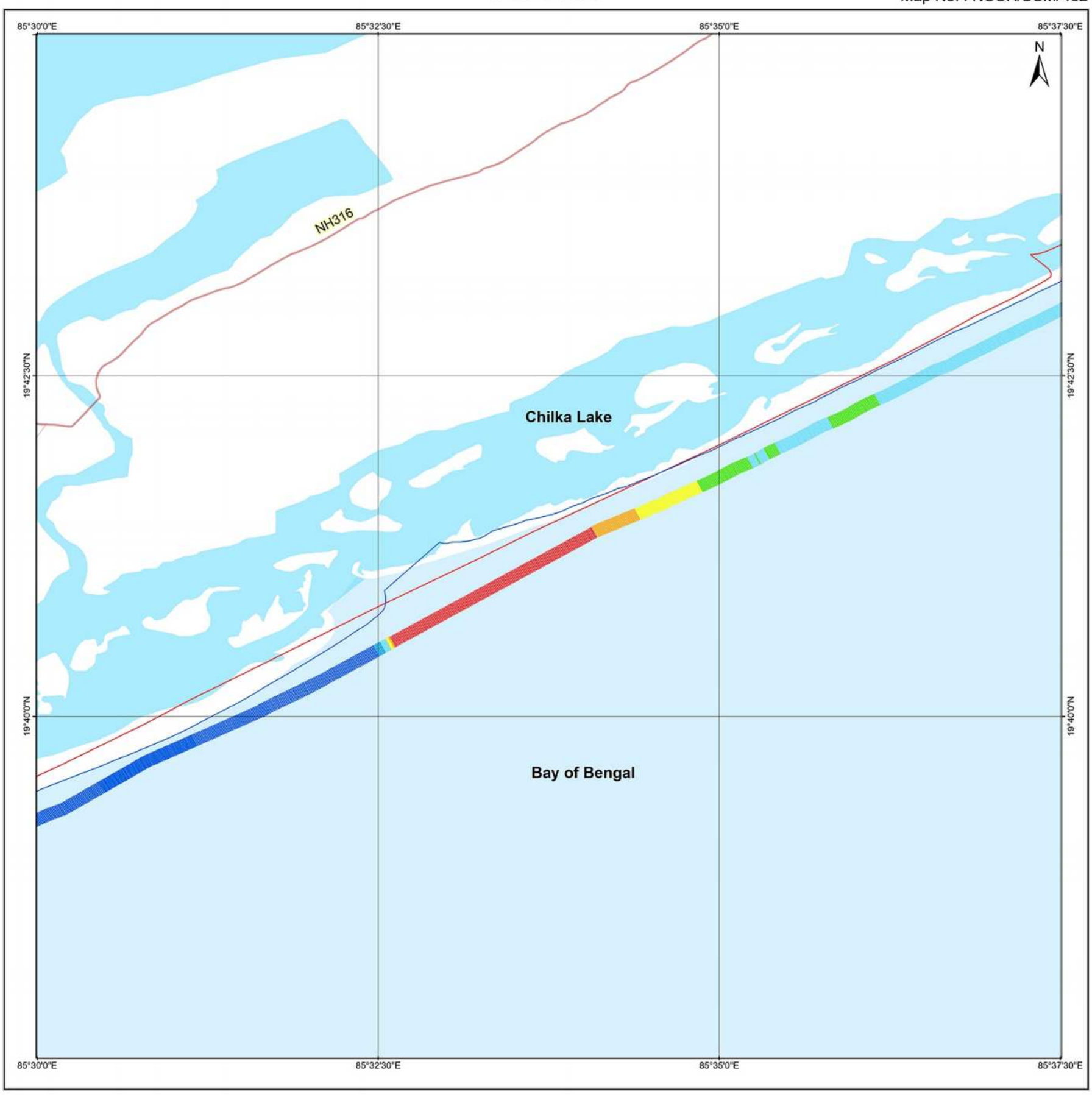
Map No. : NCCR/SCM/462



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/07/2018 & 03/31/2018

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1:25,000

UTM Coordinates Zone 45

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Data Sources: Satellite Data

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LISS-IV	03/23/2015
LISS-IV	03/23/2014 & 04/21/2014
LISS-IV	05/20/2013
LISS-IV	03/14/2012
LISS-III	04/20/2008 & 10/13/2008
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SHORELINE CHANGE MAP
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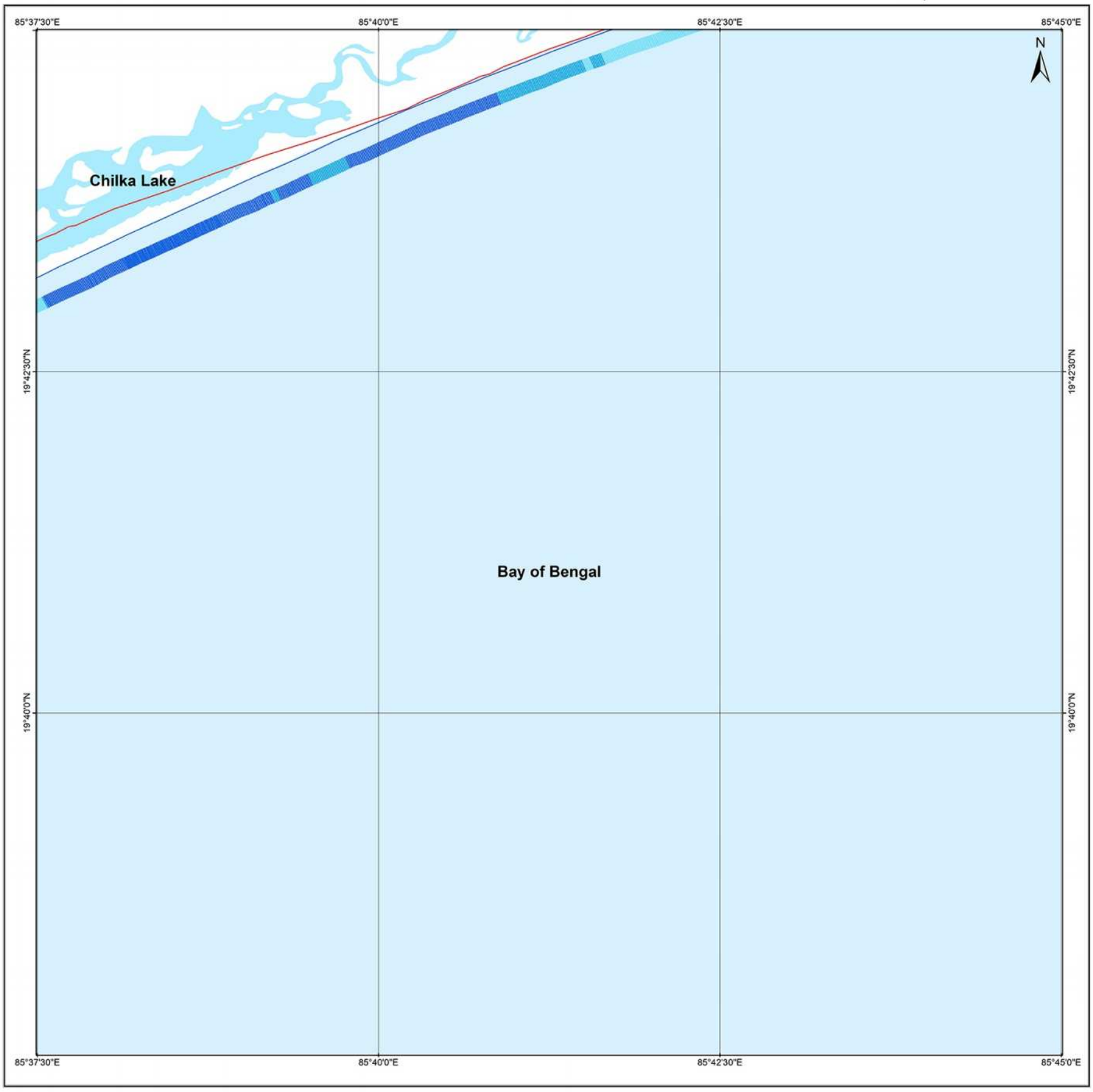
Map No. : NCCR/SCM/463



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
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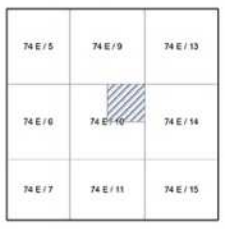

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1990 - 2018

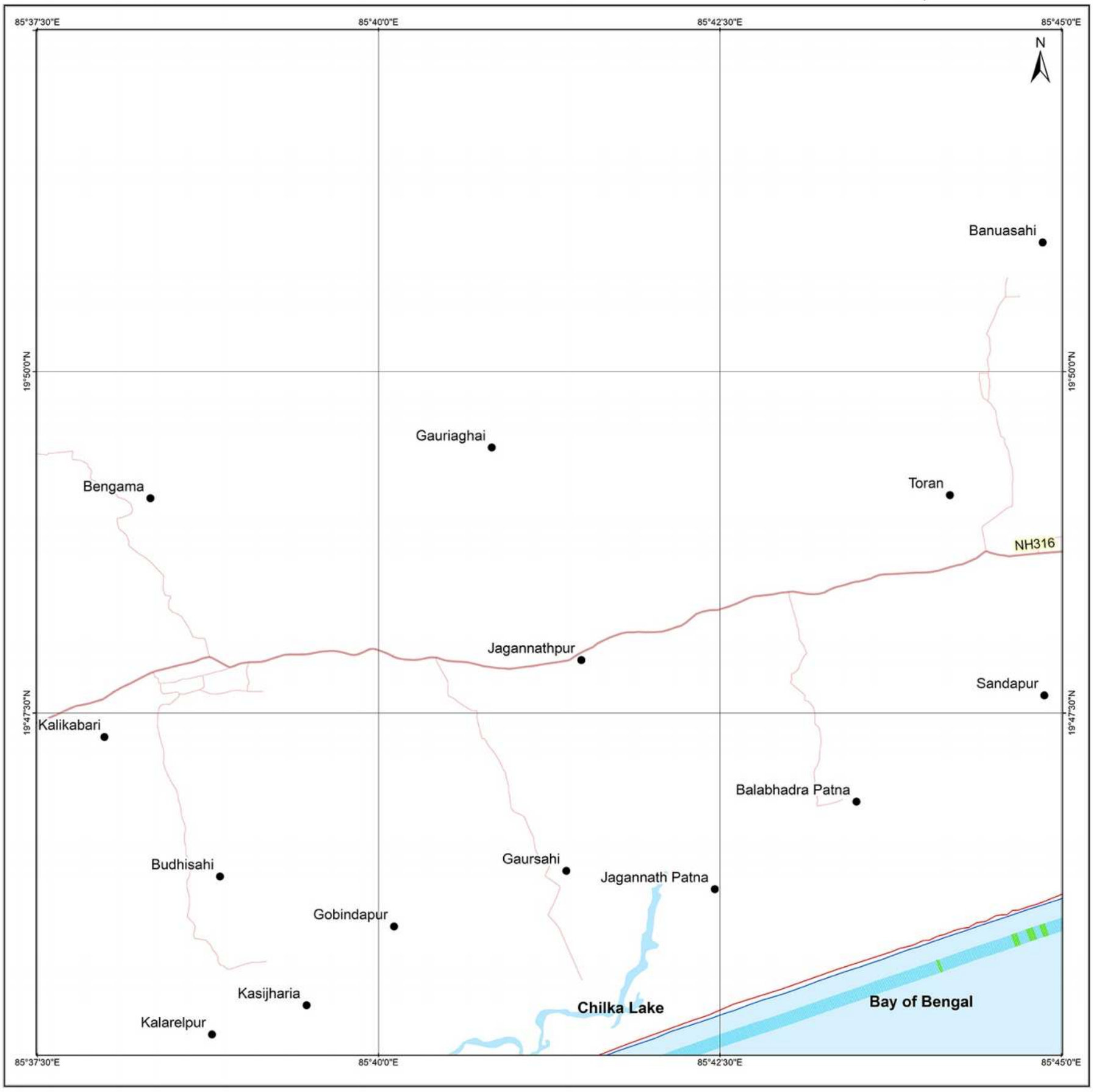
PURI

SHORELINE CHANGE MAP
ODISHA

Restricted Use

74 E / 9 / SE

Map No. : NCCR/SCM/464



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/07/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/07/2018
LISS-IV	02/26/2017 & 01/08/2017
LISS-IV	02/22/2016 & 01/29/2016
LISS-IV	03/23/2015
LISS-IV	04/21/2014
LISS-IV	03/09/2013
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- Groynes
- Jetty
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
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- State Highways
- Other Roads
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- Lakes
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SHORELINE CHANGE MAP
ODISHA

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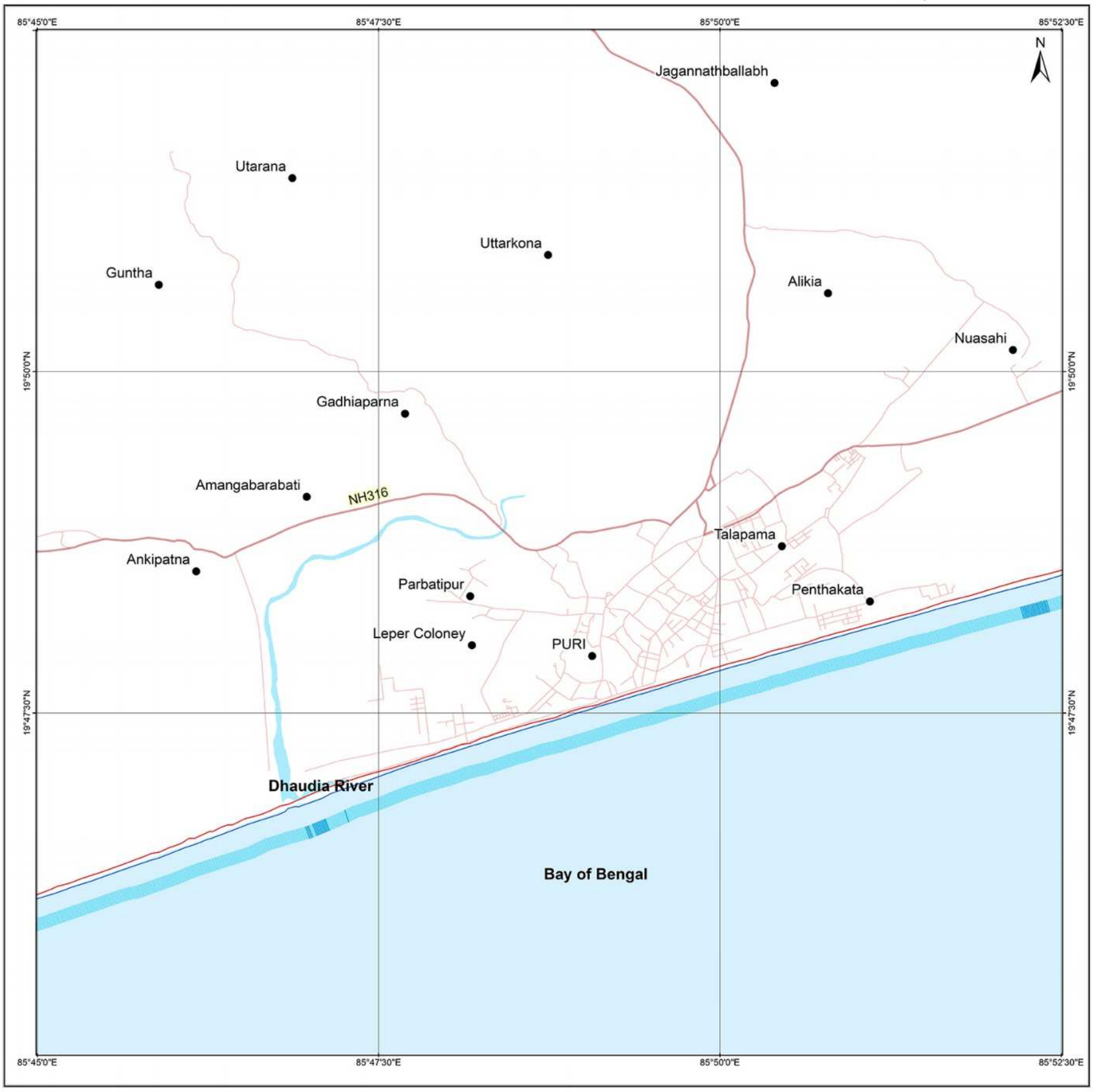
74 E / 13 / SW

Map No. : NCCR/SCM/465



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
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- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/07/2018

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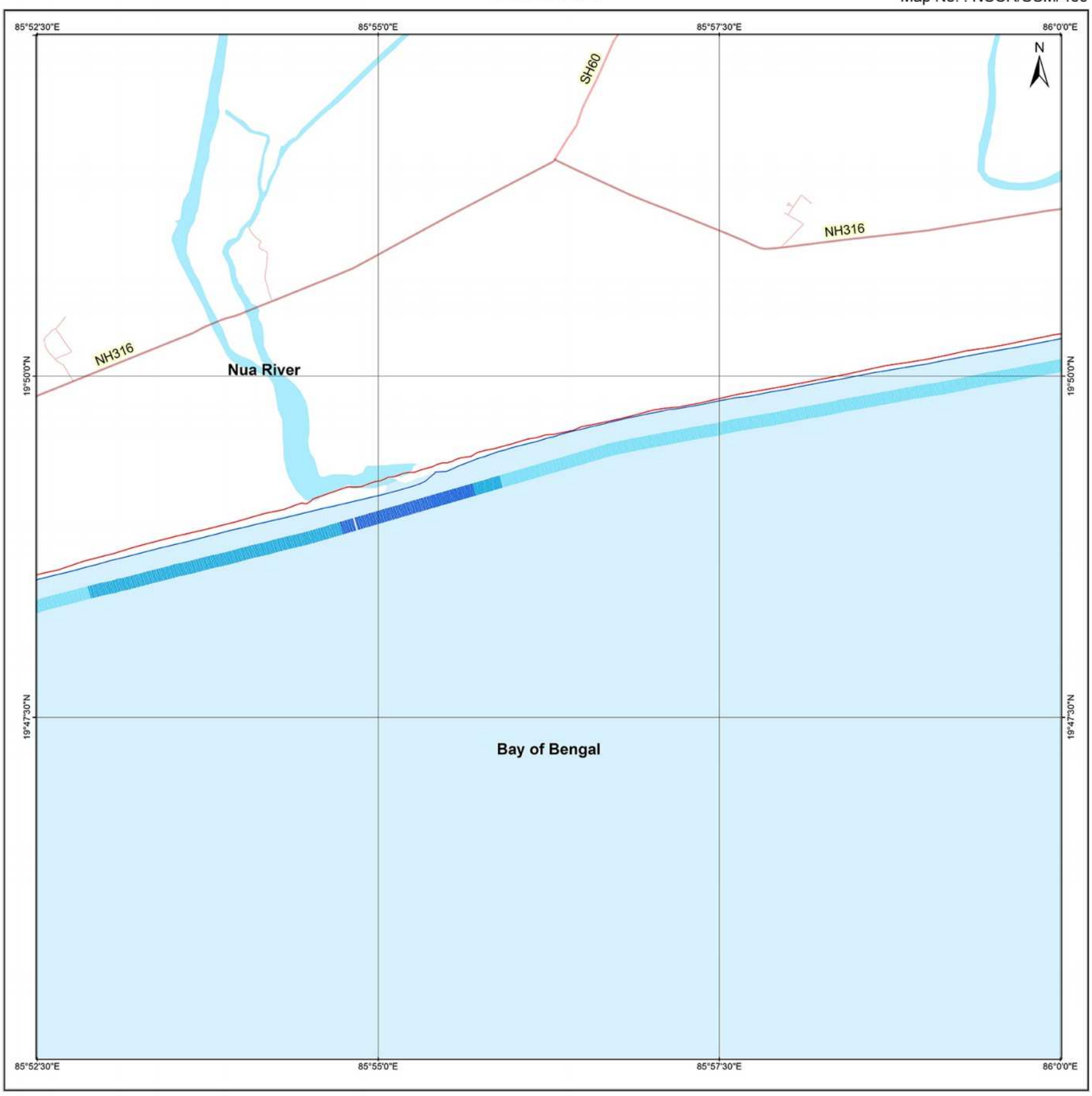
74 E / 13 / SE

Map No. : NCCR/SCM/466



Shoreline Change Trend for Period 1990 - 2018

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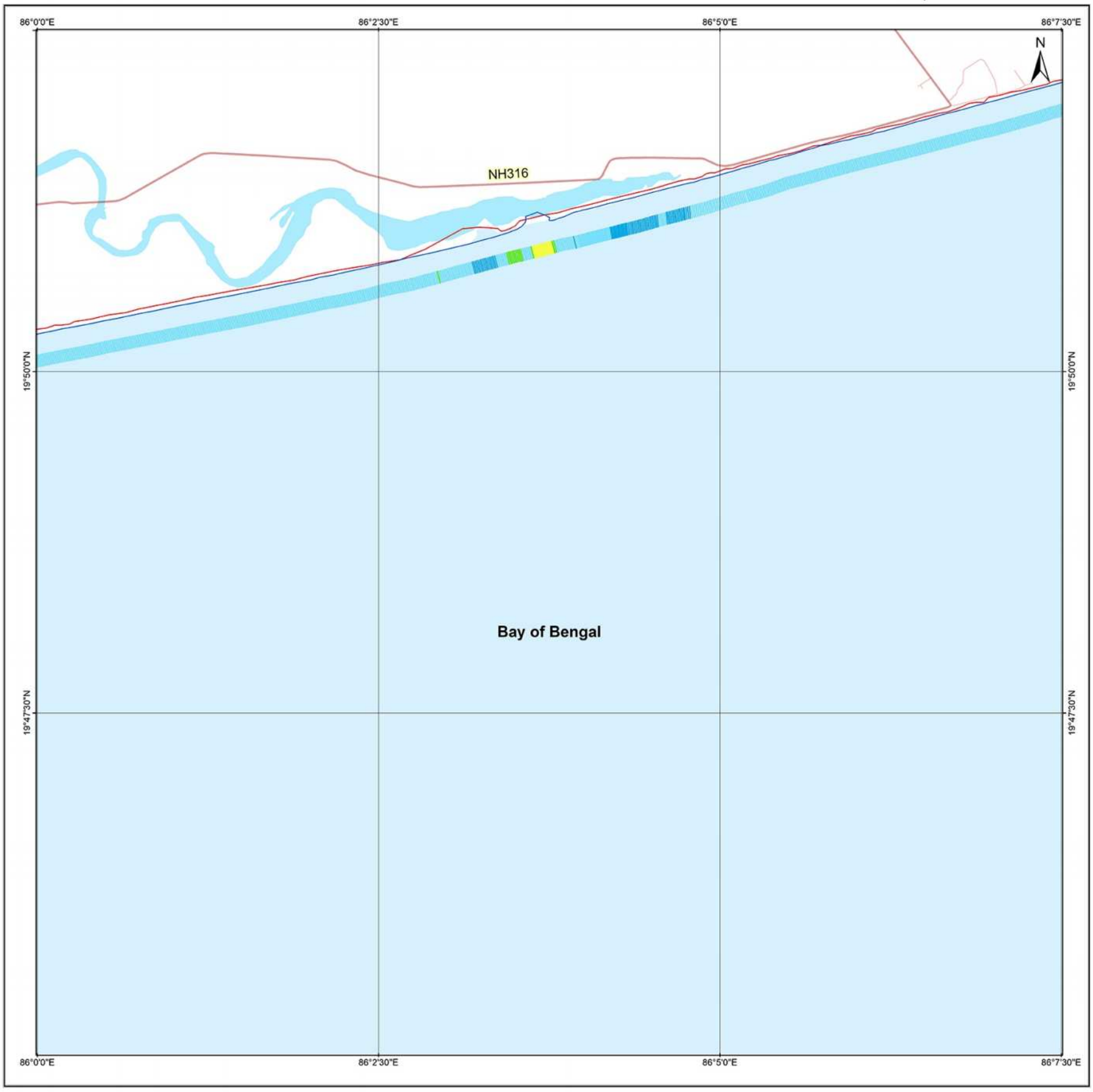
Map No. : NCCR/SCM/467



Shoreline Change Trend for Period 1990 - 2018

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- Moderate Accretion
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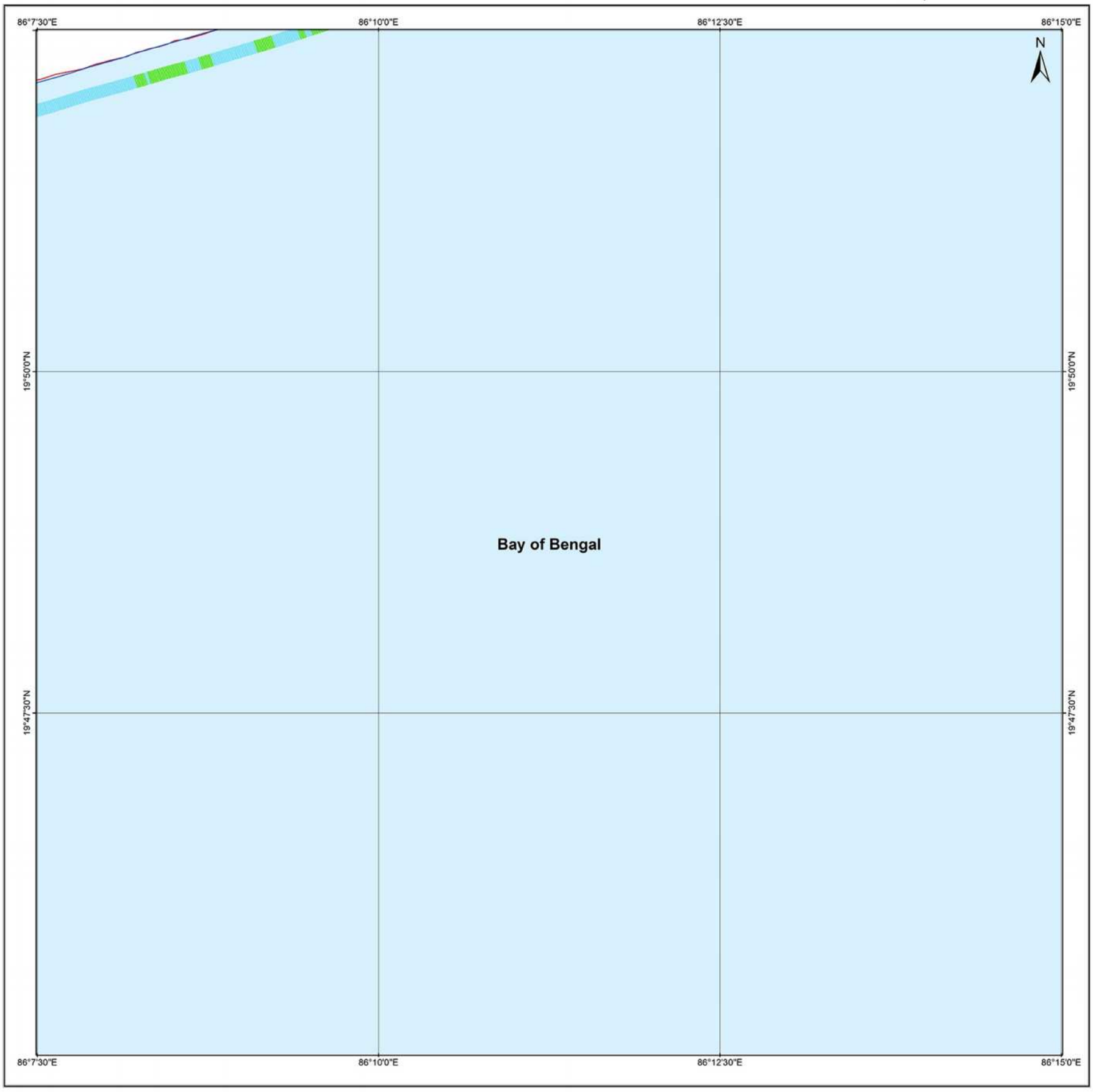
Map No. : NCCR/SCM/468



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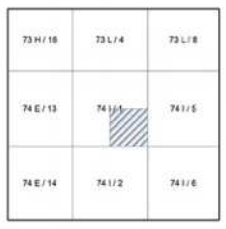

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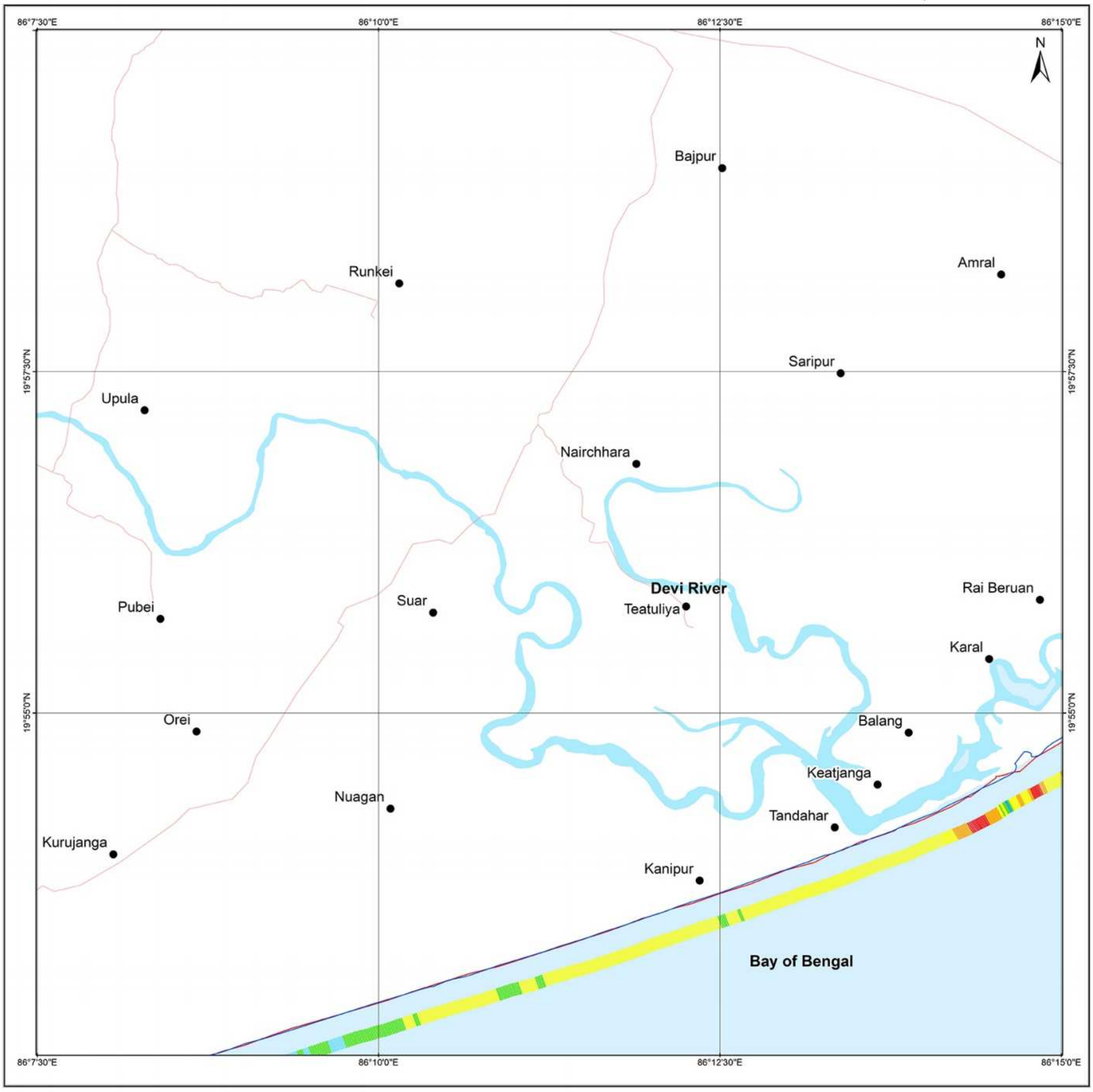
Map No. : NCCR/SCM/469



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/07/2018

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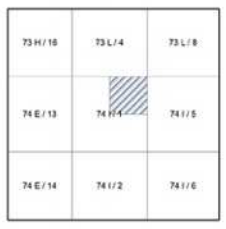

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SHORELINE CHANGE MAP

PURI &JAGATSINGHPUR

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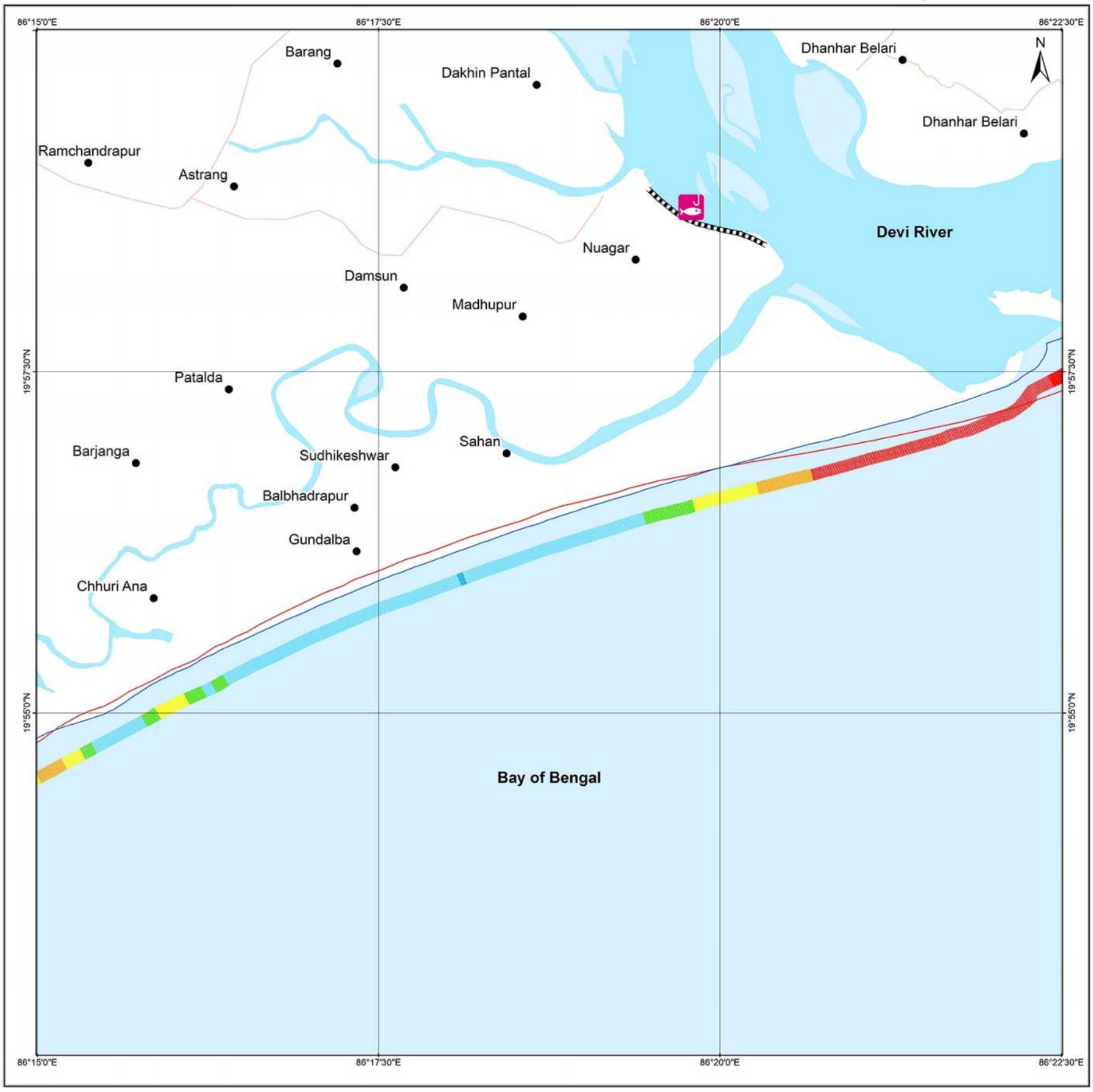
74 I / 5 / NW

Map No. : NCCR/SCM/470



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/12/2018

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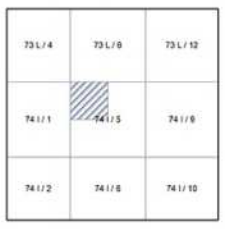

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

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Spheroid : The World Geodetic System 1984 (WGS84)

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SHORELINE CHANGE MAP

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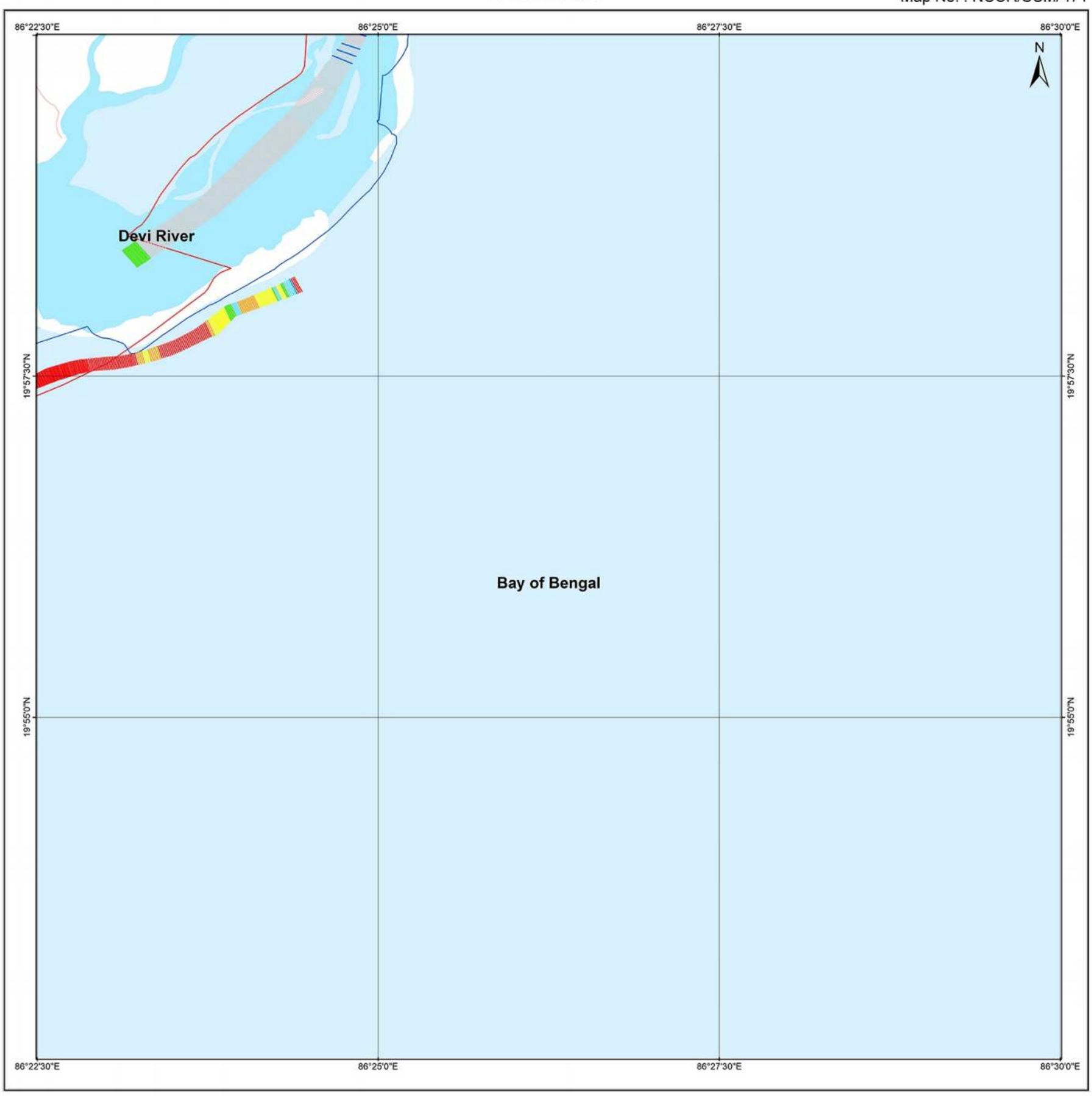
74 I / 5 / NE

Map No. : NCCR/SCM/471



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/12/2018

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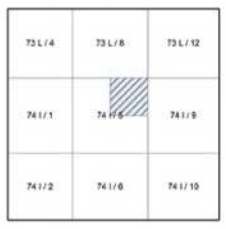
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

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Sensors	Date of acquisition
LISS-IV	03/12/2018
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SHORELINE CHANGE MAP

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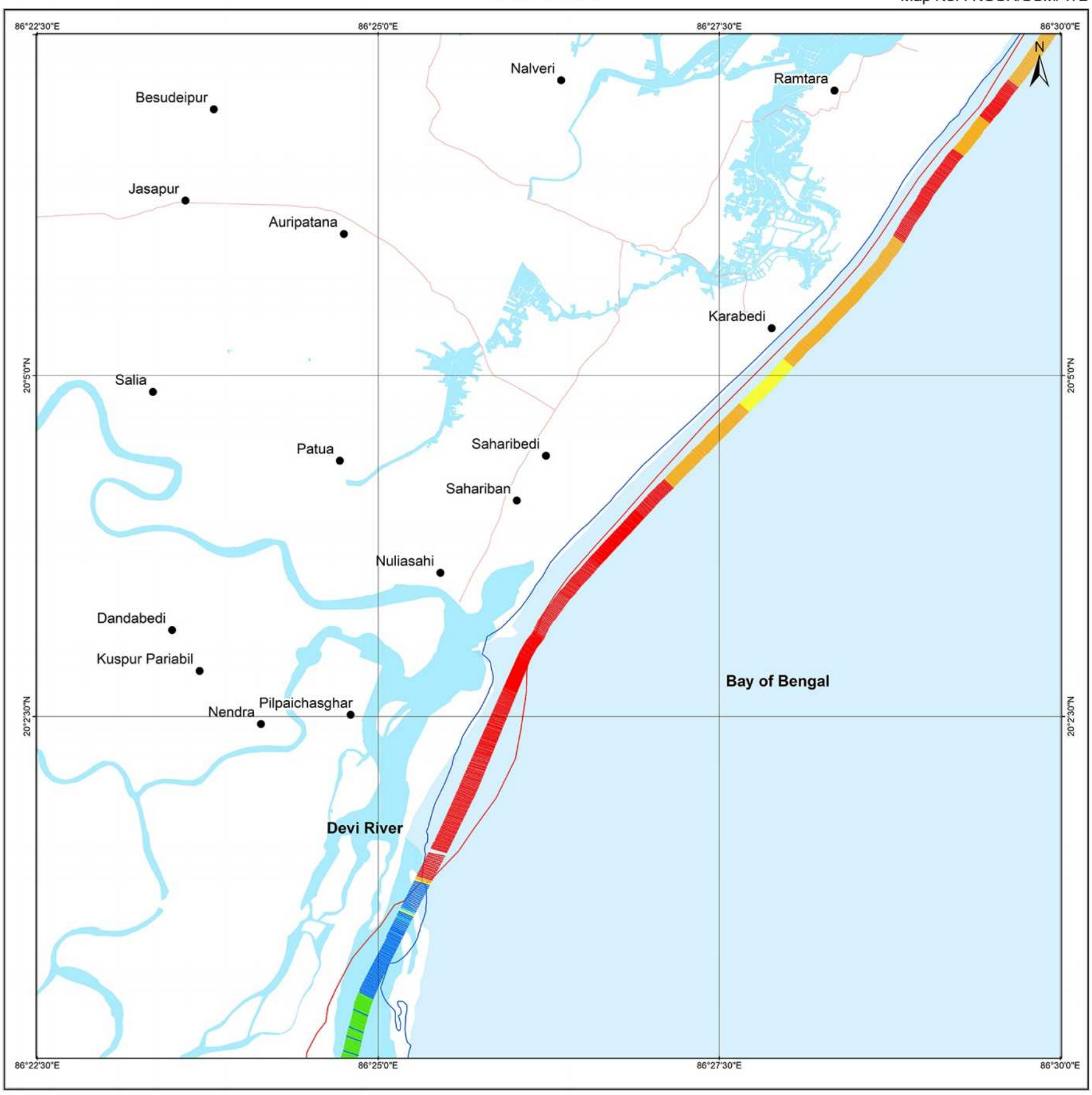
73 L / 8 / SE

Map No. : NCCR/SCM/472



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/12/2018

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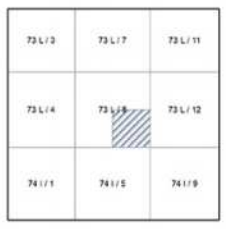

Scale

1000 m 500 0 1 2 km

1:25,000

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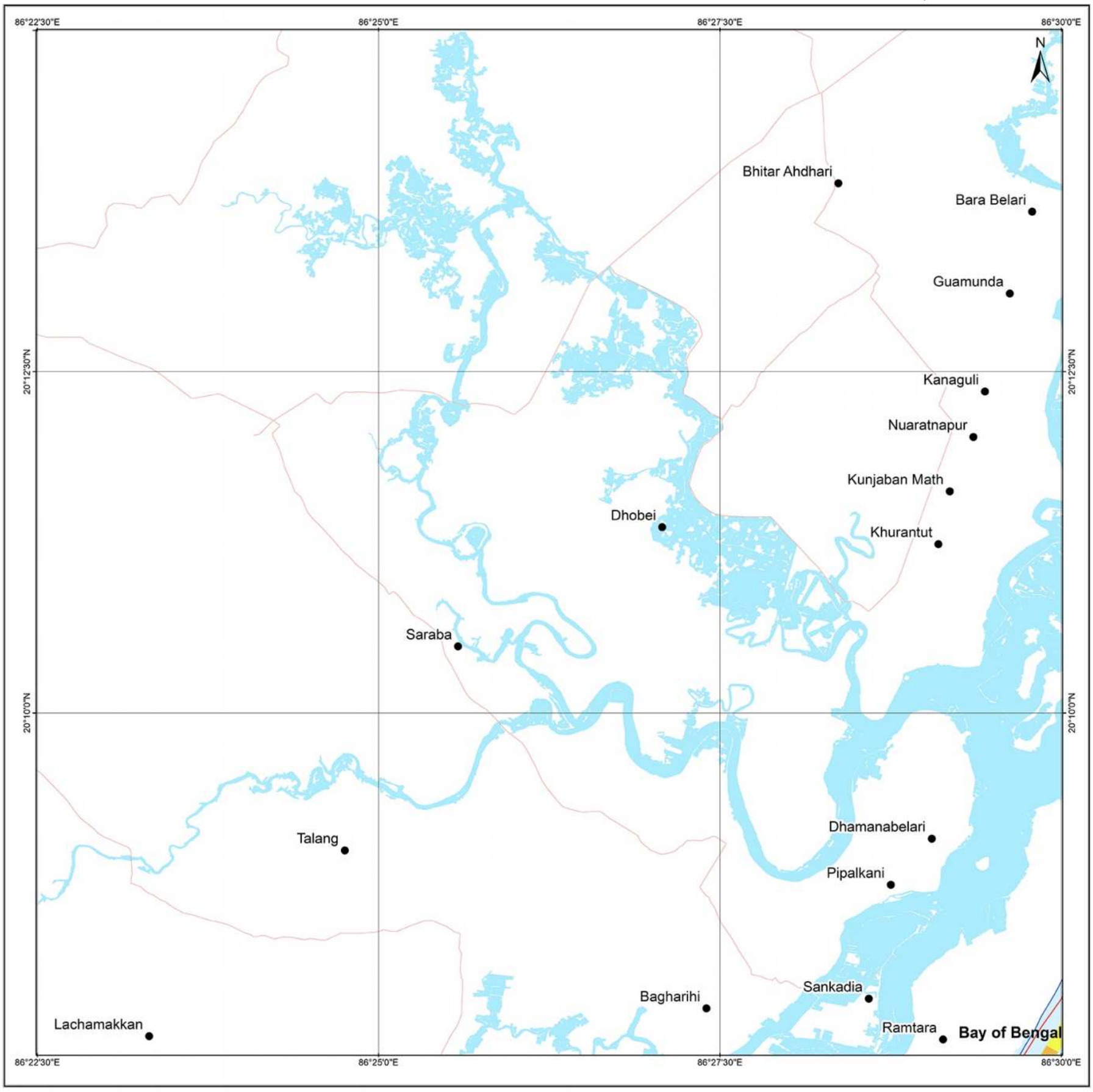
Map No. : NCCR/SCM/473



Shoreline Change Trend for Period 1990 - 2018

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- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
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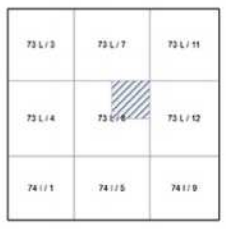

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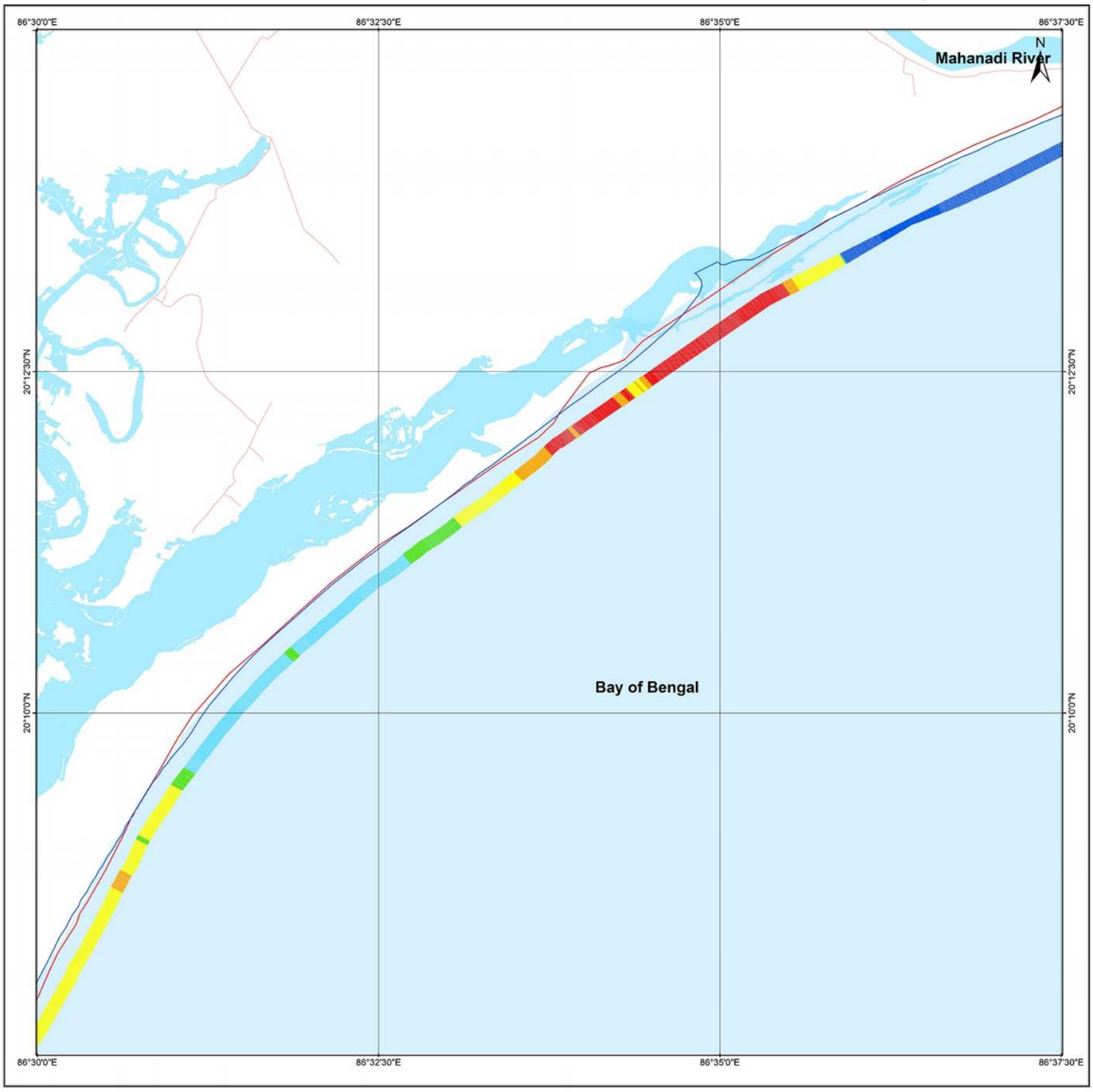
Map No. : NCCR/SCM/474



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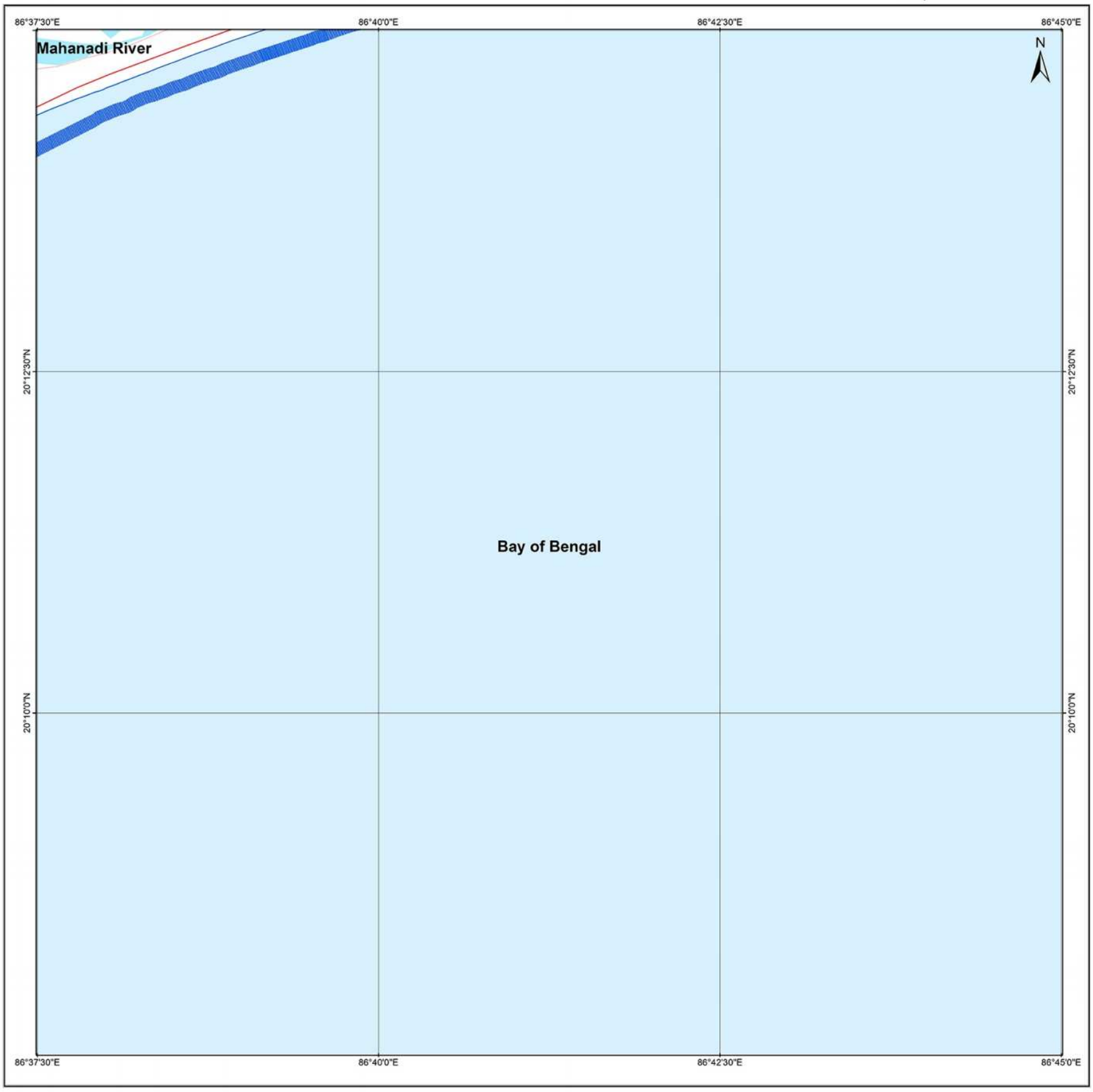
Map No. : NCCR/SCM/475



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- Railways
- Lakes
- Rivers

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SHORELINE CHANGE MAP
ODISHA

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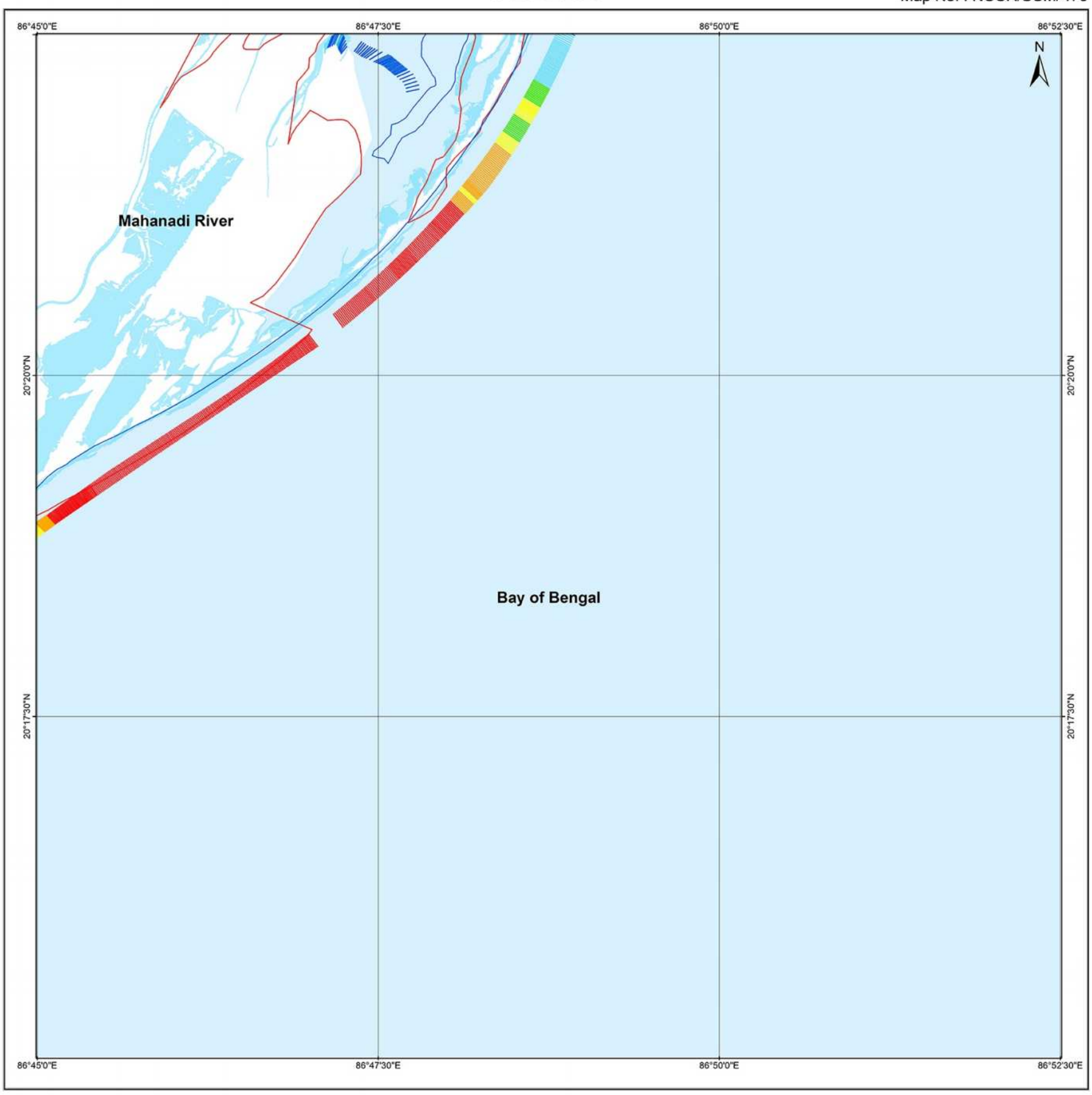
73 L / 15 / SW

Map No. : NCCR/SCM/476



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/12/2018

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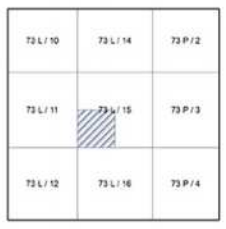

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	03/12/2018
LISS-IV	02/21/2017
LISS-IV	11/17/2016
LISS-IV	04/21/2015
LISS-IV	5/20/2014
LISS-IV	03/14/2013
LISS-IV	10/21/2012
LISS-III	03/04/2008
PAN (Cartosat-1)	07/07/2006
ETM+	10/23/2000
TM	11/29/1990

- Settlements
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- Groynes
- Jetty
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SHORELINE CHANGE MAP

JAGATSINGHPUR &KENDRAPARA

ODISHA

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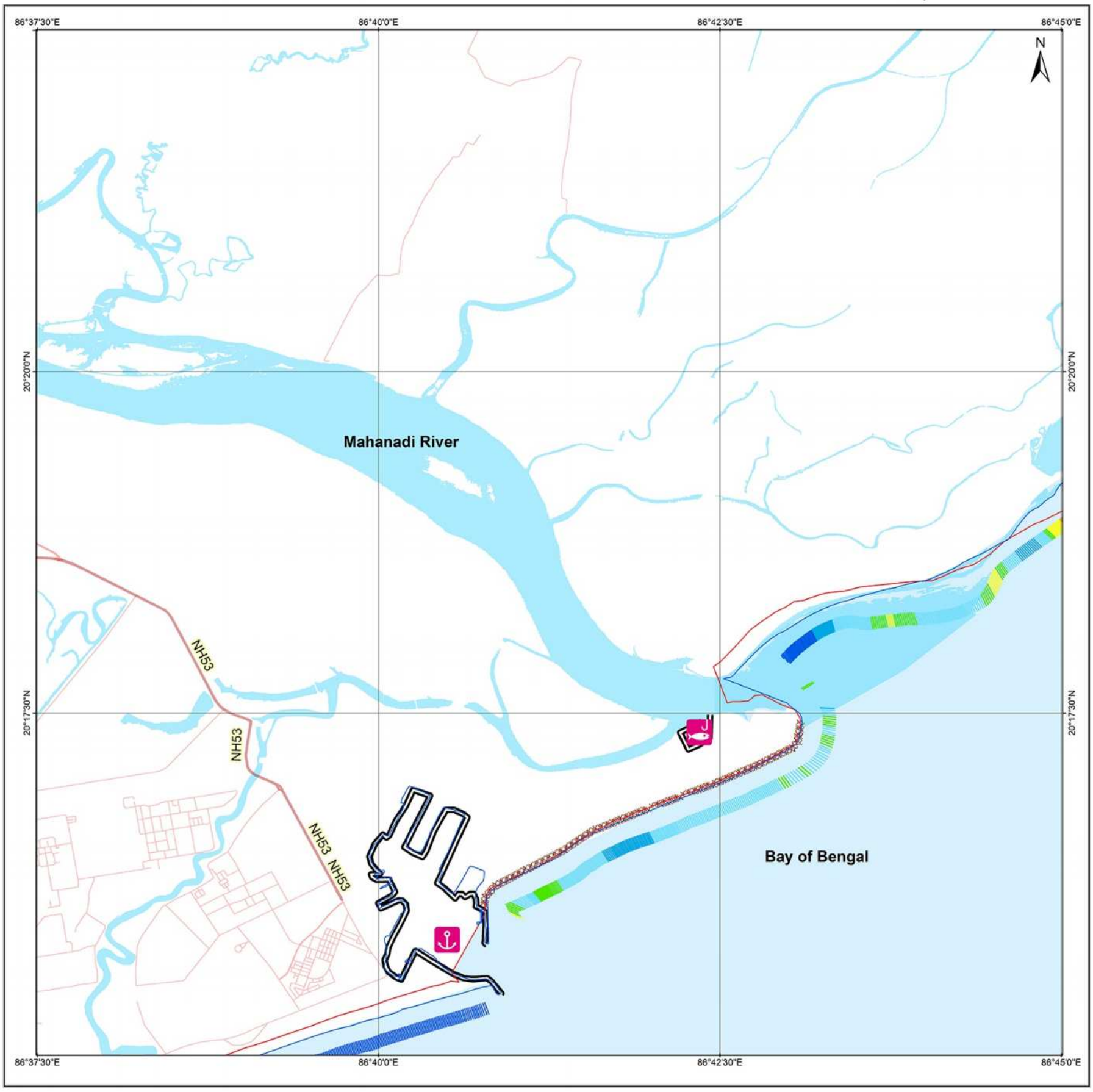
73 L / 11 / SE

Map No. : NCCR/SCM/477



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 03/12/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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LISS-IV	03/22/2016
LISS-IV	04/21/2015
LISS-IV	03/28/2014 & 5/20/2014
LISS-IV	03/14/2013
LISS-IV	10/21/2012
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SHORELINE CHANGE MAP
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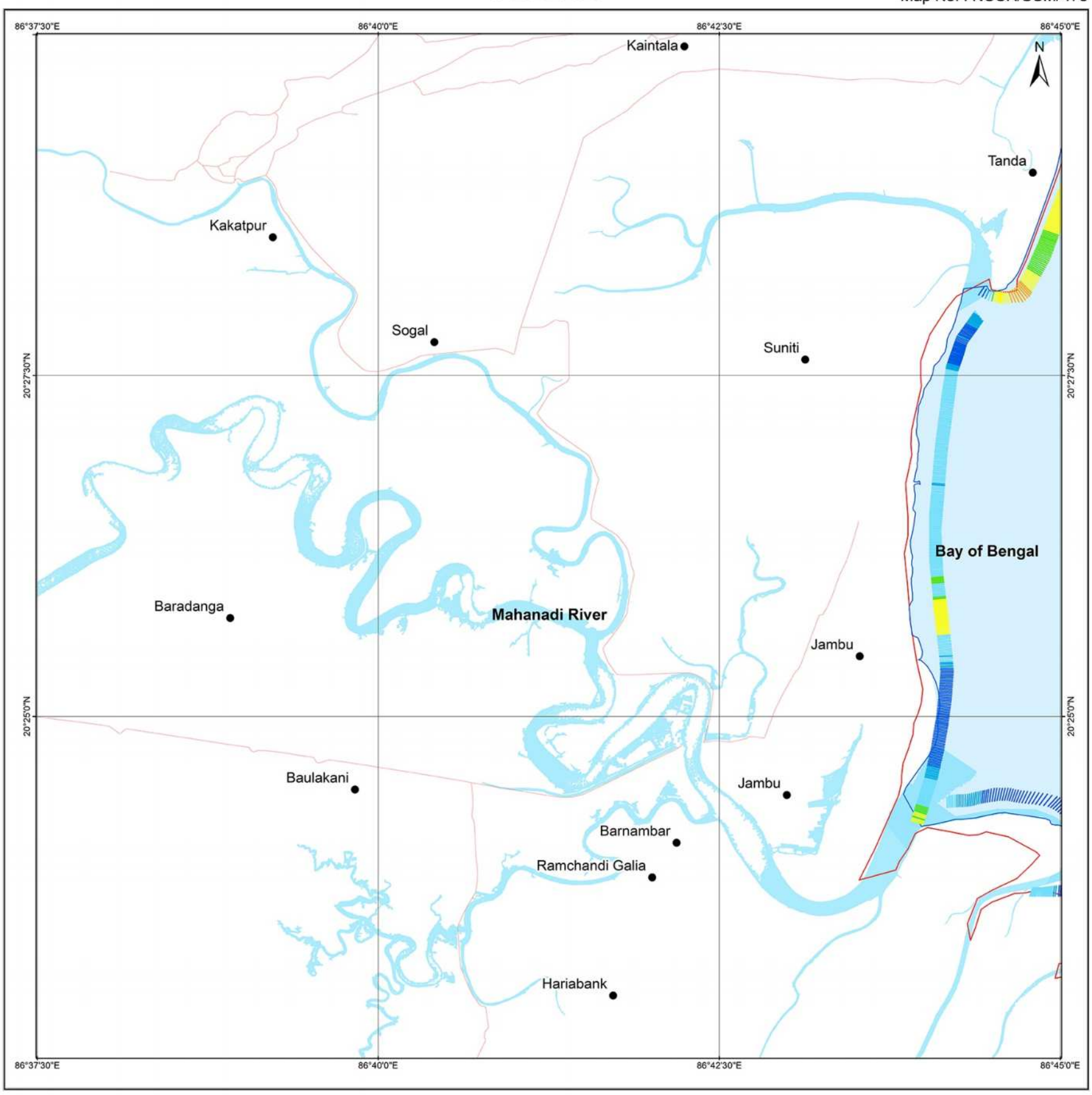
73 L / 11 / NE

Map No. : NCCR/SCM/478



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 01/23/2018

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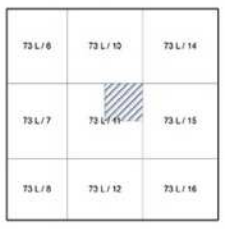

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

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Spheroid : The World Geodetic System 1984 (WGS84)

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LISS-IV	04/21/2015
LISS-IV	5/20/2014
LISS-IV	03/14/2013 & 05/05/2013
LISS-IV	10/21/2012
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SHORELINE CHANGE MAP
ODISHA

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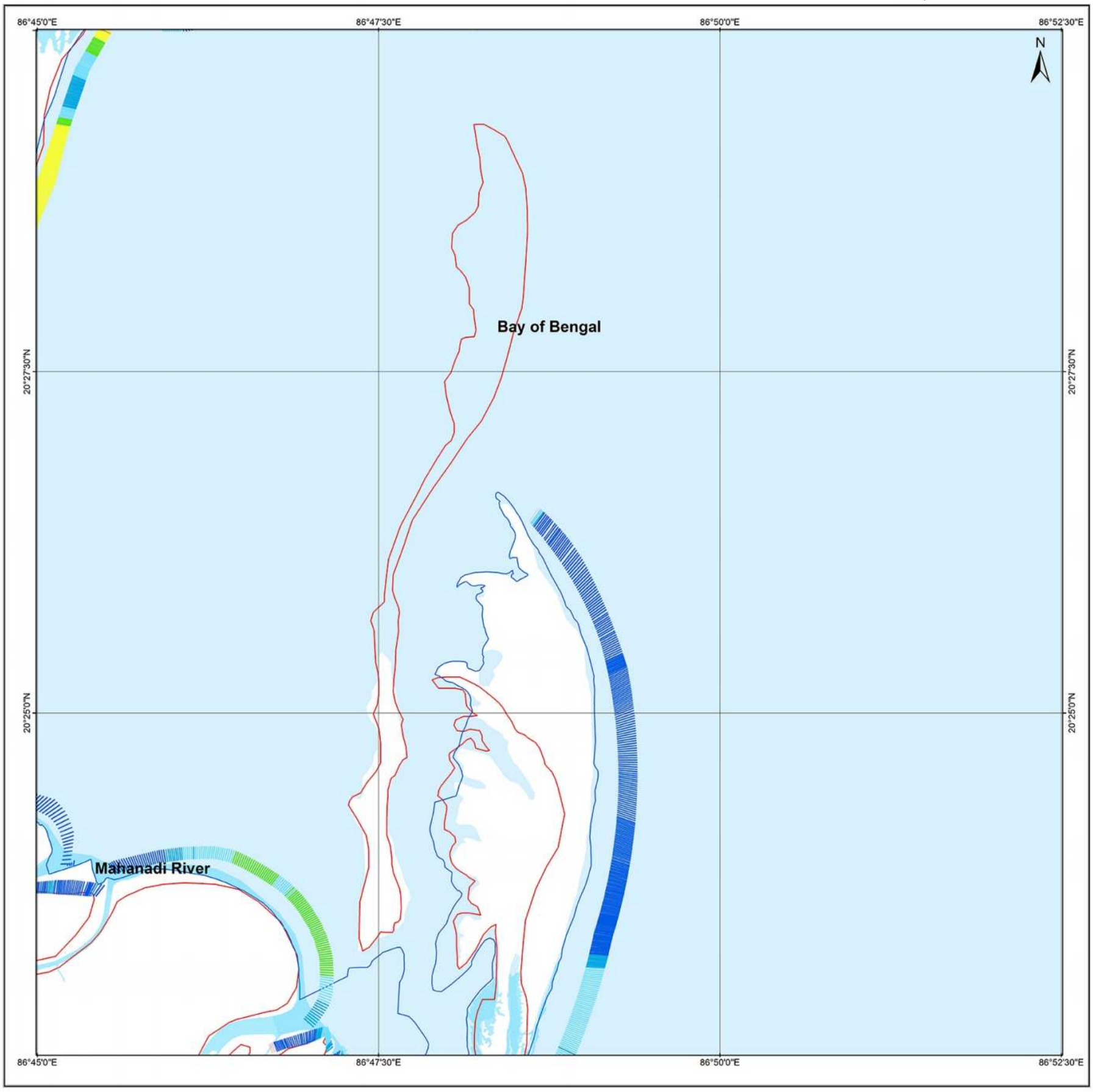
73 L / 15 / NW

Map No. : NCCR/SCM/479



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
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- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 01/23/2018 & 03/12/2018

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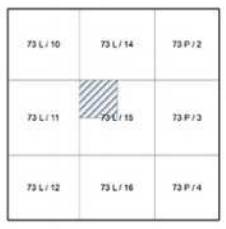

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	01/23/2018 & 03/12/2018
LISS-IV	02/21/2017
LISS-IV	11/17/2016
LISS-IV	04/21/2015
LISS-IV	5/20/2014
LISS-IV	03/14/2013 & 05/05/2013
LISS-IV	10/21/2012
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SHORELINE CHANGE MAP
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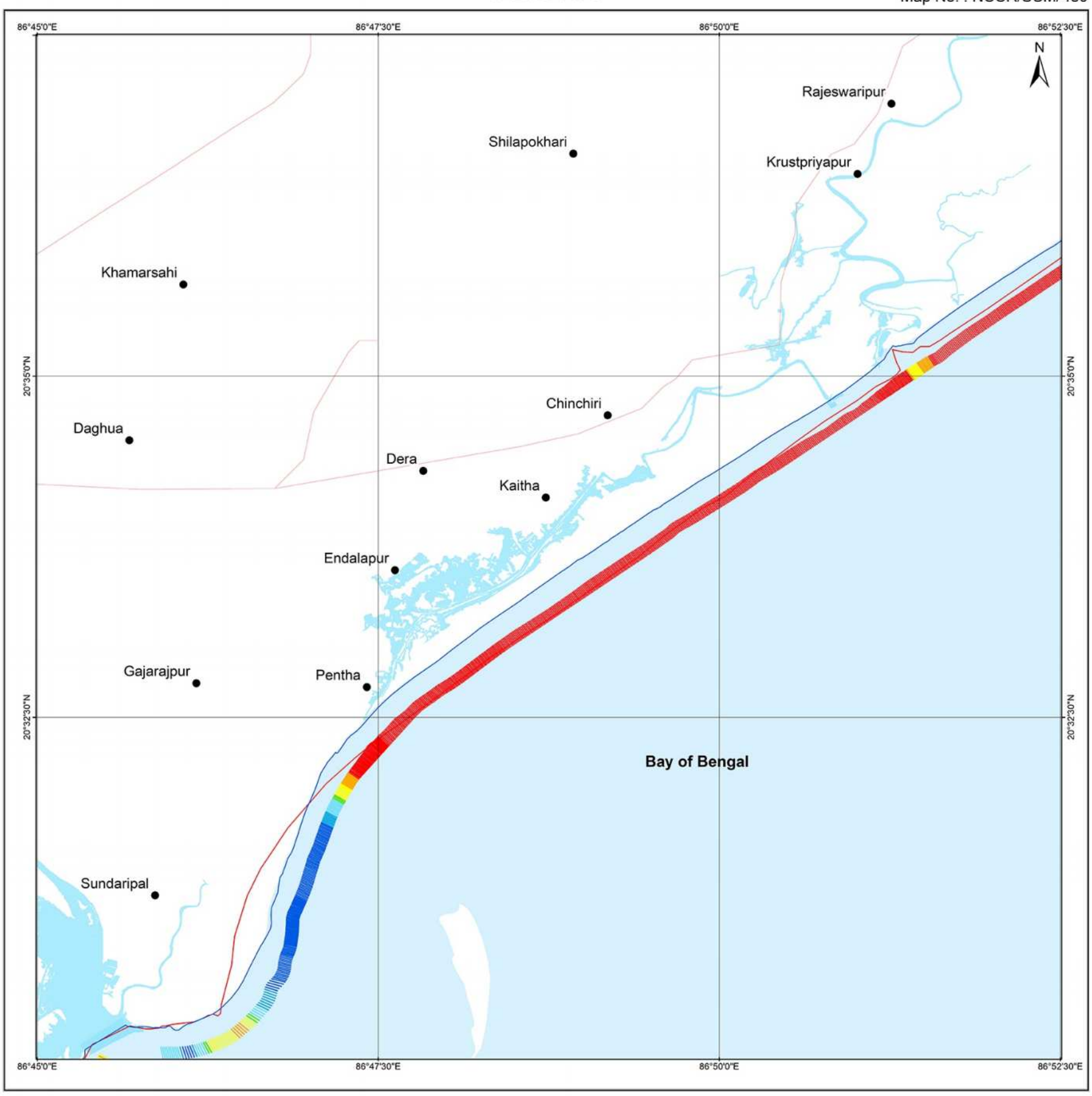
73 L / 14 / SW

Map No. : NCCR/SCM/480



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 01/23/2018

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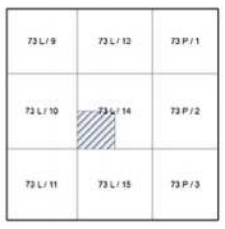

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	01/23/2018
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LISS-IV	11/17/2016
LISS-IV	04/21/2015
LISS-IV	5/20/2014
LISS-IV	05/05/2013
LISS-IV	10/21/2012
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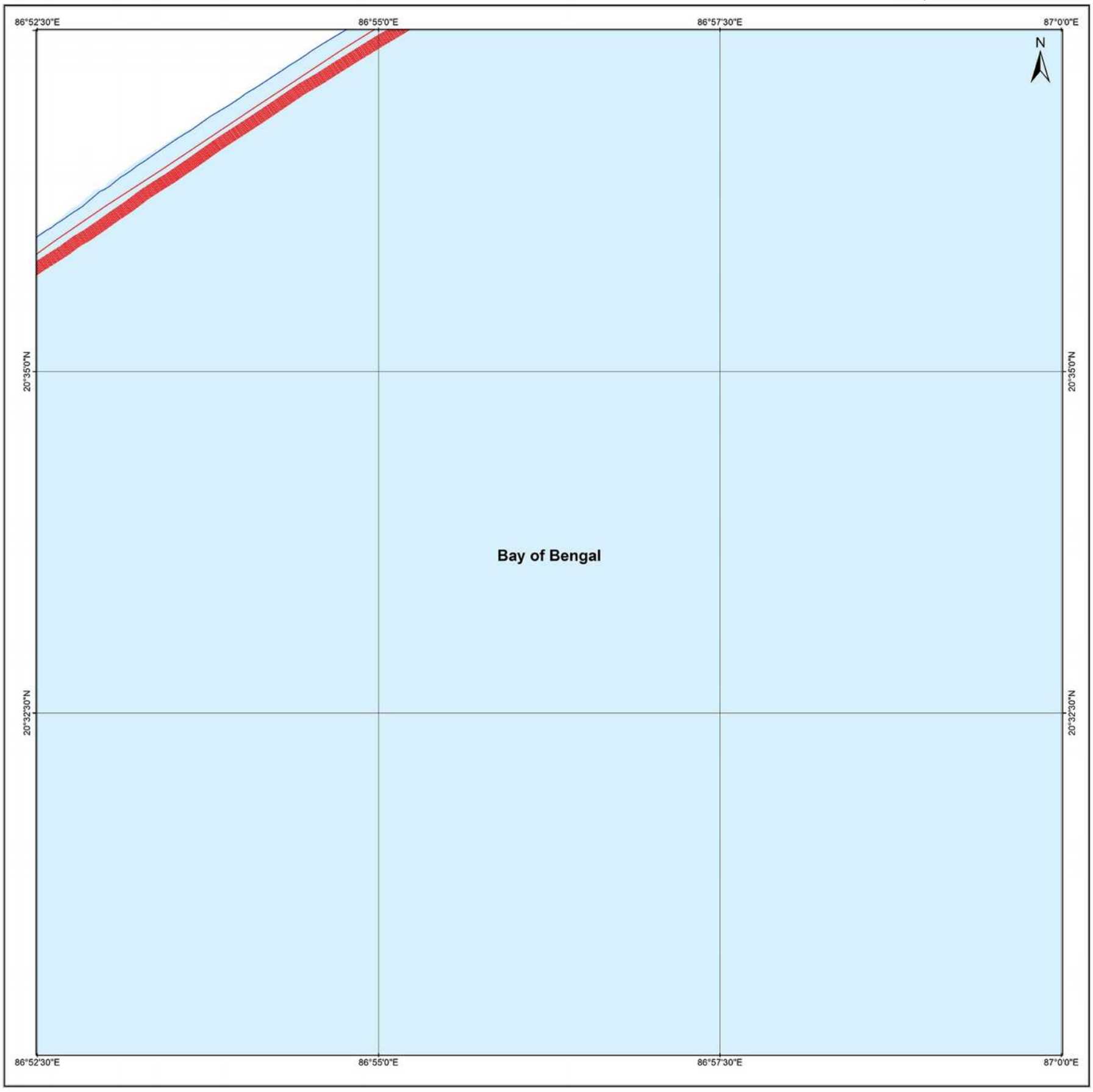
73 L / 14 / SE

Map No. : NCCR/SCM/481



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 01/23/2018

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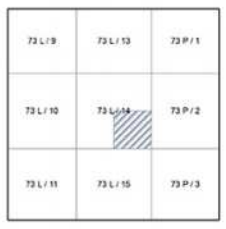

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	01/23/2018
LISS-IV	02/21/2017
LISS-IV	11/17/2016
LISS-IV	04/21/2015
LISS-IV	5/20/2014
LISS-IV	05/05/2013
LISS-IV	10/21/2012
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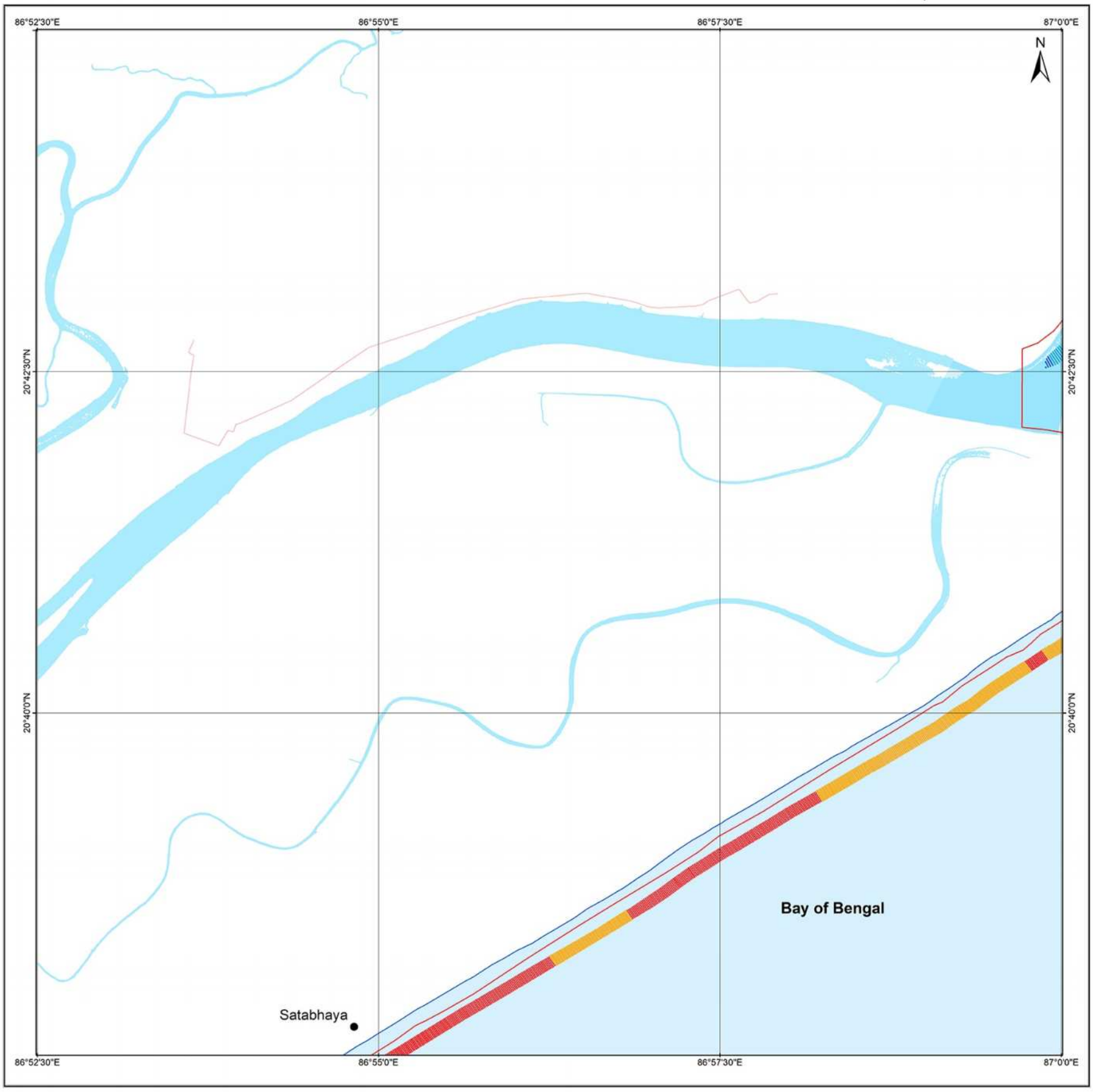
Map No. : NCCR/SCM/482



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 01/23/2018

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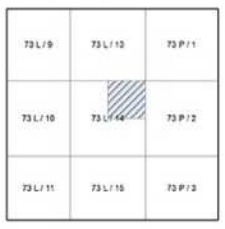

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	01/23/2018
LISS-IV	02/21/2017
LISS-IV	11/17/2016
LISS-IV	04/21/2015
LISS-IV	5/20/2014
LISS-IV	05/01/2013 & 05/05/2013
LISS-IV	10/21/2012
LISS-III	01/16/2008
PAN (Cartosat-1)	07/07/2006
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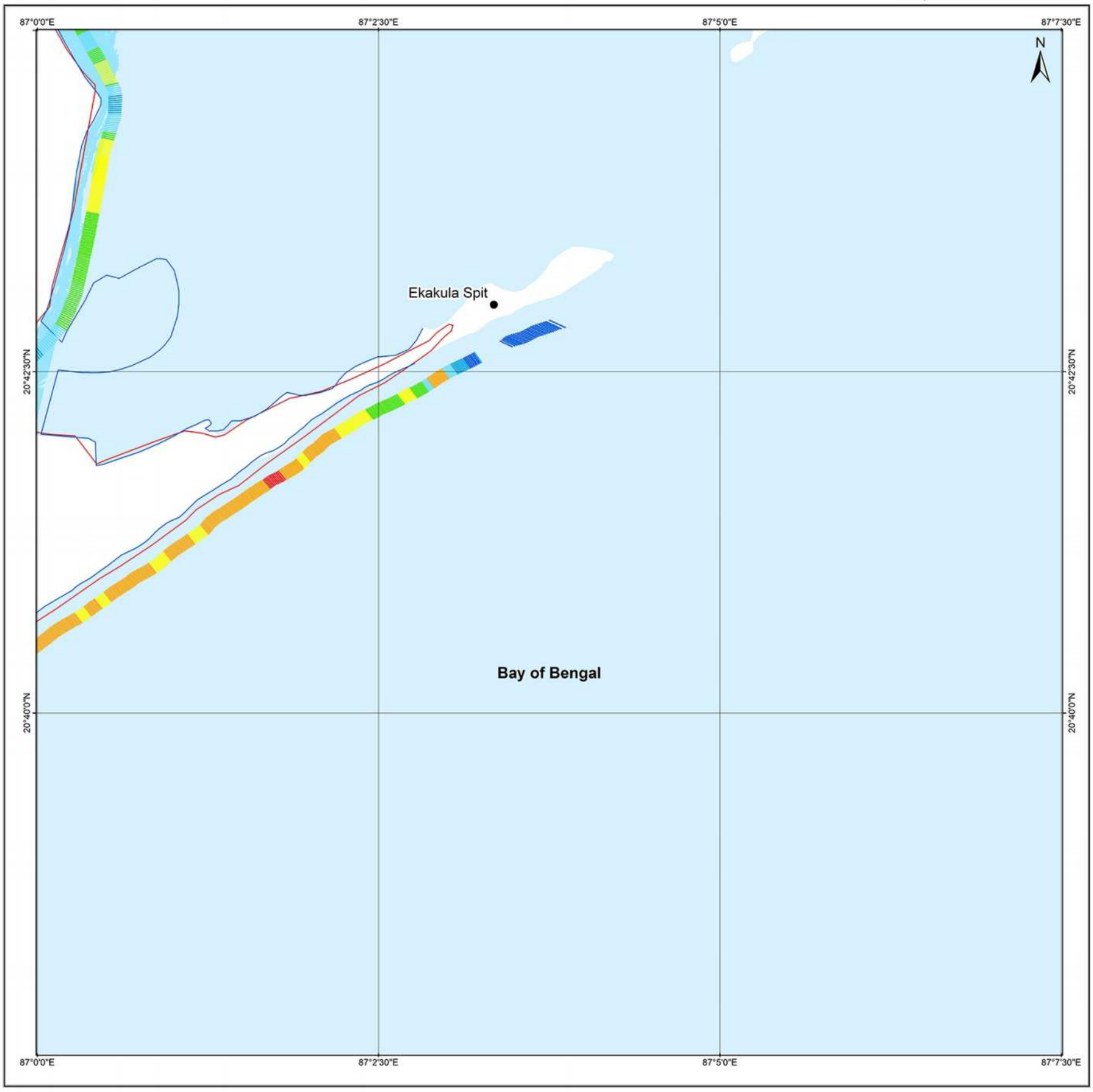
73 P / 2 / NW

Map No. : NCCR/SCM/483



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 01/23/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	01/23/2018
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LISS-IV	11/17/2016
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SHORELINE CHANGE MAP
ODISHA

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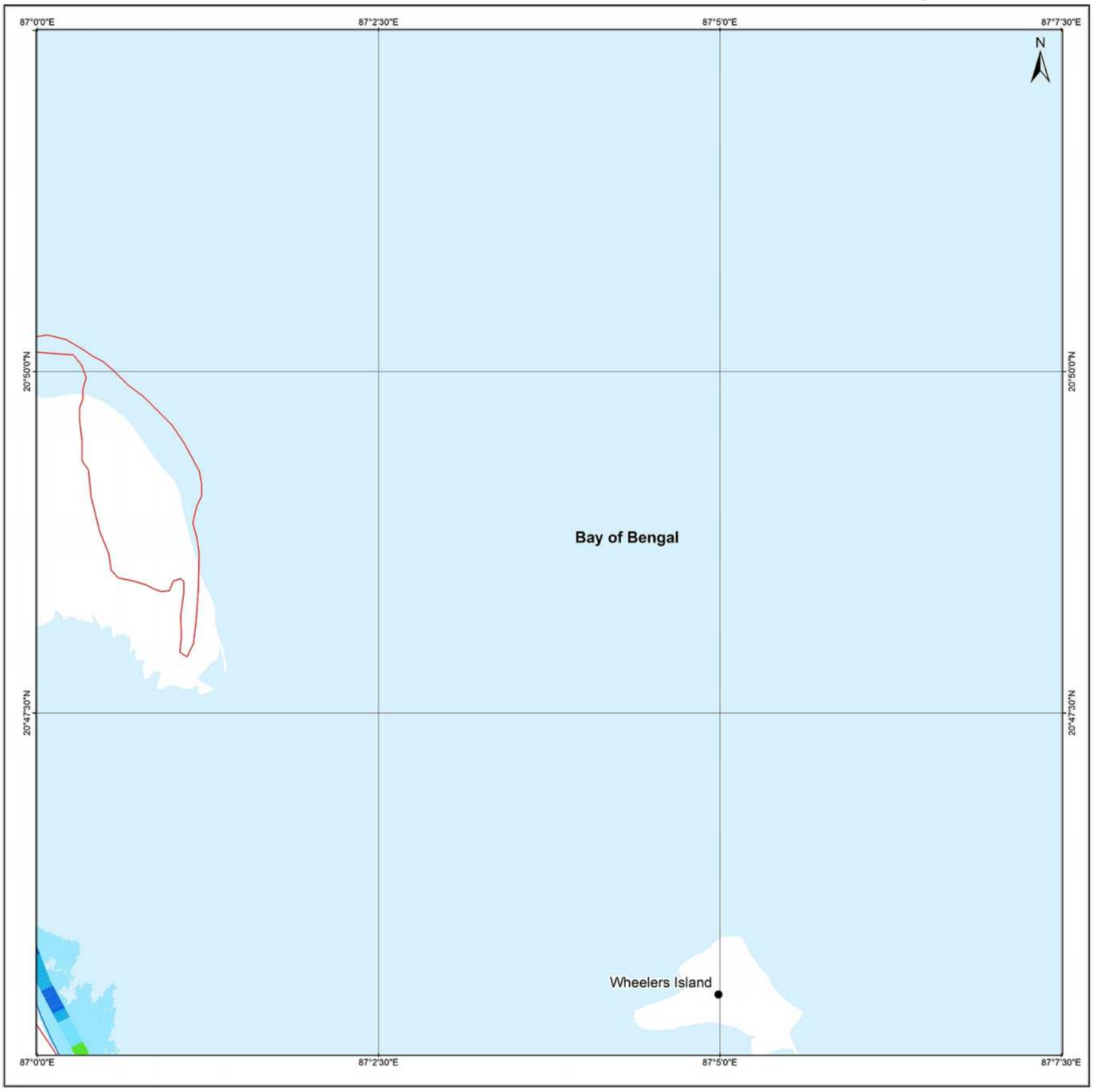
73 P / 1 / SW

Map No. : NCCR/SCM/484



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
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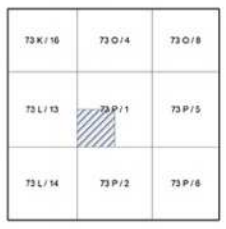

Scale

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UTM Coordinates Zone 45

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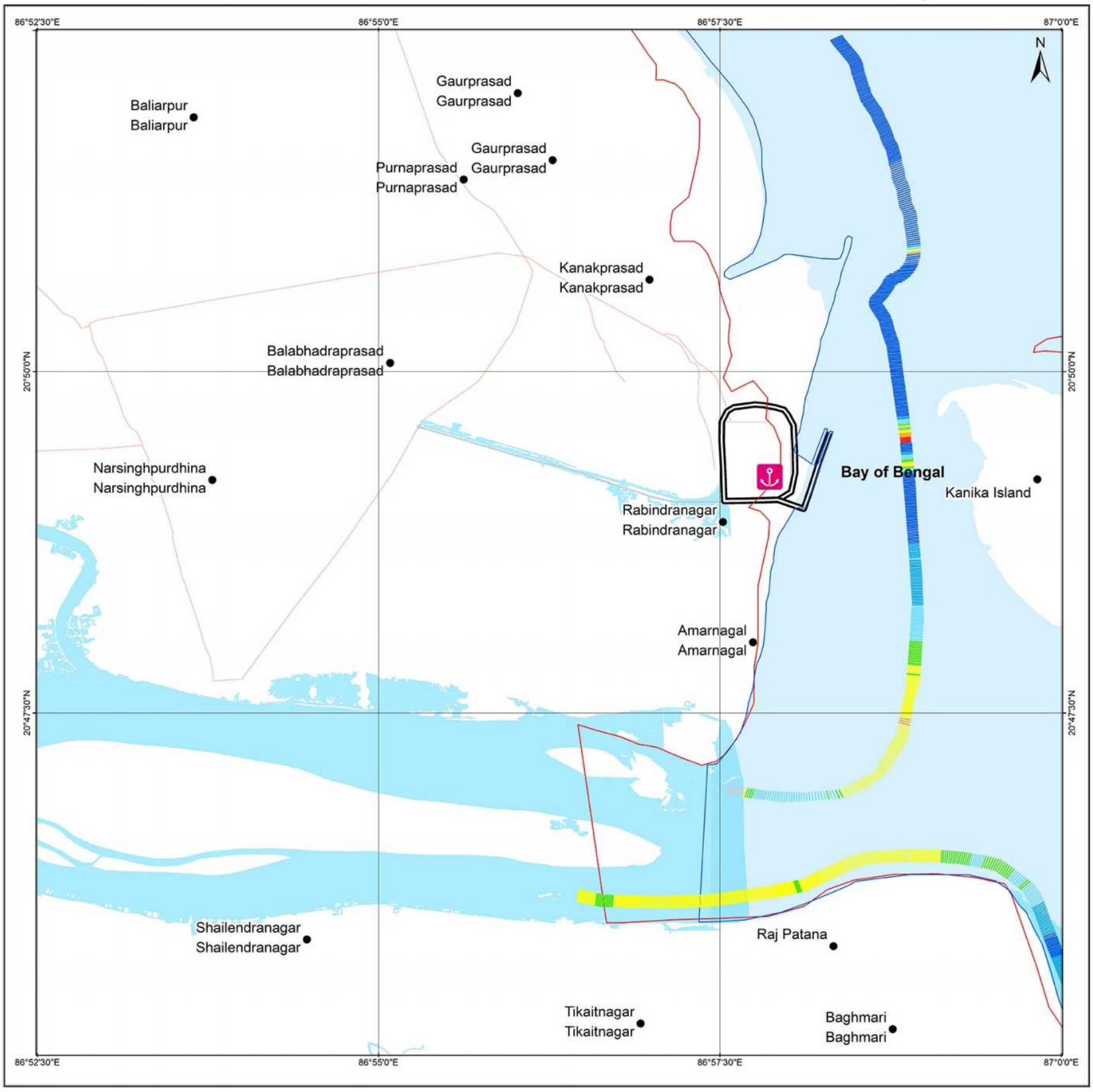
Map No. : NCCR/SCM/485



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
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- Low Accretion
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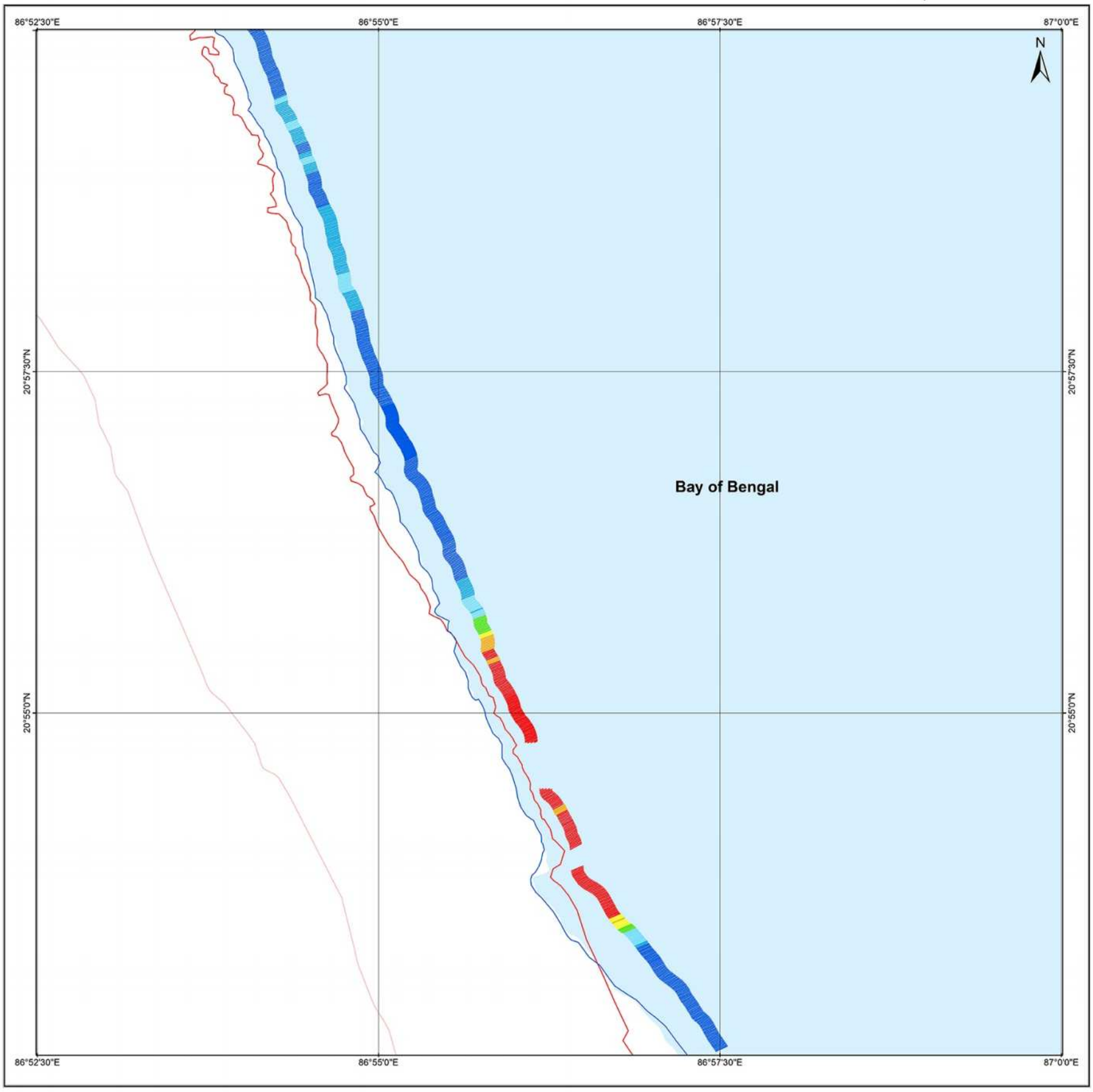
73 L / 13 / NE

Map No. : NCCR/SCM/486



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
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Shoreline date

- 11/29/1990
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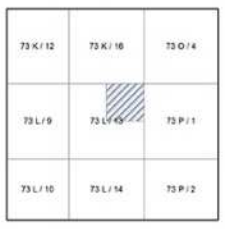

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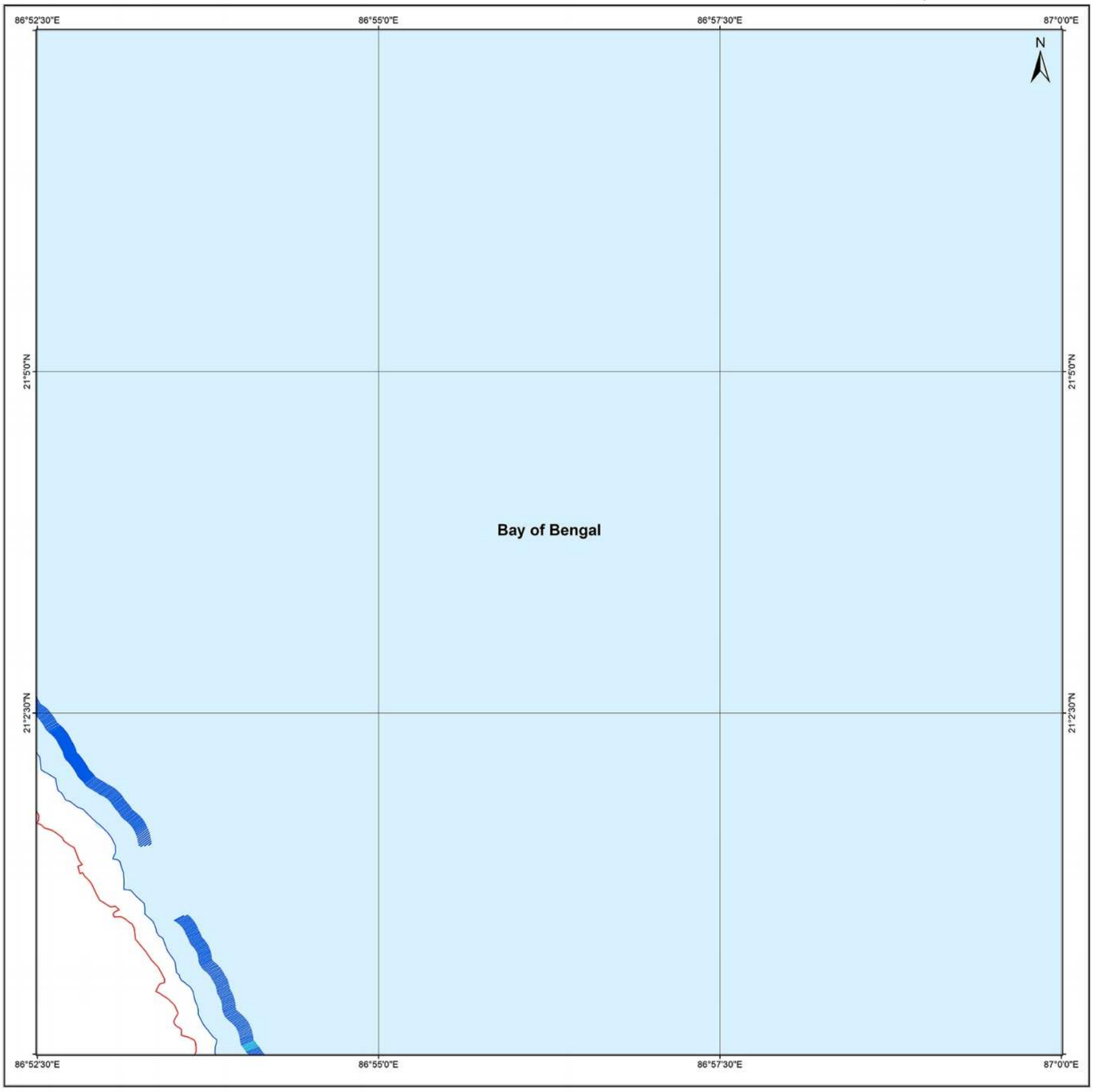
Map No. : NCCR/SCM/487



Shoreline Change Trend for Period 1990 - 2018

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- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 06/16/2018 & 01/23/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	06/16/2018 & 01/23/2018
LISS-IV	02/21/2017
LISS-IV	03/22/2016
LISS-IV	06/08/2015
LISS-IV	5/20/2014
LISS-IV	05/01/2013
LISS-IV	10/21/2012
LISS-III	01/16/2008
PAN (Cartosat-1)	07/07/2006
ETM+	11/08/2000
TM	11/29/1990

- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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1990 - 2018

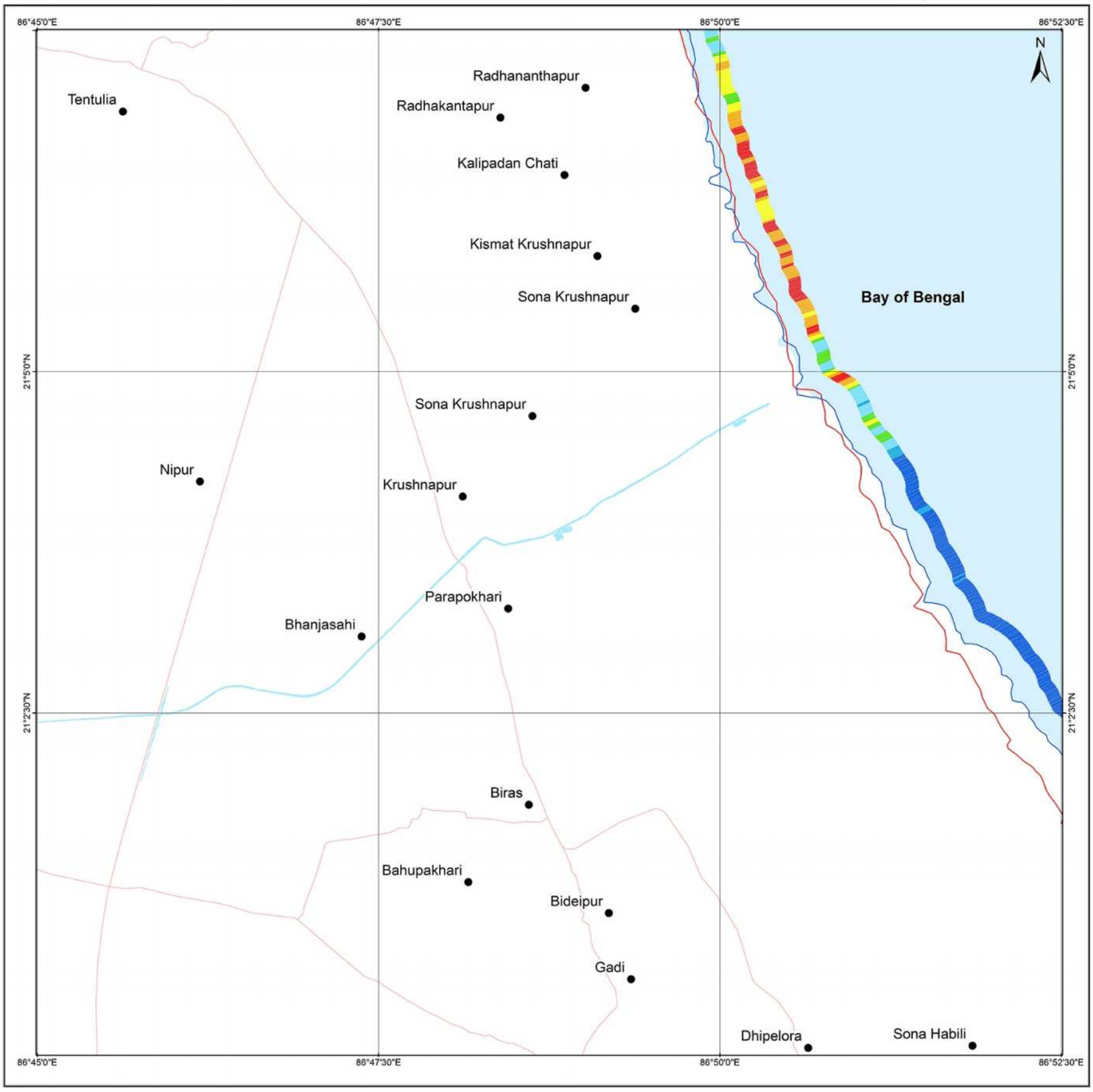
BHADRAK

SHORELINE CHANGE MAP
ODISHA

Restricted Use

73 K / 16 / SW

Map No. : NCCR/SCM/488



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 06/16/2018

Index to sheets

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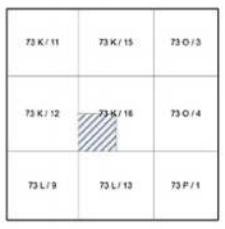

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	06/16/2018
LISS-IV	02/21/2017
LISS-IV	03/22/2016
LISS-IV	06/08/2015
LISS-IV	5/20/2014
LISS-IV	05/01/2013
LISS-IV	10/21/2012
LISS-III	01/16/2008
PAN (Cartosat-1)	07/07/2006
ETM+	11/08/2000
TM	11/29/1990

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- Jetty
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- Lakes
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1990 - 2018

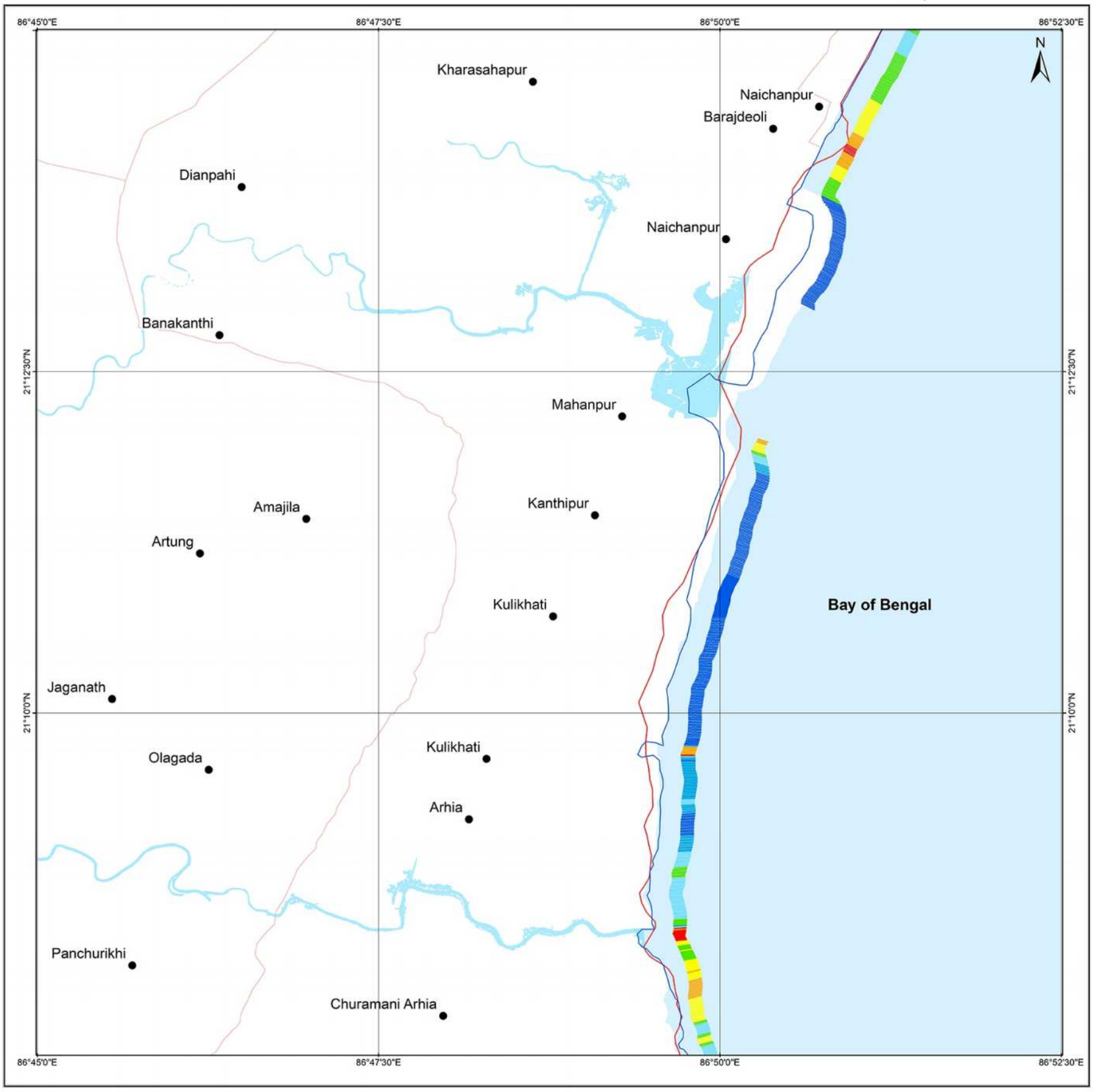
BHADRAK &BALESWAR

SHORELINE CHANGE MAP
ODISHA

Restricted Use

73 K / 16 / NW

Map No. : NCCR/SCM/489



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 06/16/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	06/16/2018
LISS-IV	02/21/2017
LISS-IV	03/22/2016
LISS-IV	06/08/2015
LISS-IV	5/20/2014
LISS-IV	05/01/2013
LISS-IV	10/21/2012
LISS-III	01/16/2008
PAN (Cartosat-1)	07/07/2006
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TM	11/29/1990

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- Jetty
- Seawall/Ripraps
- Rocky Coast
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- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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1990 - 2018

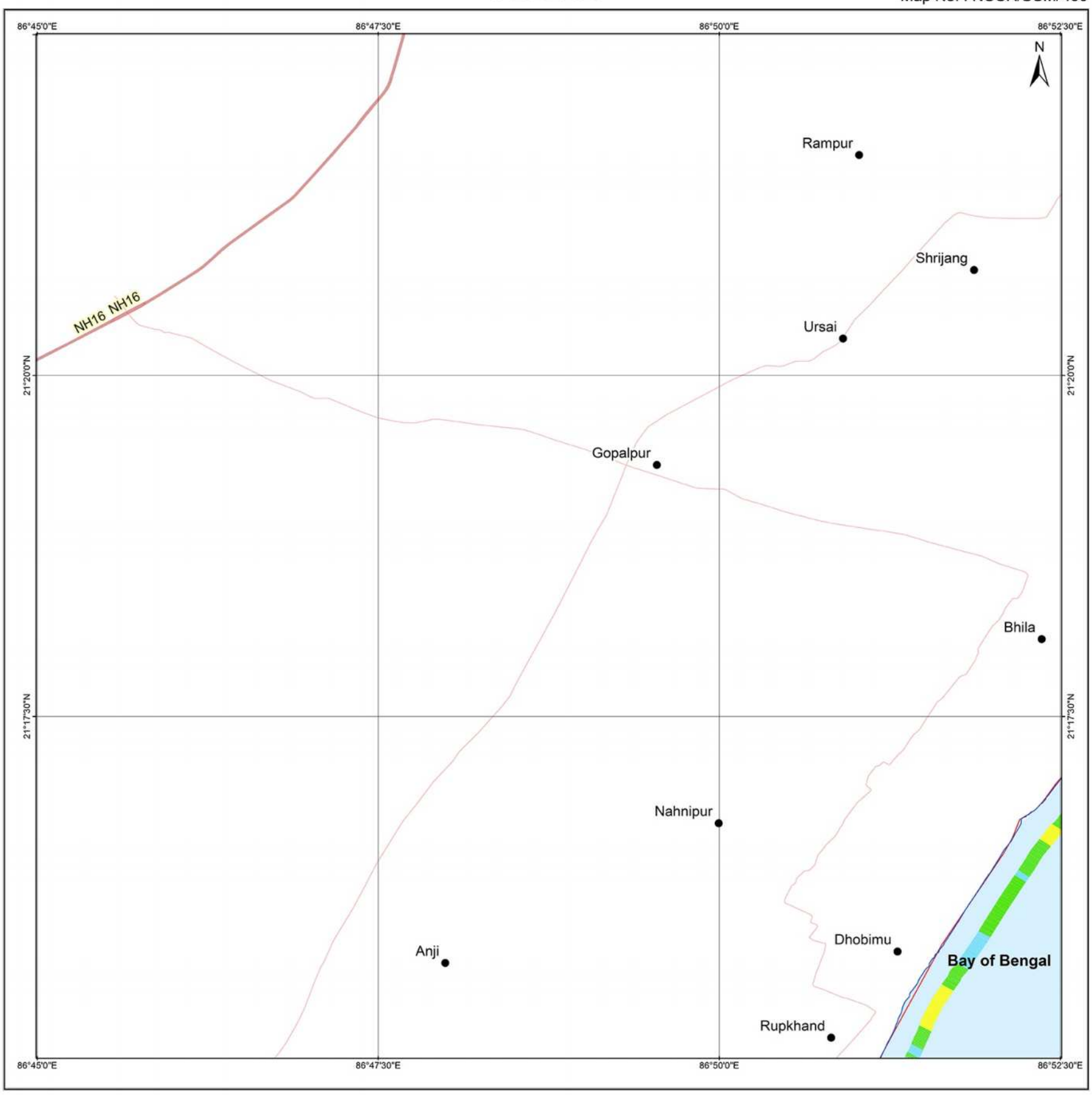
BALESWAR

SHORELINE CHANGE MAP
ODISHA

Restricted Use

73 K / 15 / SW

Map No. : NCCR/SCM/490



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 06/16/2018

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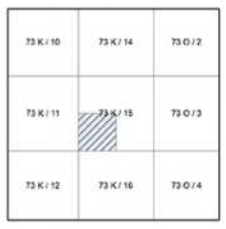

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	06/16/2018
LISS-IV	02/21/2017
LISS-IV	03/22/2016
LISS-IV	06/08/2015
LISS-IV	5/20/2014
LISS-IV	05/01/2013
LISS-IV	10/21/2012
LISS-III	01/16/2008
PAN (Cartosat-1)	07/07/2006
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1990 - 2018

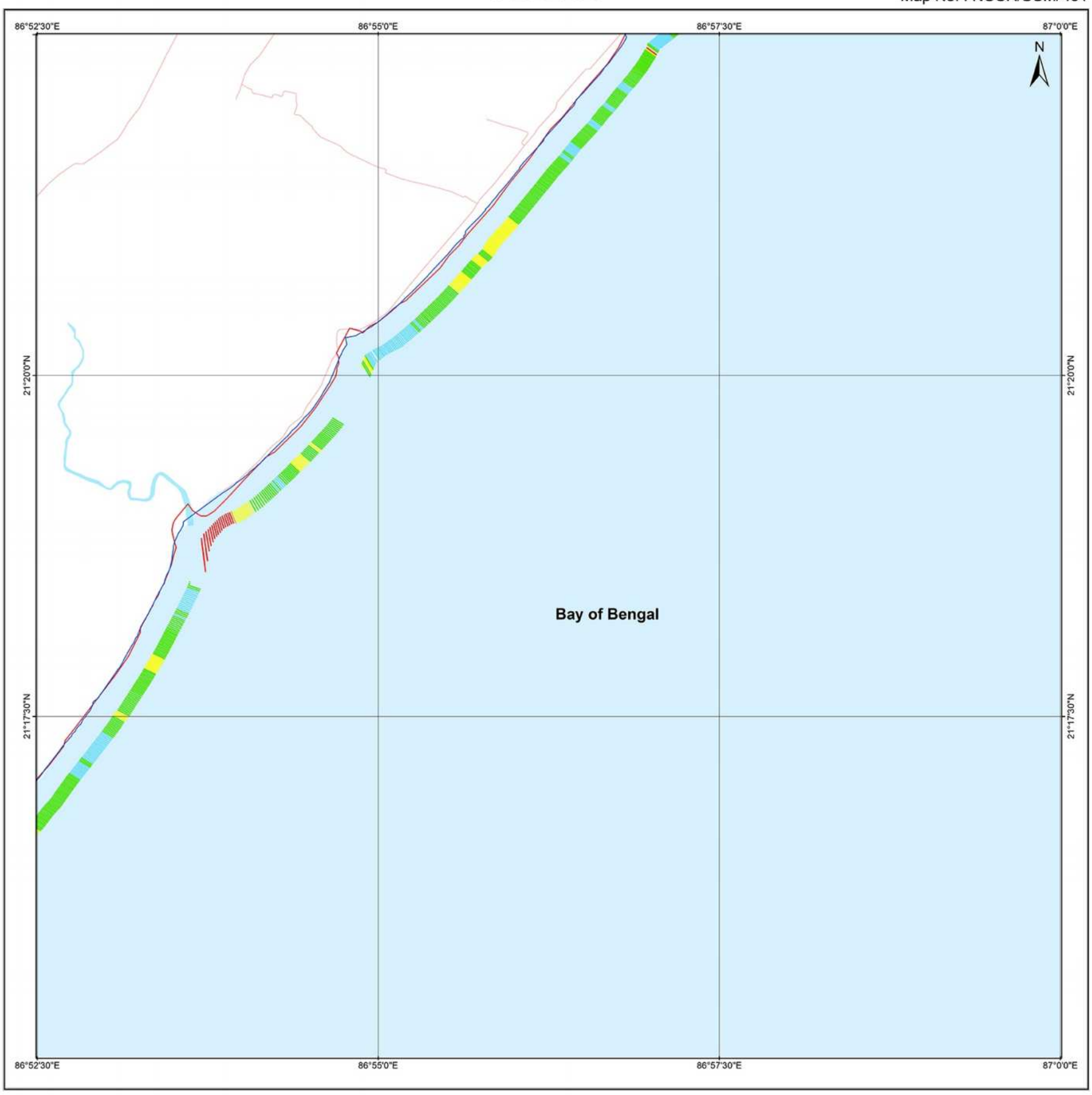
BALESWAR

SHORELINE CHANGE MAP
ODISHA

Restricted Use

73 K / 15 / SE

Map No. : NCCR/SCM/491



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

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- 06/16/2018

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1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	06/16/2018
LISS-IV	02/21/2017
LISS-IV	03/22/2016
LISS-IV	06/08/2015
LISS-IV	5/20/2014
LISS-IV	05/01/2013
LISS-IV	10/21/2012
LISS-III	01/16/2008
PAN (Cartosat-1)	07/07/2006
ETM+	11/08/2000
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1990 - 2018

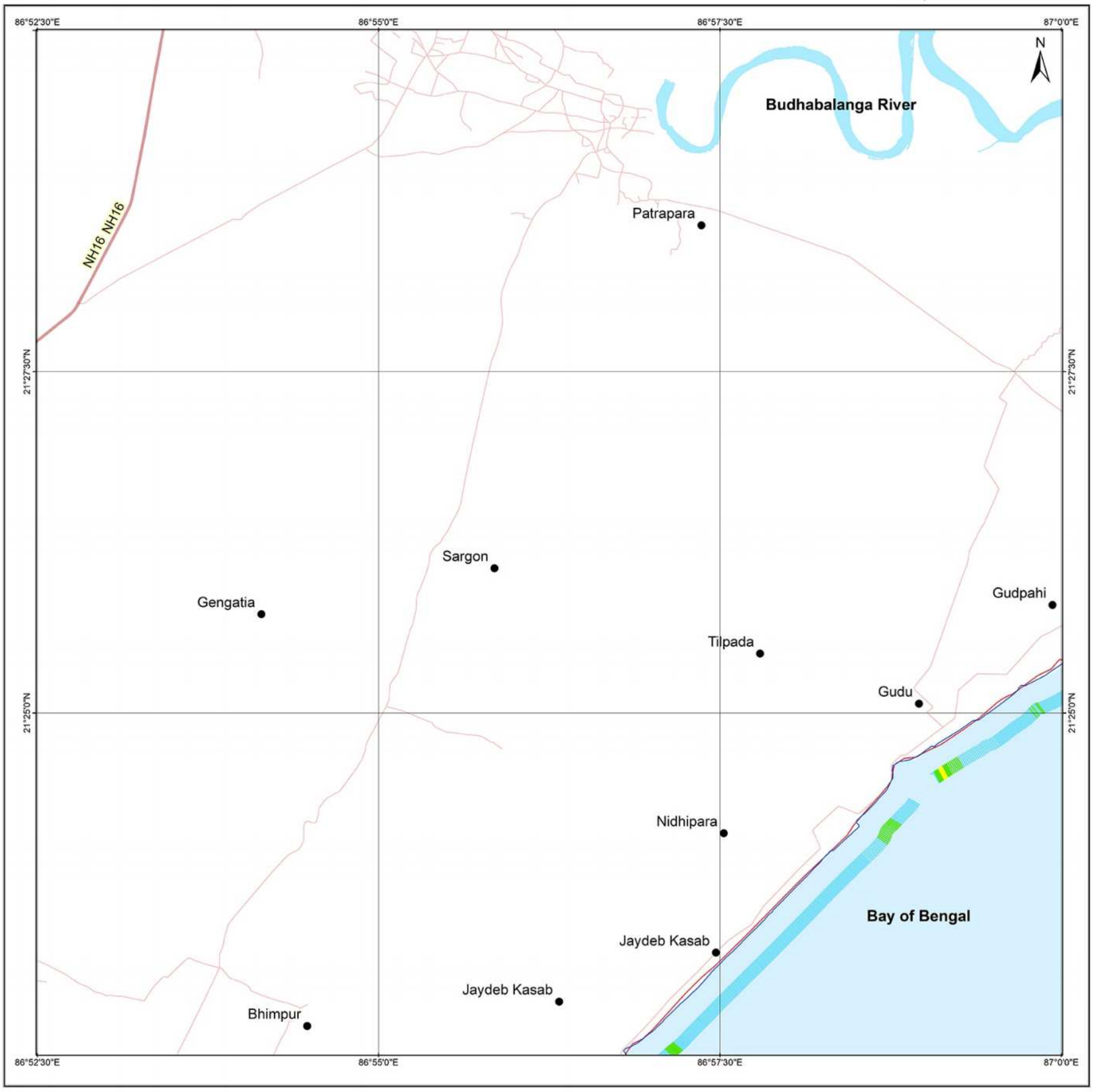
BALESWAR

SHORELINE CHANGE MAP
ODISHA

Restricted Use

73 K / 15 / NE

Map No. : NCCR/SCM/492



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 06/16/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	06/16/2018
LISS-IV	02/21/2017
LISS-IV	03/22/2016
LISS-IV	06/08/2015
LISS-IV	5/20/2014
LISS-IV	05/01/2013
LISS-IV	10/21/2012
LISS-III	01/16/2008
PAN (Cartosat-1)	07/07/2006
ETM+	11/08/2000
TM	11/29/1990

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- Jetty
- Seawall/Ripraps
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1990 - 2018

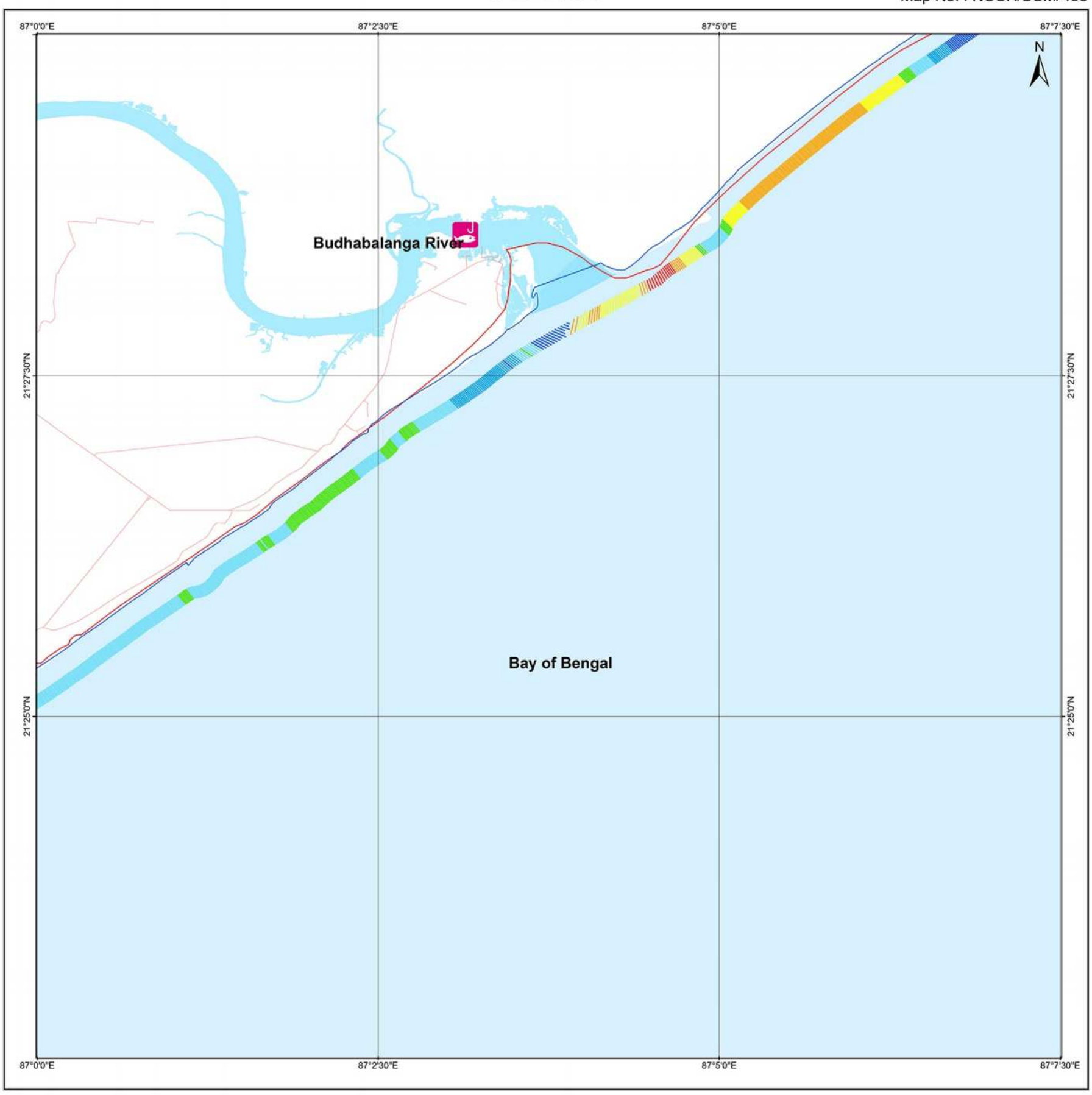
BALESWAR

SHORELINE CHANGE MAP
ODISHA

Restricted Use

73 O / 3 / NW

Map No. : NCCR/SCM/493



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 06/16/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	06/16/2018
LISS-IV	02/21/2017
LISS-IV	03/22/2016
LISS-IV	06/08/2015
LISS-IV	5/20/2014
LISS-IV	05/01/2013
LISS-IV	10/21/2012
LISS-III	01/16/2008
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TM	11/29/1990

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- Seawall/Ripraps
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- State Highways
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1990 - 2018

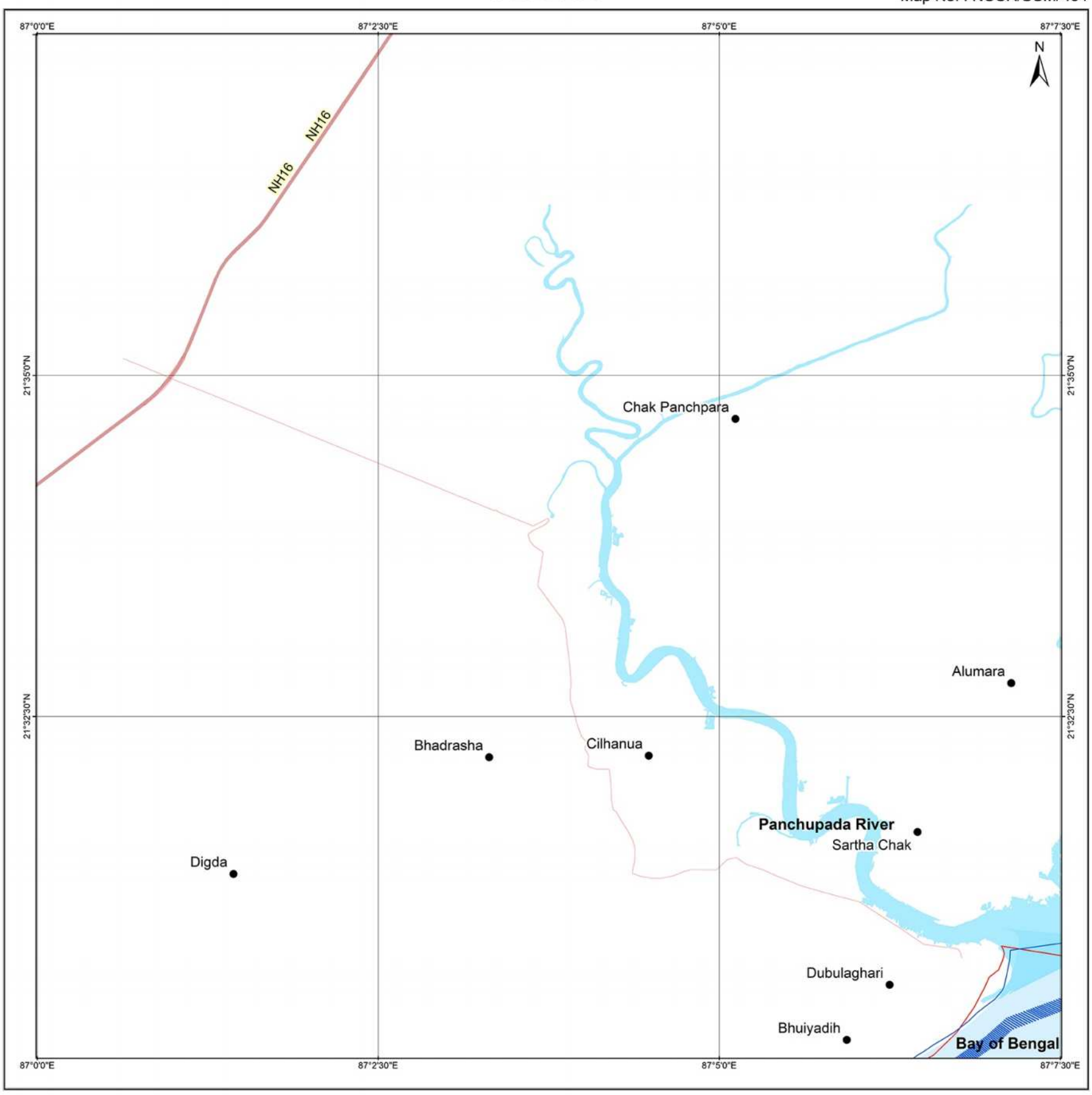
BALESWAR

SHORELINE CHANGE MAP
ODISHA

Restricted Use

73 O / 2 / SW

Map No. : NCCR/SCM/494



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 06/16/2018

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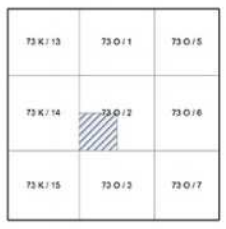

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	06/16/2018
LISS-IV	02/21/2017
LISS-IV	03/22/2016
LISS-IV	06/08/2015
LISS-IV	5/20/2014
LISS-IV	05/01/2013
LISS-IV	10/21/2012
LISS-III	01/16/2008
PAN (Cartosat-1)	07/07/2006
ETM+	11/08/2000
TM	11/29/1990

- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
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1990 - 2018

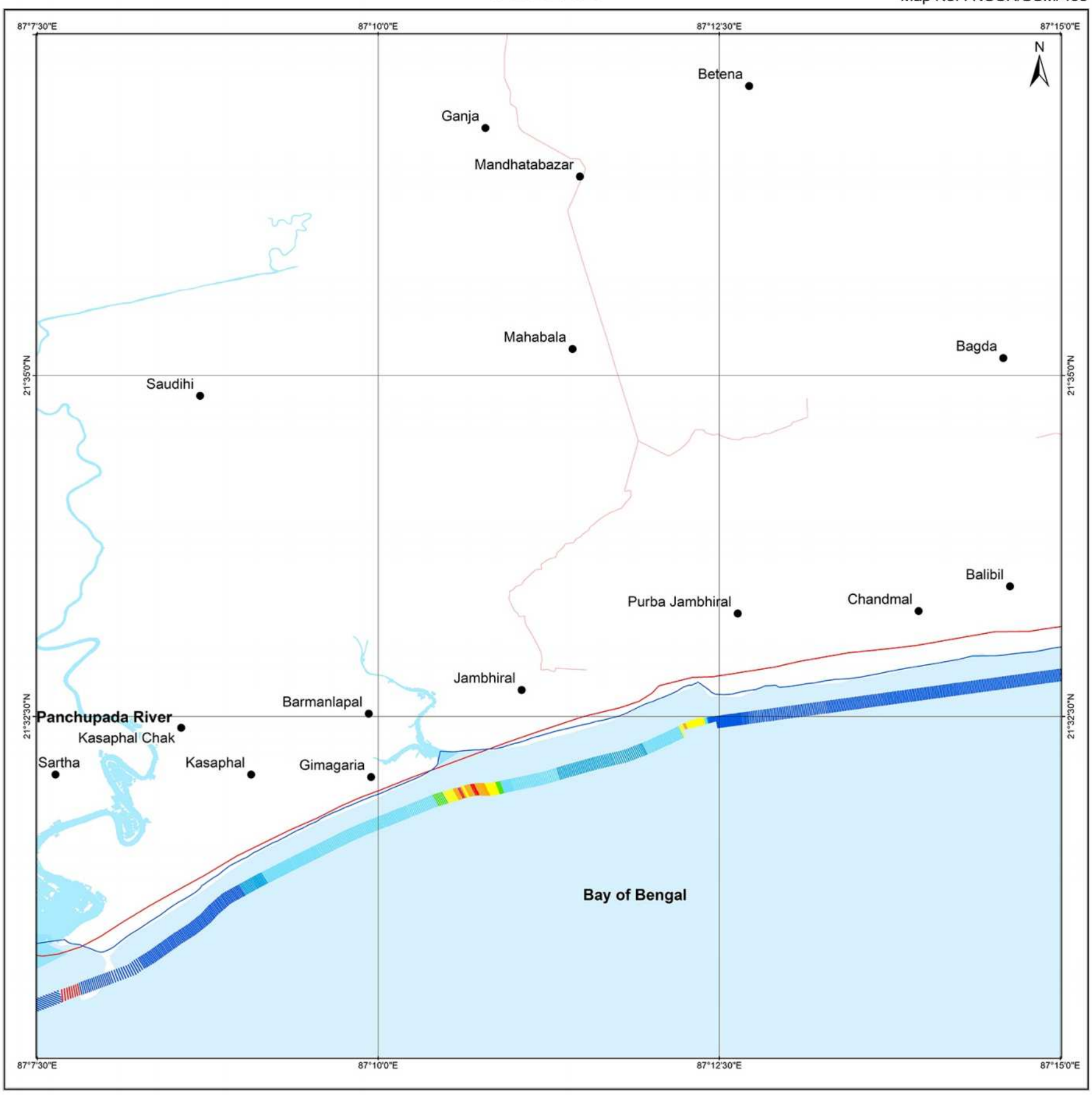
BALESWAR

SHORELINE CHANGE MAP
ODISHA

Restricted Use

73 O / 2 / SE

Map No. : NCCR/SCM/495



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 06/16/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	06/16/2018
LISS-IV	02/21/2017 & 03/21/2017
LISS-IV	03/22/2016
LISS-IV	06/08/2015
LISS-IV	5/20/2014
LISS-IV	05/01/2013 & 04/07/2013
LISS-IV	10/21/2012
LISS-III	01/16/2008
PAN (Cartosat-1)	07/07/2006
ETM+	11/08/2000
TM	11/29/1990

- Settlements
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- Harbour
- Groynes
- Jetty
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1990 - 2018

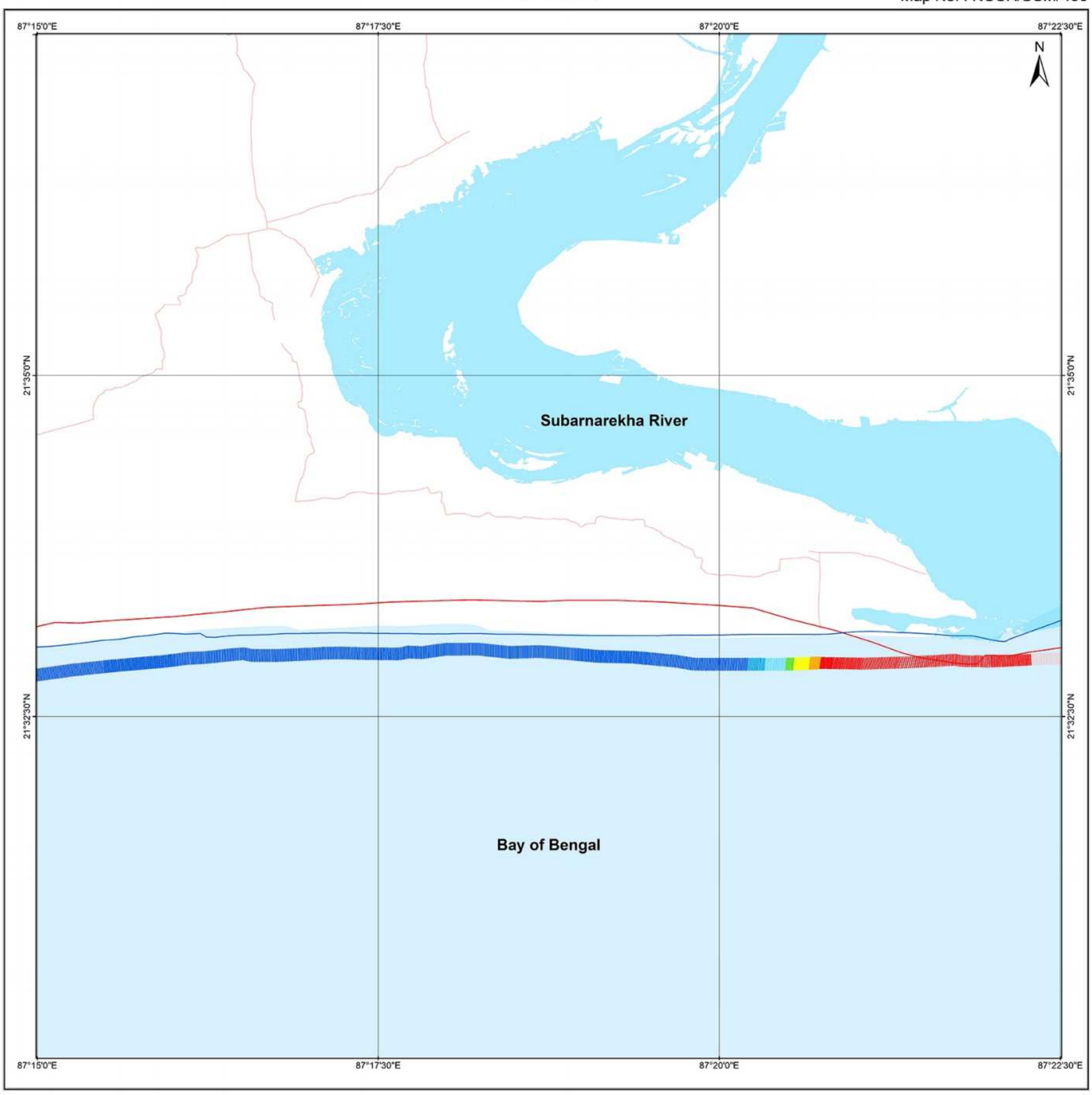
BALESWAR

SHORELINE CHANGE MAP
ODISHA

Restricted Use

73 O / 6 / SW

Map No. : NCCR/SCM/496



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990
- 04/05/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/05/2018
LISS-IV	03/21/2017
LISS-IV	01/10/2016
LISS-IV	05/15/2015
LISS-IV	05/20/2014 & 04/26/2014
LISS-IV	04/07/2013
LISS-IV	10/21/2012
LISS-III	01/16/2008
PAN (Cartosat-1)	07/07/2006
ETM+	11/08/2000
TM	11/29/1990

- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Seawall/Ripraps
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1990 - 2018

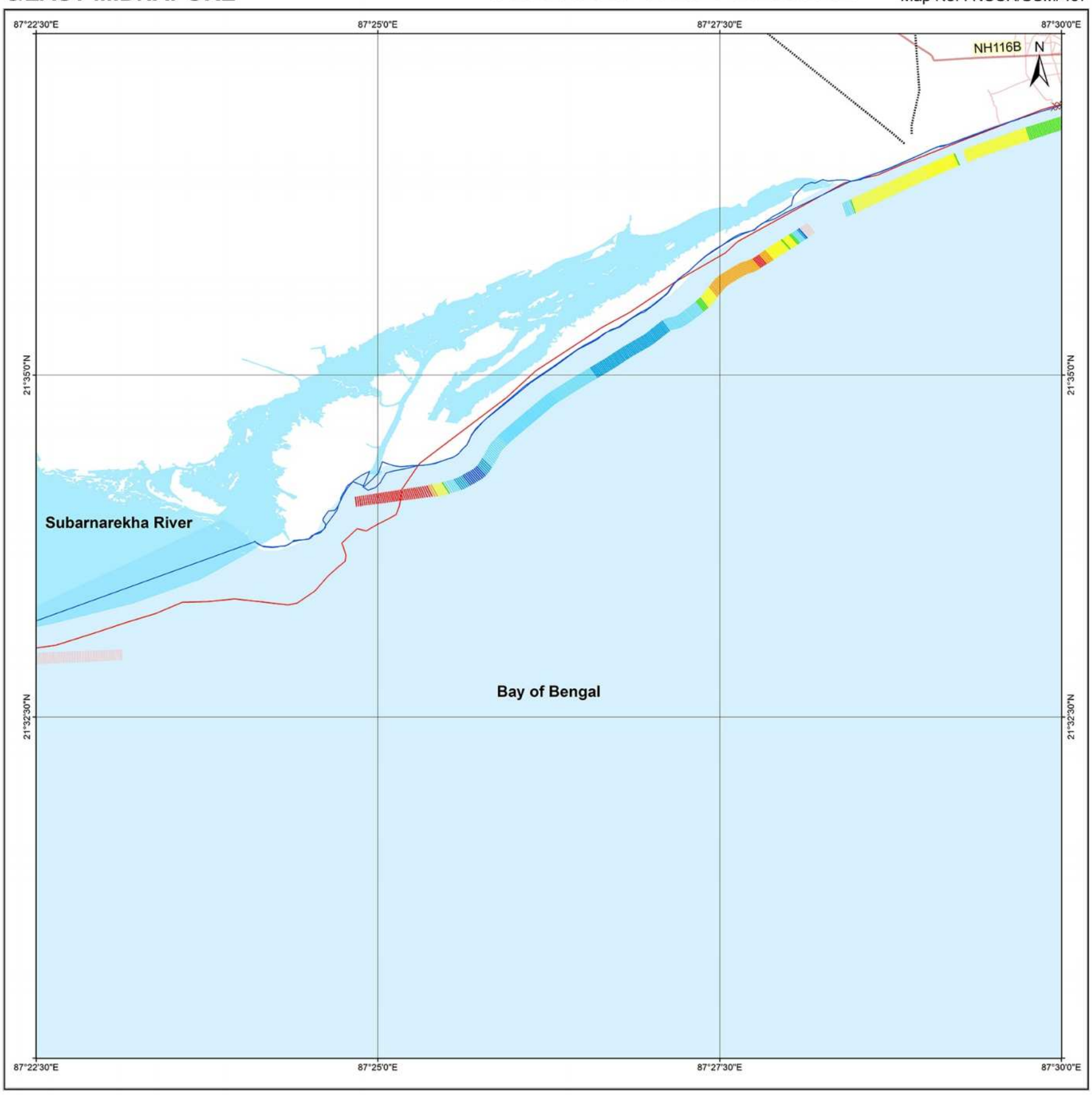
BALESWAR &EAST MIDNAPORE

SHORELINE CHANGE MAP
ODISHA & WEST BENGAL

Restricted Use

73 O / 6 / SE

Map No. : NCCR/SCM/497



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/29/1990 & 11/21/1990
- 04/05/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

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Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	04/05/2018
LISS-IV	03/21/2017 & 03/17/2017
LISS-IV	10/01/2016
LISS-IV	05/15/2015 & 03/09/2015
LISS-IV	05/20/2014 & 04/26/2014
LISS-IV	04/07/2013
LISS-IV	10/21/2012
LISS-III	01/16/2008
PAN (Cartosat-1)	07/07/2006
ETM+	11/08/2000
TM	11/29/1990 & 11/21/1990

- Settlements
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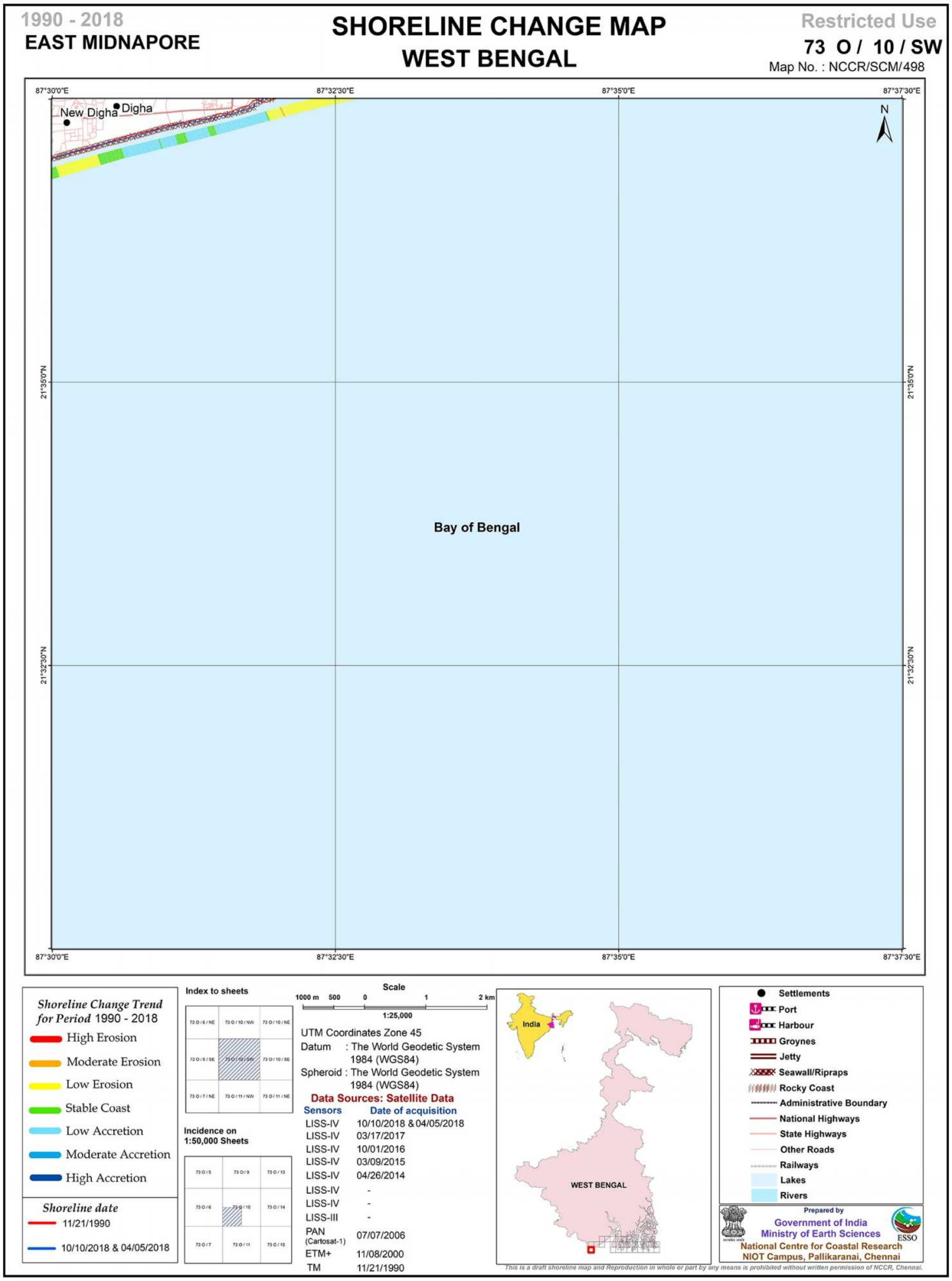
West Bengal


1990 - 2018
EAST MIDNAPORE
SHORELINE CHANGE MAP
WEST BENGAL
Restricted Use
73 O / 10 / SW
Map No. : NCCR/SCM/498
87°30'0"E
87°32'30"E
87°35'0"E
87°37'30"E
New Digha
Digha
N
21°35'0"N
21°32'30"N
Bay of Bengal
Shoreline Change Trend for Period 1990 - 2018
High Erosion
Moderate Erosion
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Moderate Accretion
High Accretion
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73 O / 6 / NE
73 O / 10 / NW
73 O / 10 / NE
73 O / 6 / SE
73 O / 10 / SW
73 O / 10 / SE
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73 O / 11
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UTM Coordinates Zone 45
Datum : The World Geodetic System 1984 (WGS84)
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LISS-IV 03/09/2015
LISS-IV 04/26/2014
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1990 - 2018

EAST MIDNAPORE

SHORELINE CHANGE MAP
WEST BENGAL

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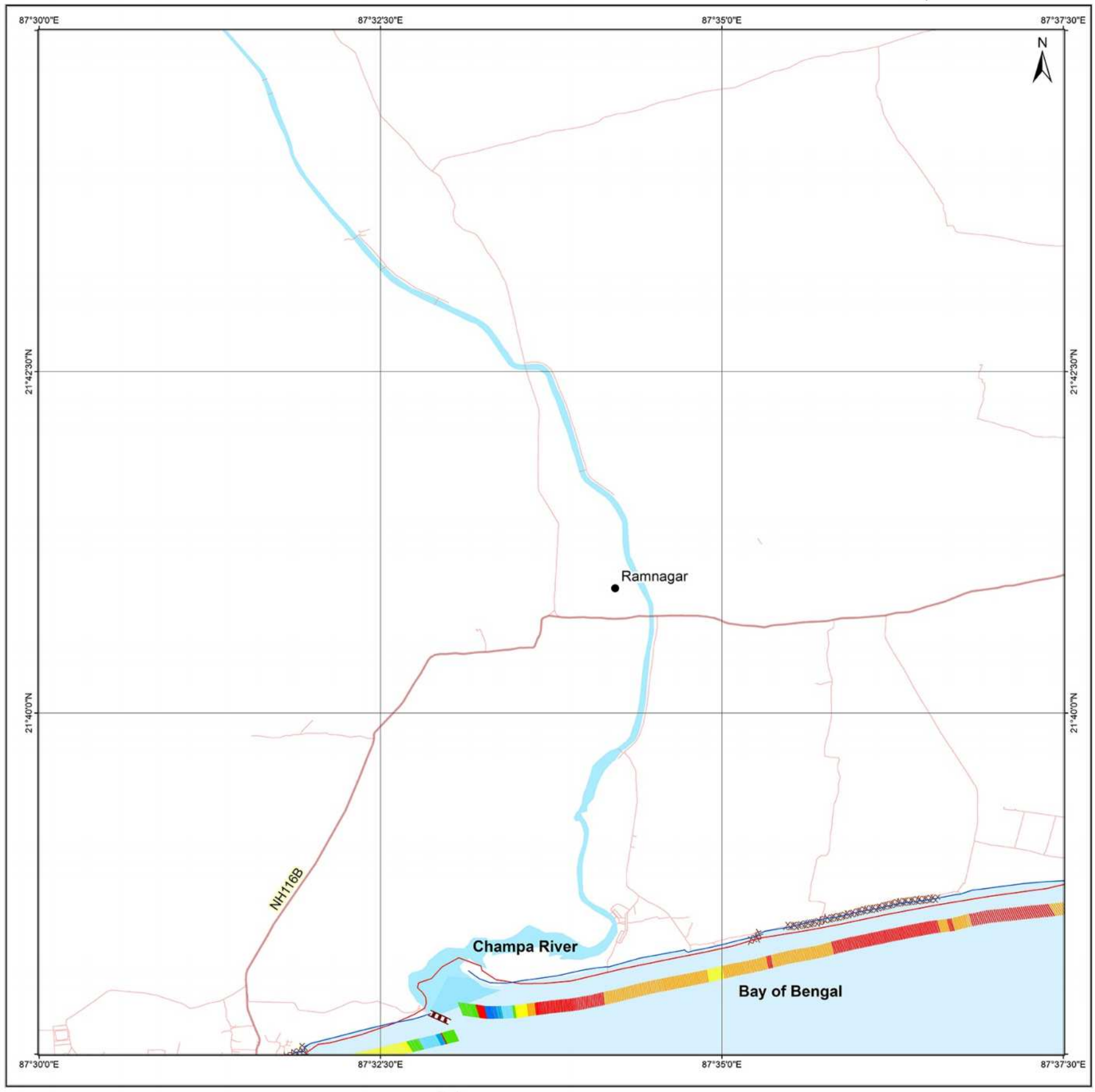
73 O / 10 / NW

Map No. : NCCR/SCM/499



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

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- 10/10/2018 & 04/05/2018

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Scale

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1:25,000

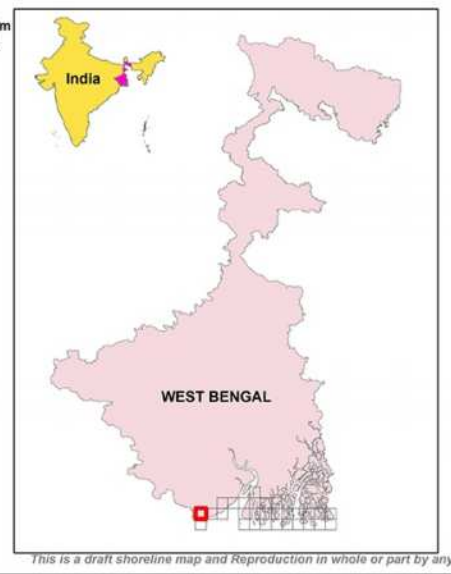
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/10/2018 & 04/05/2018
LISS-IV	03/17/2017
LISS-IV	10/01/2016 & 04/09/2016
LISS-IV	03/09/2015
LISS-IV	04/26/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	11/18/2006
ETM+	11/08/2000
TM	11/21/1990



- Settlements
- Port
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- Jetty
- Seawall/Ripraps
- Rocky Coast
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1990 - 2018

SHORELINE CHANGE MAP
EAST MIDNAPORE
WEST BENGAL

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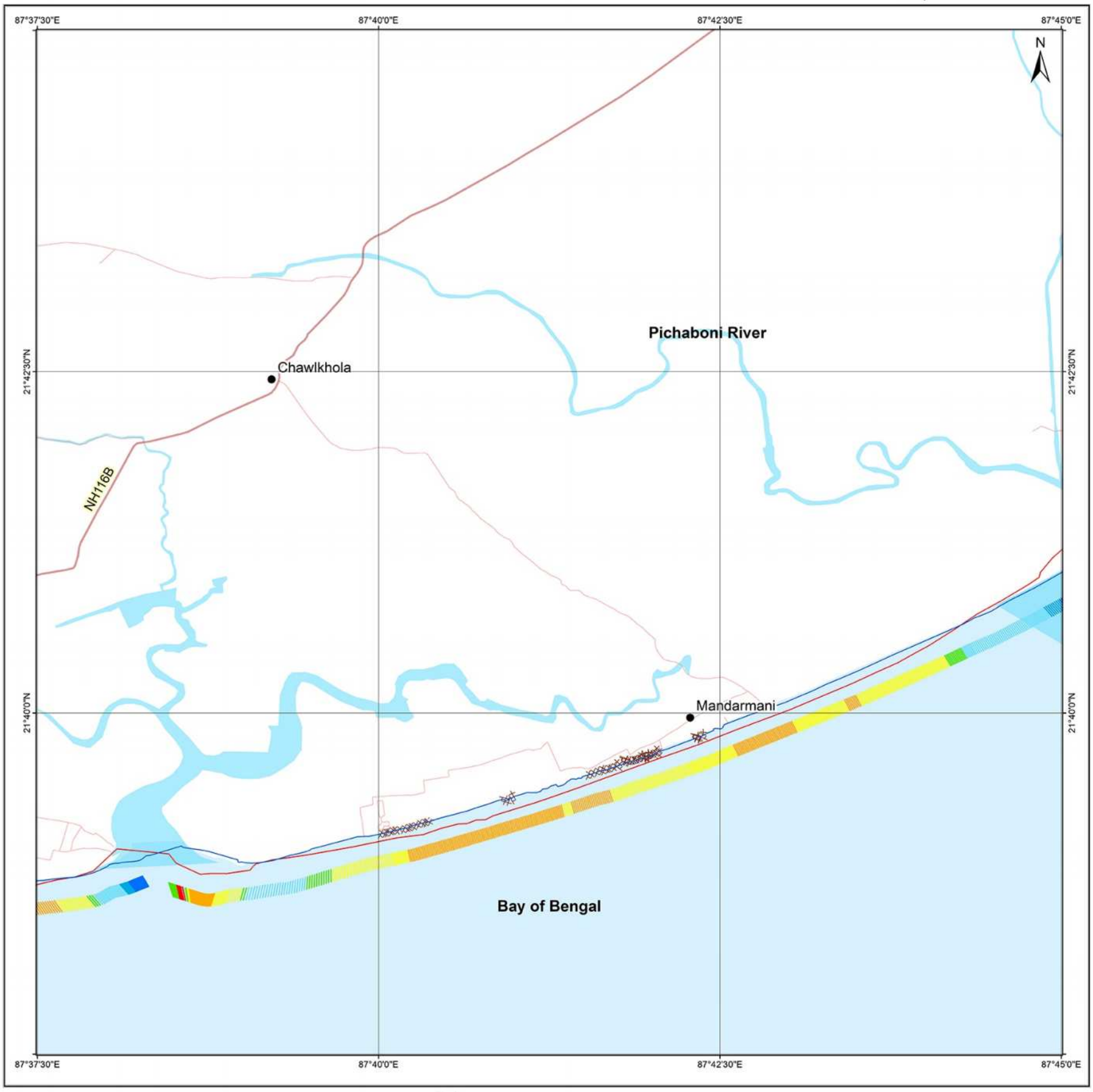
73 O / 10 / NE

Map No. : NCCR/SCM/500



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 11/21/1990 & 01/03/1989
- 10/10/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

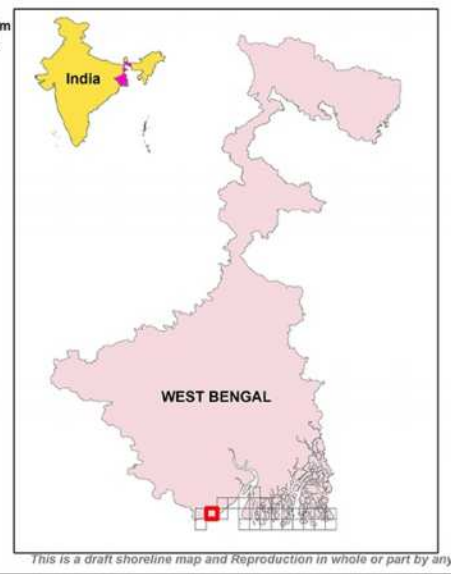
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/10/2018
LISS-IV	02/26/2017
LISS-IV	04/09/2016
LISS-IV	03/09/2015
LISS-IV	04/26/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	11/18/2006
ETM+	11/08/2000
TM	11/21/1990 & 01/03/1989



- Settlements
- Port
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SHORELINE CHANGE MAP
EAST MIDNAPORE
WEST BENGAL

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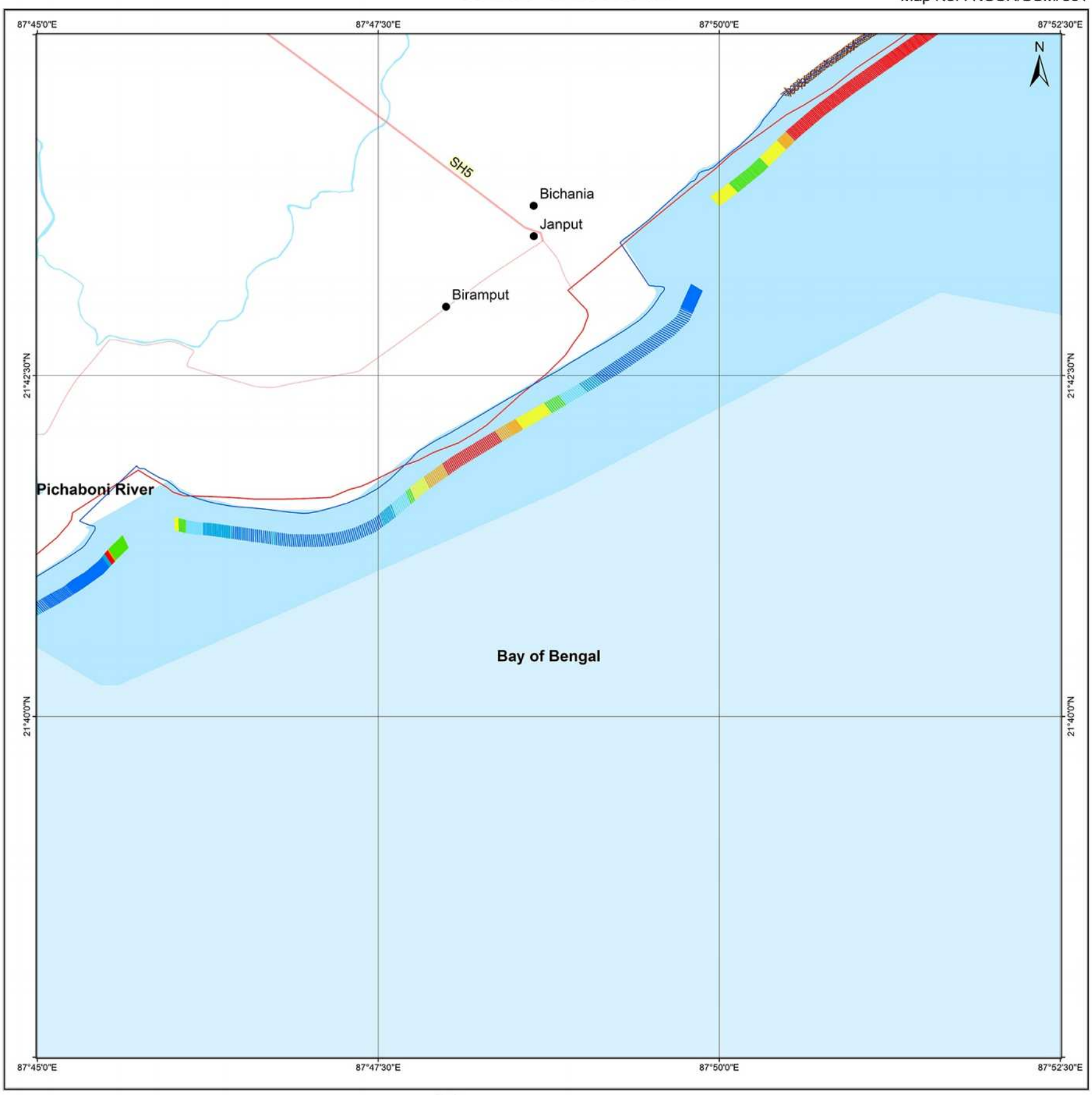
73 O / 14 / NW

Map No. : NCCR/SCM/501



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 09/20/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

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LISS-IV	09/20/2018
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LISS-IV	03/09/2015
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LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	11/18/2006
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SHORELINE CHANGE MAP
EAST MIDNAPORE
WEST BENGAL

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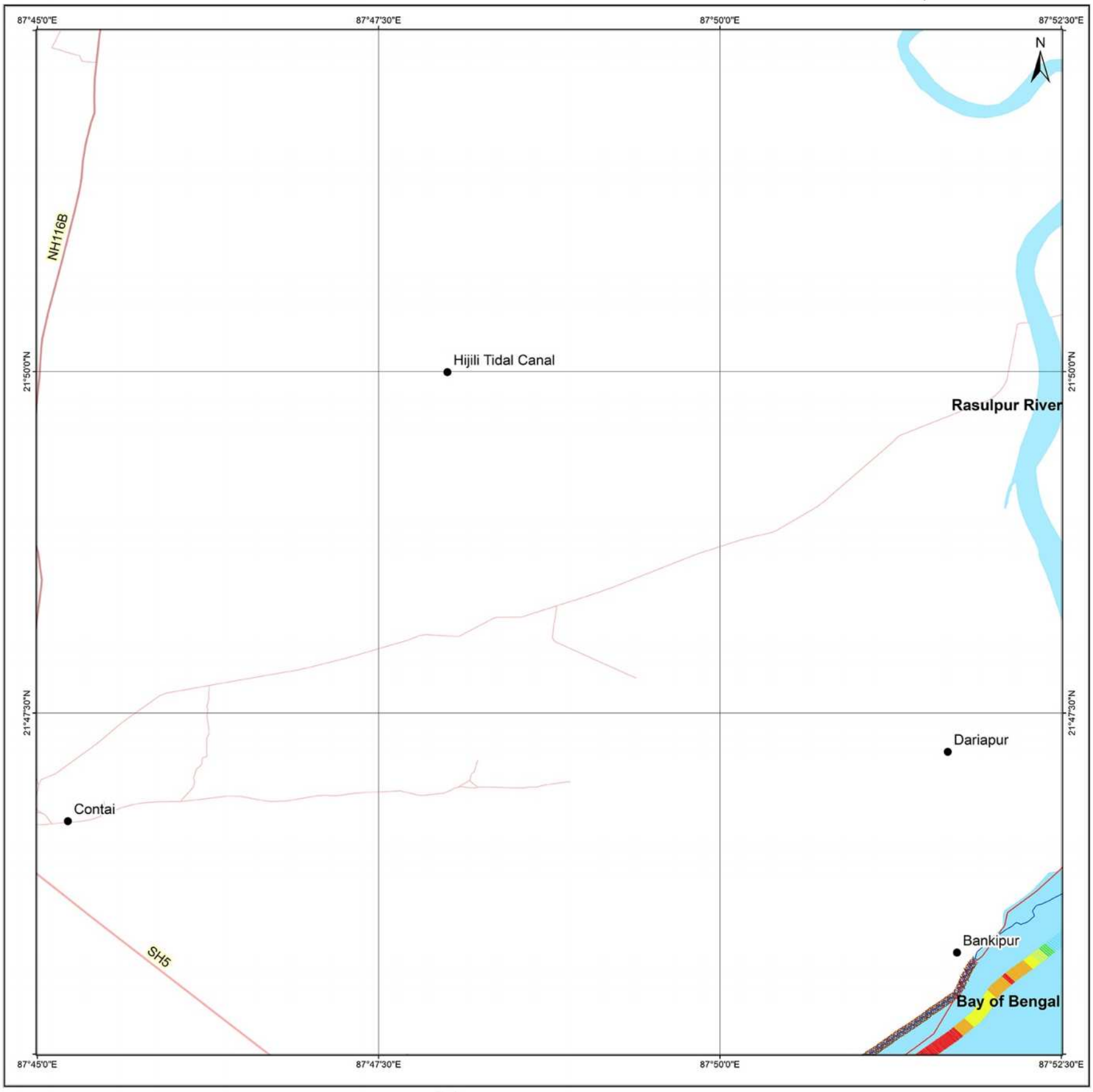
73 O / 13 / SW

Map No. : NCCR/SCM/502



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 09/20/2018

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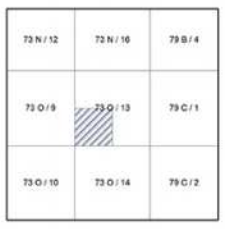

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	09/20/2018
LISS-IV	02/26/2017
LISS-IV	04/09/2016
LISS-IV	03/09/2015
LISS-IV	04/26/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	11/18/2006
ETM+	11/08/2000
TM	01/03/1989

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SHORELINE CHANGE MAP

EAST MIDNAPORE

WEST BENGAL

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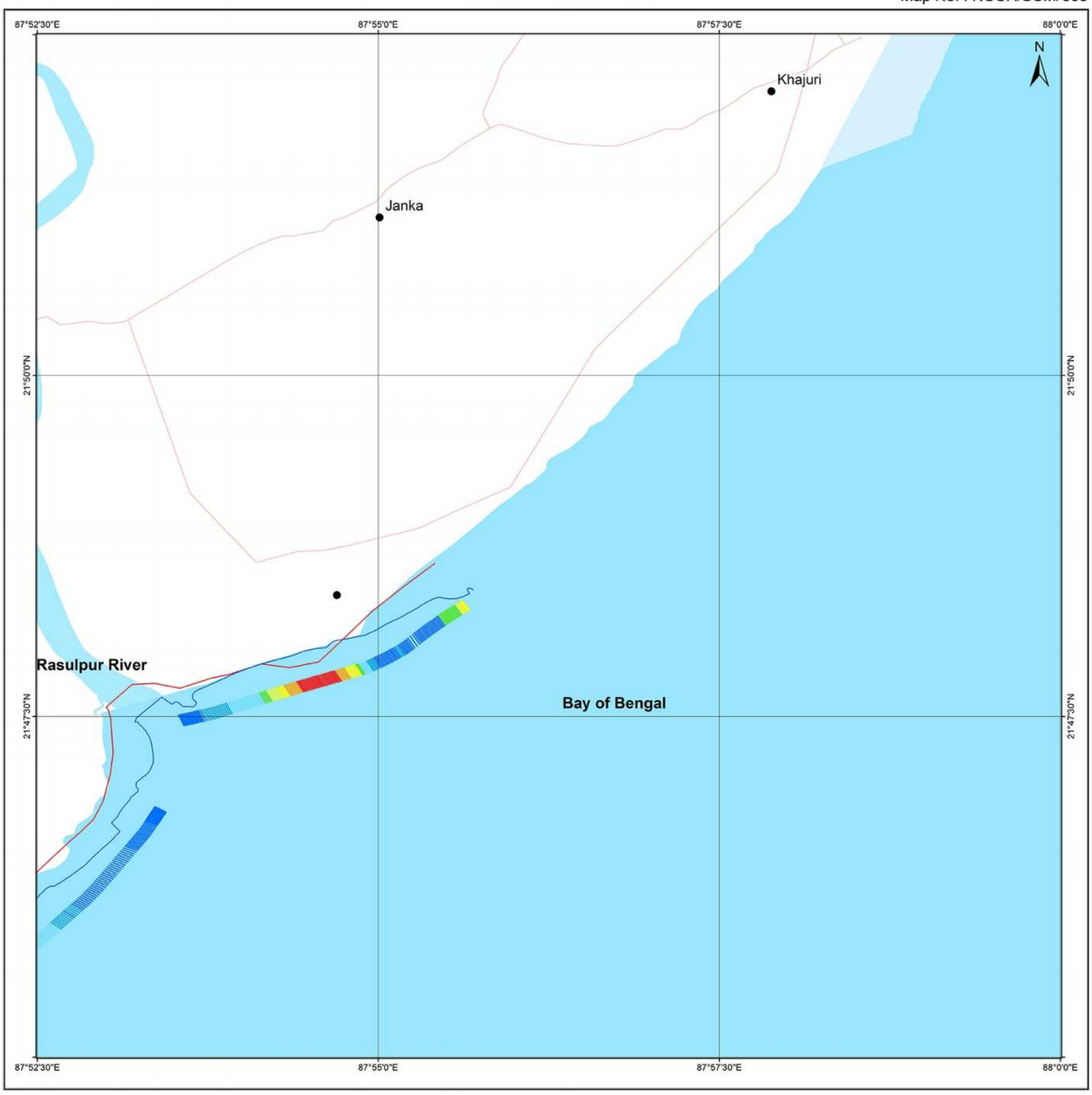
73 O / 13 / SE

Map No. : NCCR/SCM/503



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 09/20/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	09/20/2018
LISS-IV	02/26/2017
LISS-IV	04/09/2016
LISS-IV	03/09/2015
LISS-IV	04/26/2014
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LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	11/18/2006
ETM+	11/08/2000
TM	01/03/1989

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SHORELINE CHANGE MAP
WEST BENGAL

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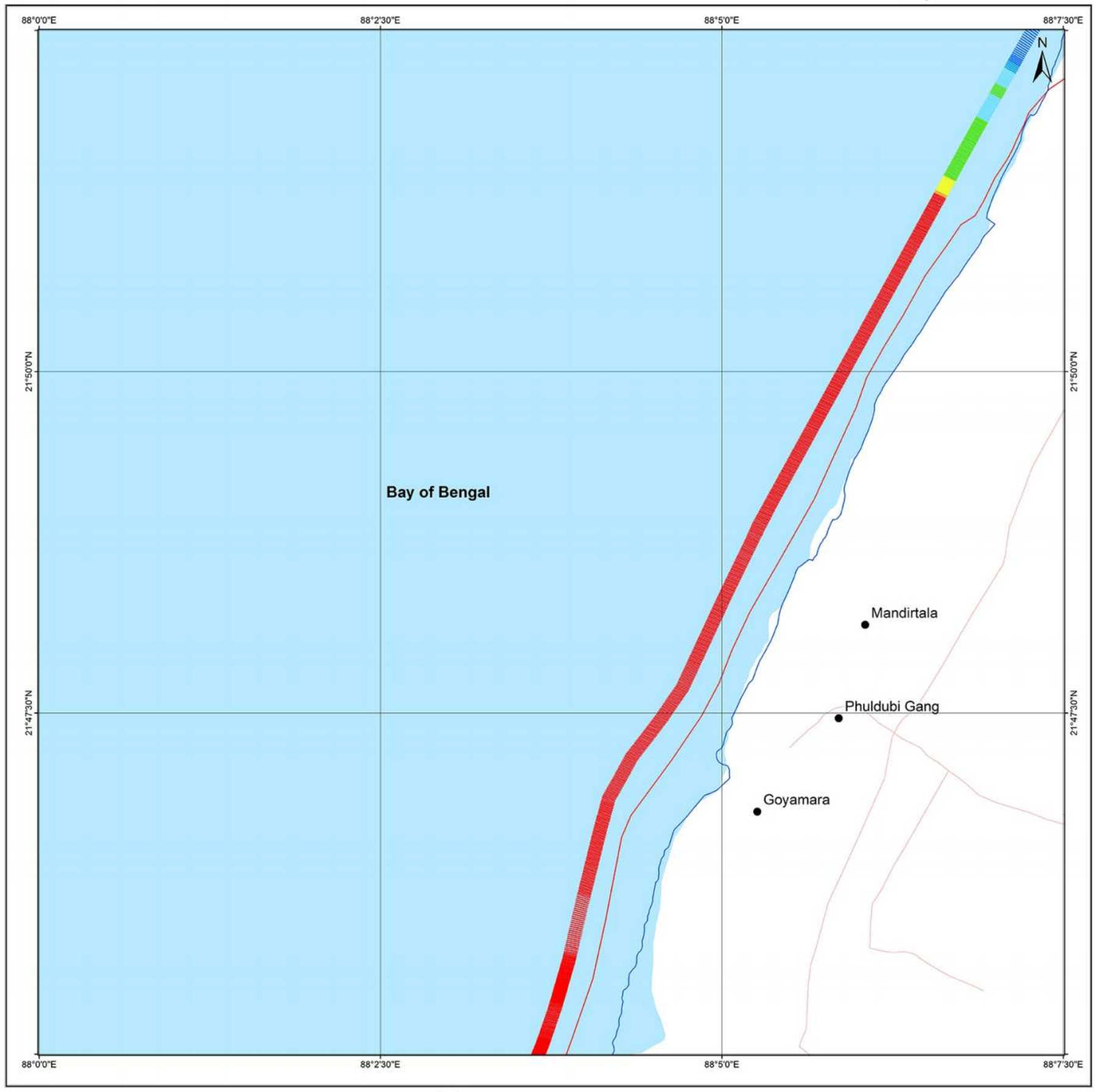
79 C / 1 / SW

Map No. : NCCR/SCM/504



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 09/20/2018

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Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

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LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
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SOUTH 24 PARGANAS

SHORELINE CHANGE MAP
WEST BENGAL

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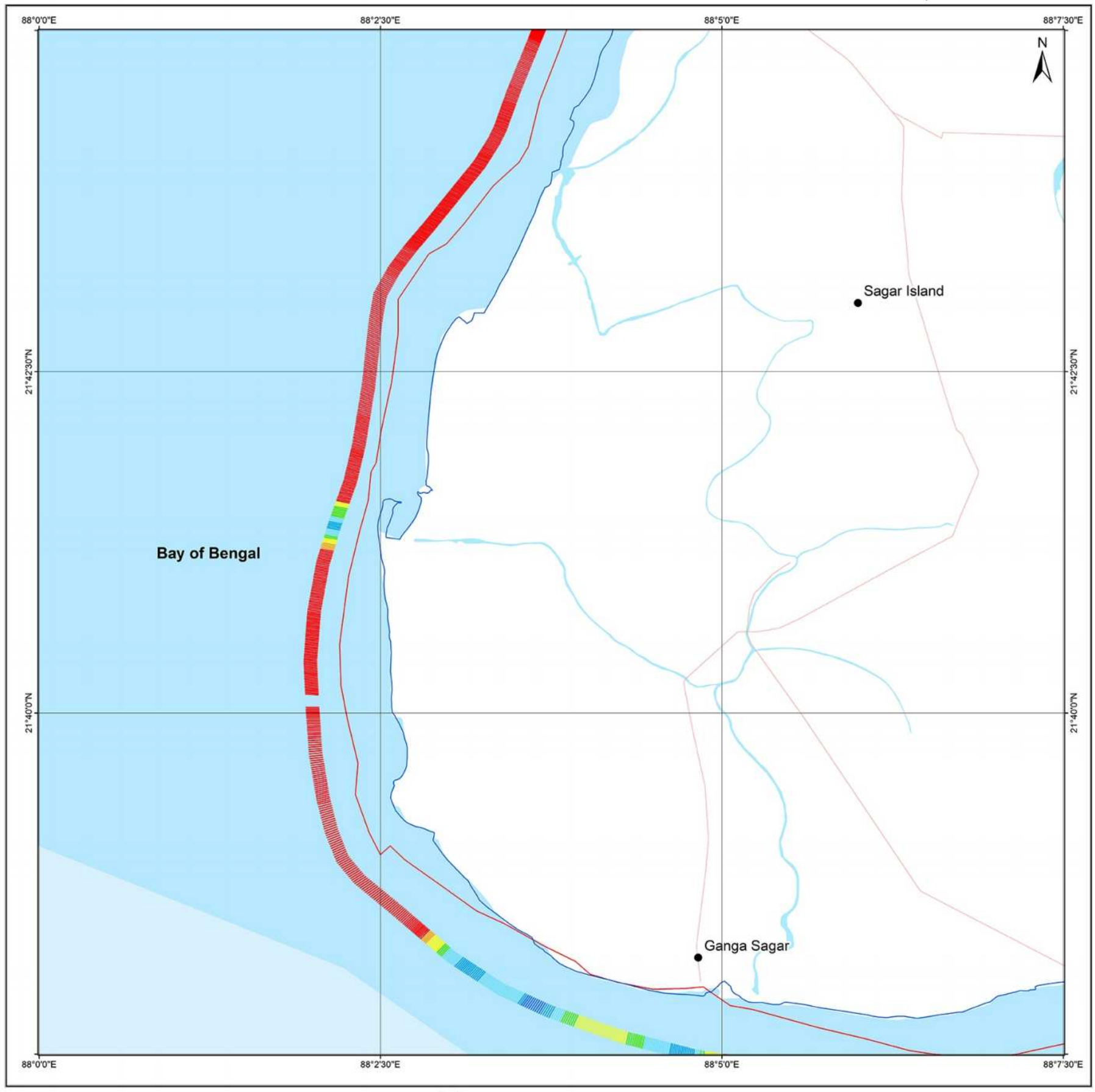
Map No. : NCCR/SCM/505



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 09/20/2018

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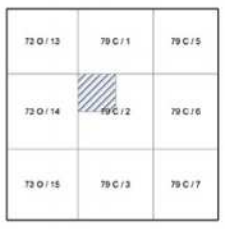

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	09/20/2018
LISS-IV	02/26/2017
LISS-IV	11/24/2016
LISS-IV	03/09/2015
LISS-IV	01/01/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989

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SHORELINE CHANGE MAP

SOUTH 24 PARGANAS

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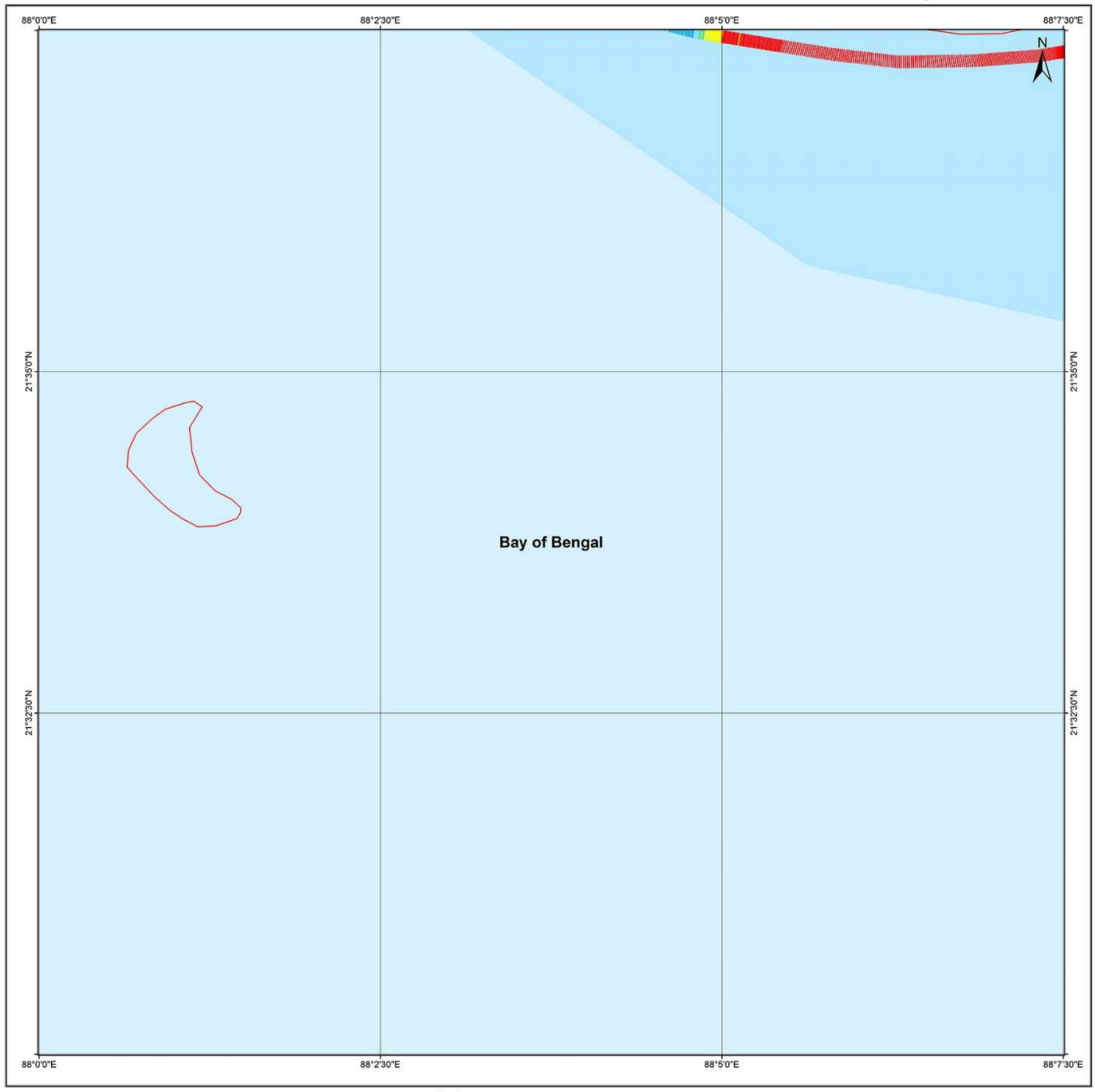
79 C / 2 / SW

Map No. : NCCR/SCM/506



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 09/20/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

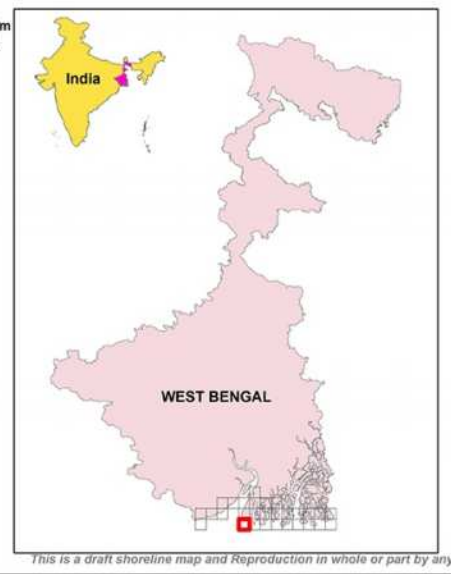
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	09/20/2018
LISS-IV	02/26/2017
LISS-IV	-
LISS-IV	-
LISS-IV	-
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	-
ETM+	11/17/2000
TM	01/03/1989



- Settlements
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SOUTH 24 PARGANAS

SHORELINE CHANGE MAP
WEST BENGAL

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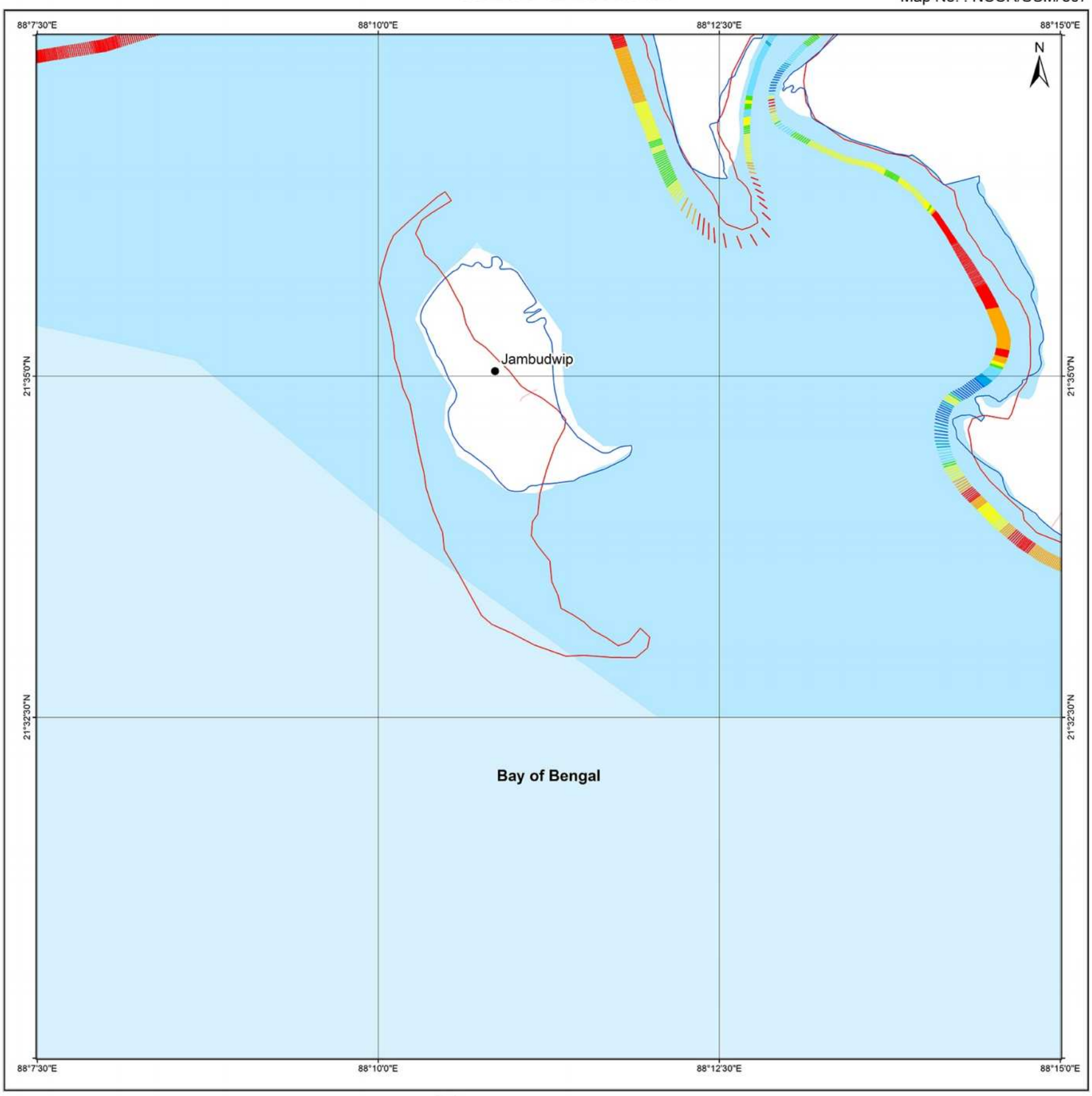
79 C / 2 / SE

Map No. : NCCR/SCM/507



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
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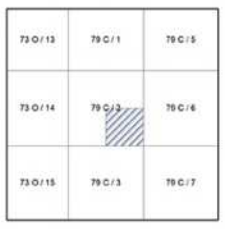

Scale

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1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	09/20/2018
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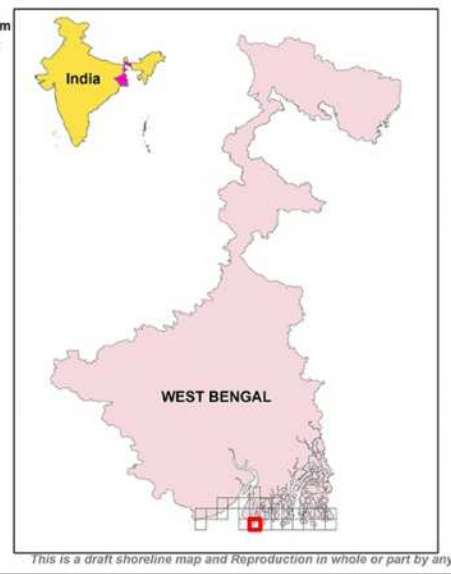
LISS-IV	03/09/2015
LISS-IV	01/01/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989



- Settlements
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SOUTH 24 PARGANAS

SHORELINE CHANGE MAP
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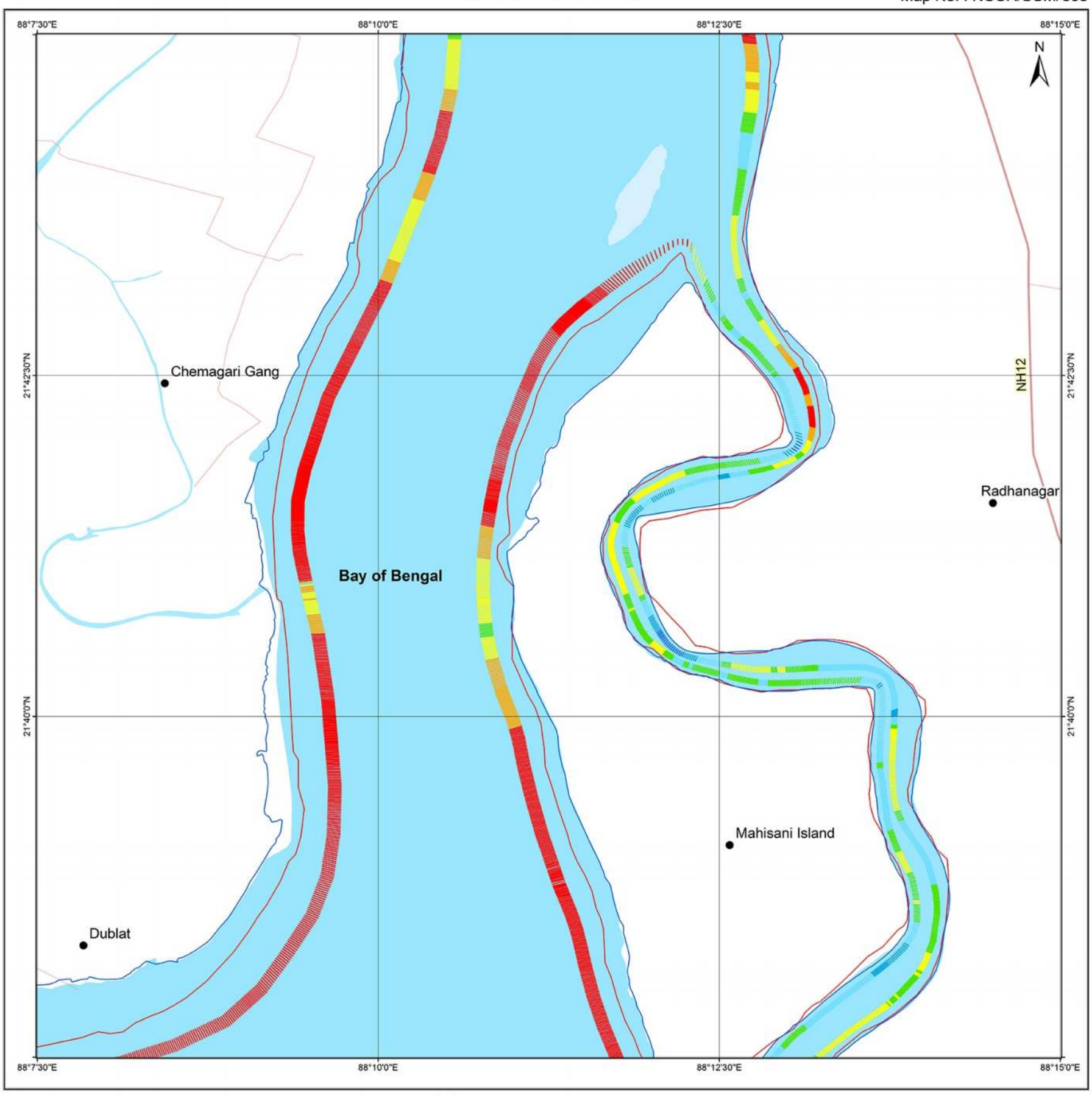
Map No. : NCCR/SCM/508



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
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Scale

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UTM Coordinates Zone 45

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LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
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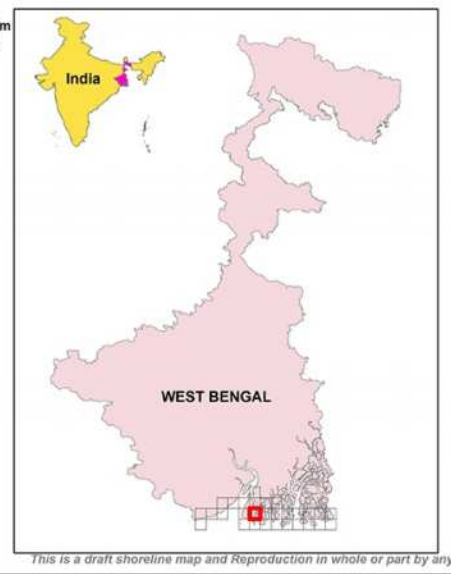
TM	01/03/1989



- Settlements
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SHORELINE CHANGE MAP
WEST BENGAL

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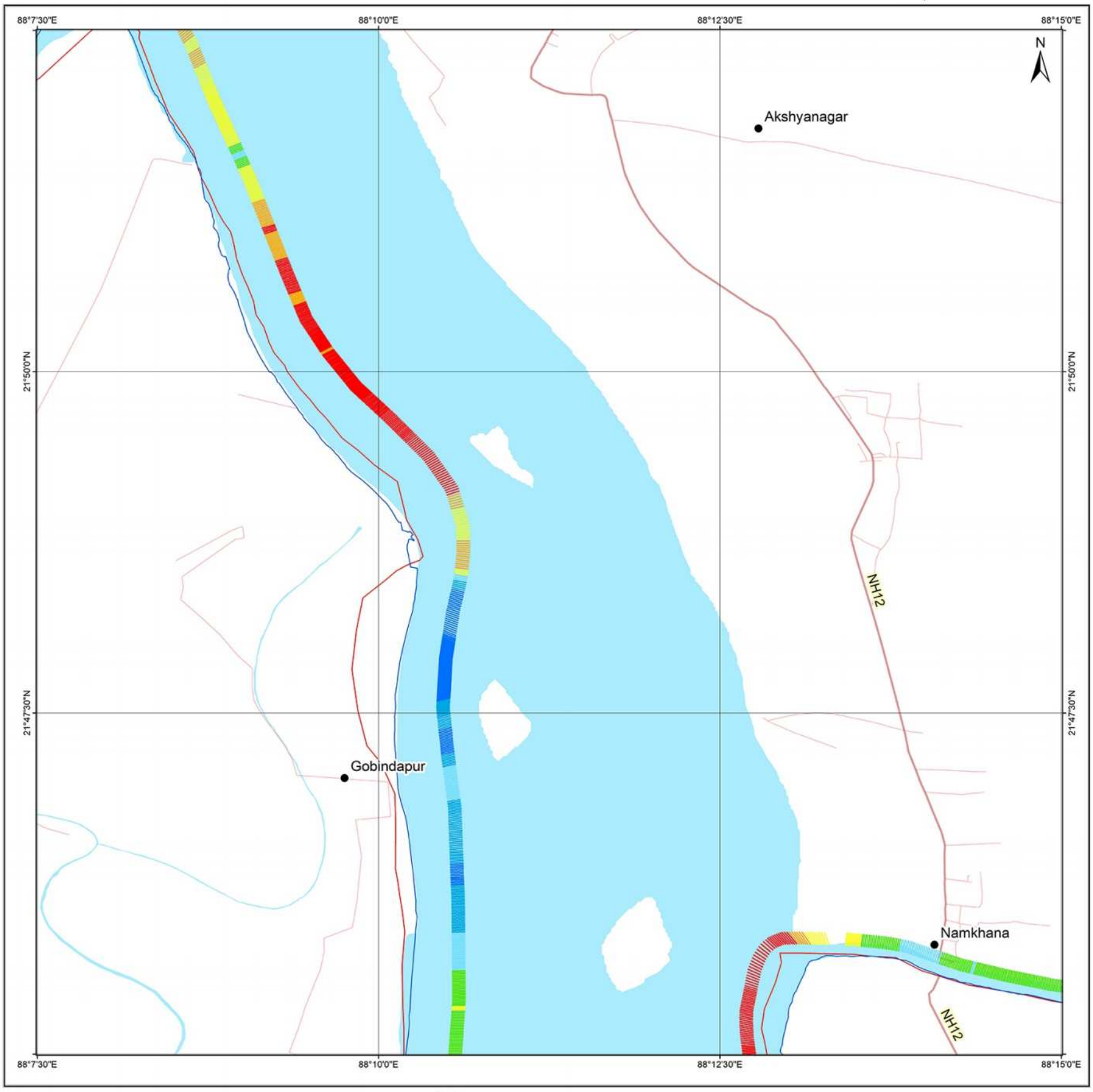
Map No. : NCCR/SCM/509



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
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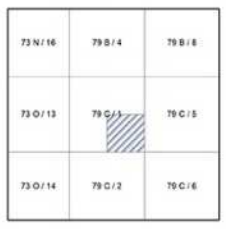

Scale

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UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

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LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
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SHORELINE CHANGE MAP

SOUTH 24 PARGANAS

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Map No. : NCCR/SCM/510

Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

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PAN (Cartosat-1)	07/07/2006
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SOUTH 24 PARGANAS

SHORELINE CHANGE MAP
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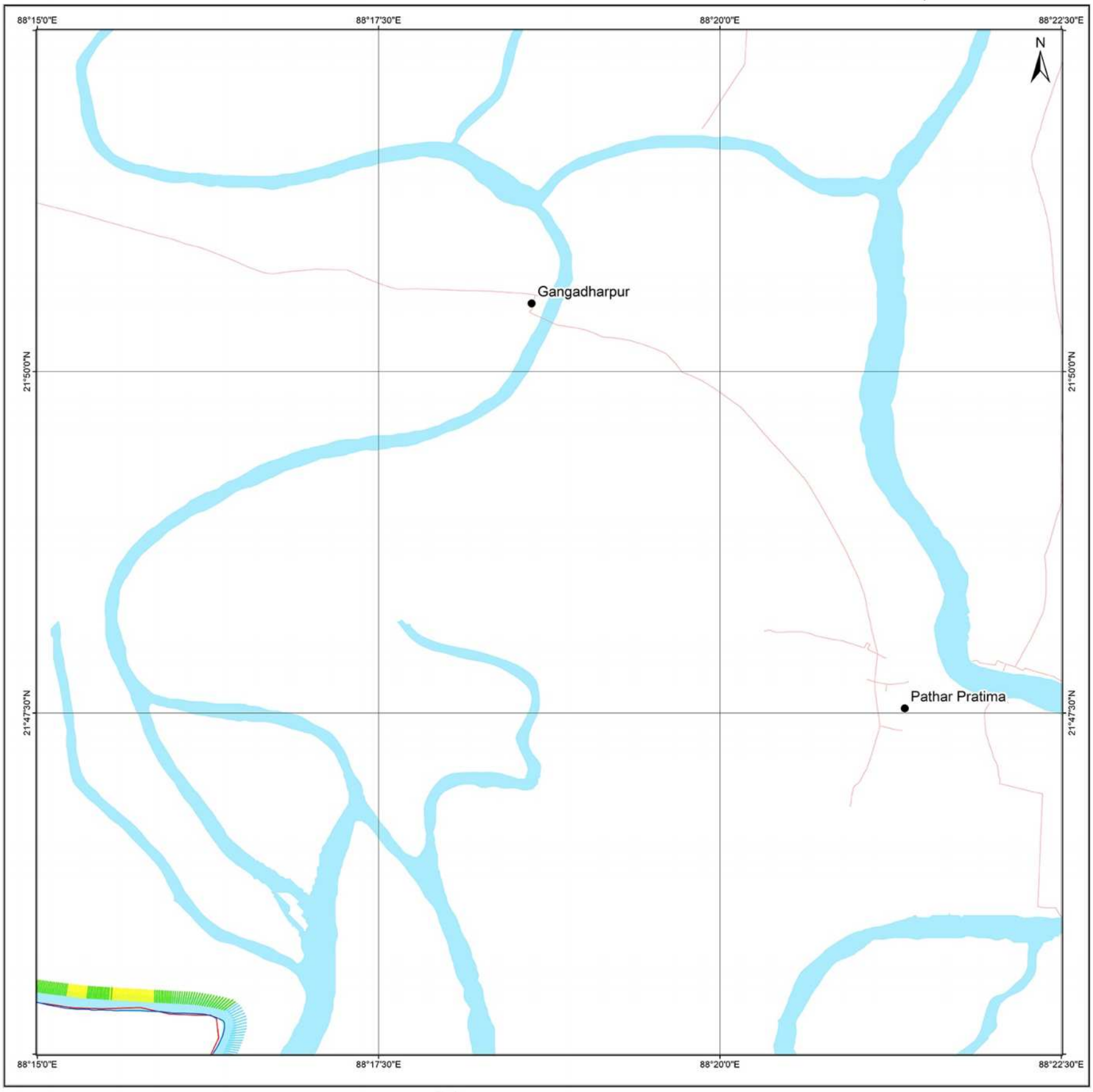
79 C / 5 / SW

Map No. : NCCR/SCM/511



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 09/20/2018

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Incidence on 1:50,000 Sheets

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	09/20/2018
LISS-IV	02/26/2017
LISS-IV	11/24/2016
LISS-IV	03/09/2015
LISS-IV	01/01/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989

- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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1990 - 2018

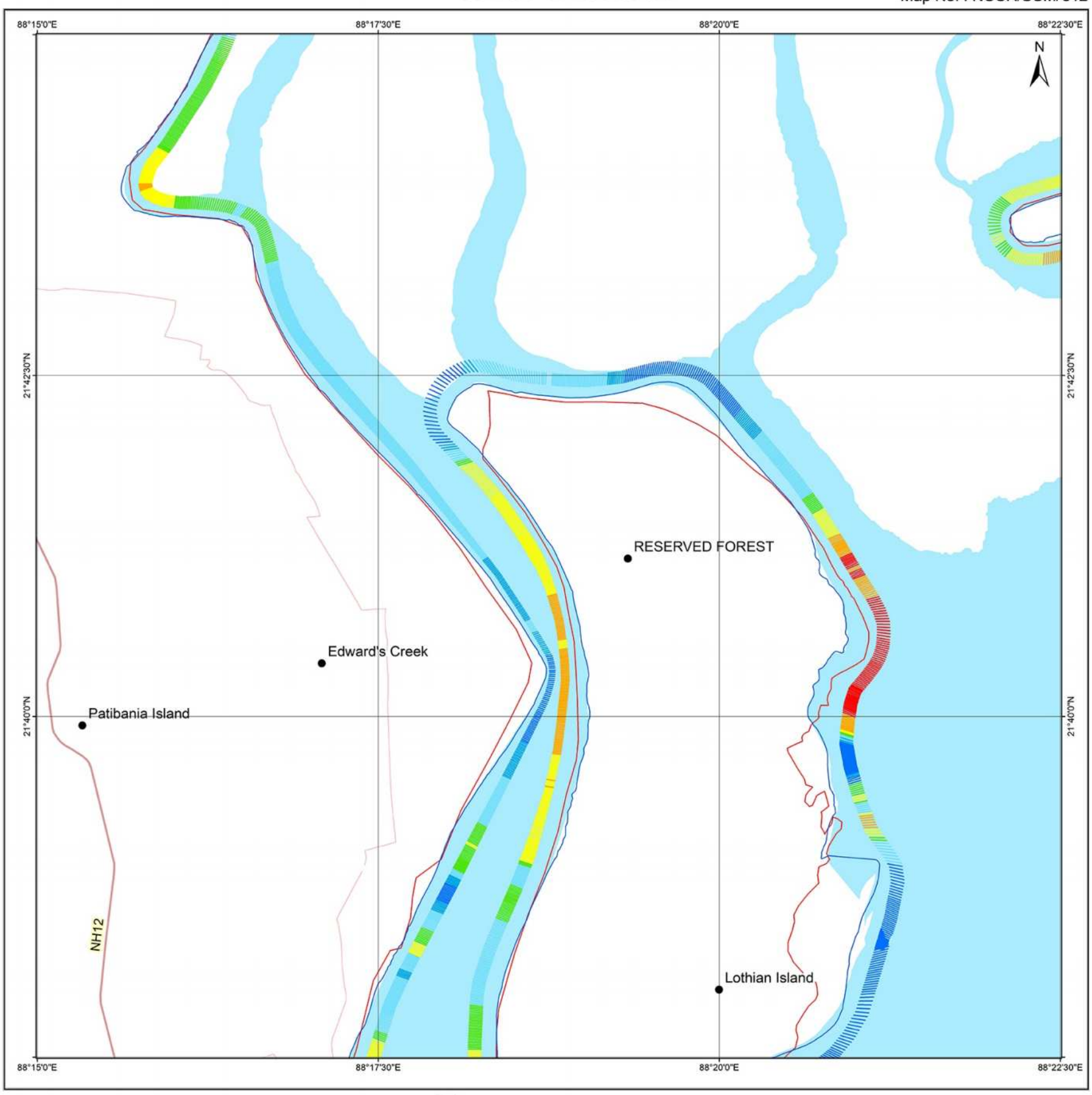
SOUTH 24 PARGANAS

SHORELINE CHANGE MAP
WEST BENGAL

Restricted Use

79 C / 6 / NW

Map No. : NCCR/SCM/512



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 09/20/2018 & 10/05/2018

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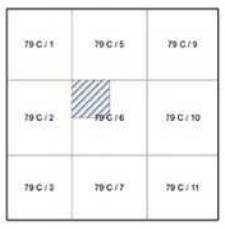
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

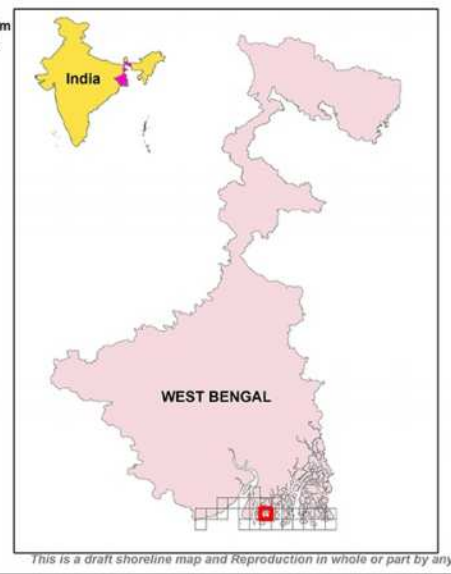
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	09/20/2018 & 10/05/2018
LISS-IV	02/26/2017 & 02/02/2017
LISS-IV	01/15/2016 & 11/24/2016
LISS-IV	02/13/2015 & 03/09/2015
LISS-IV	01/01/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
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1990 - 2018

SHORELINE CHANGE MAP

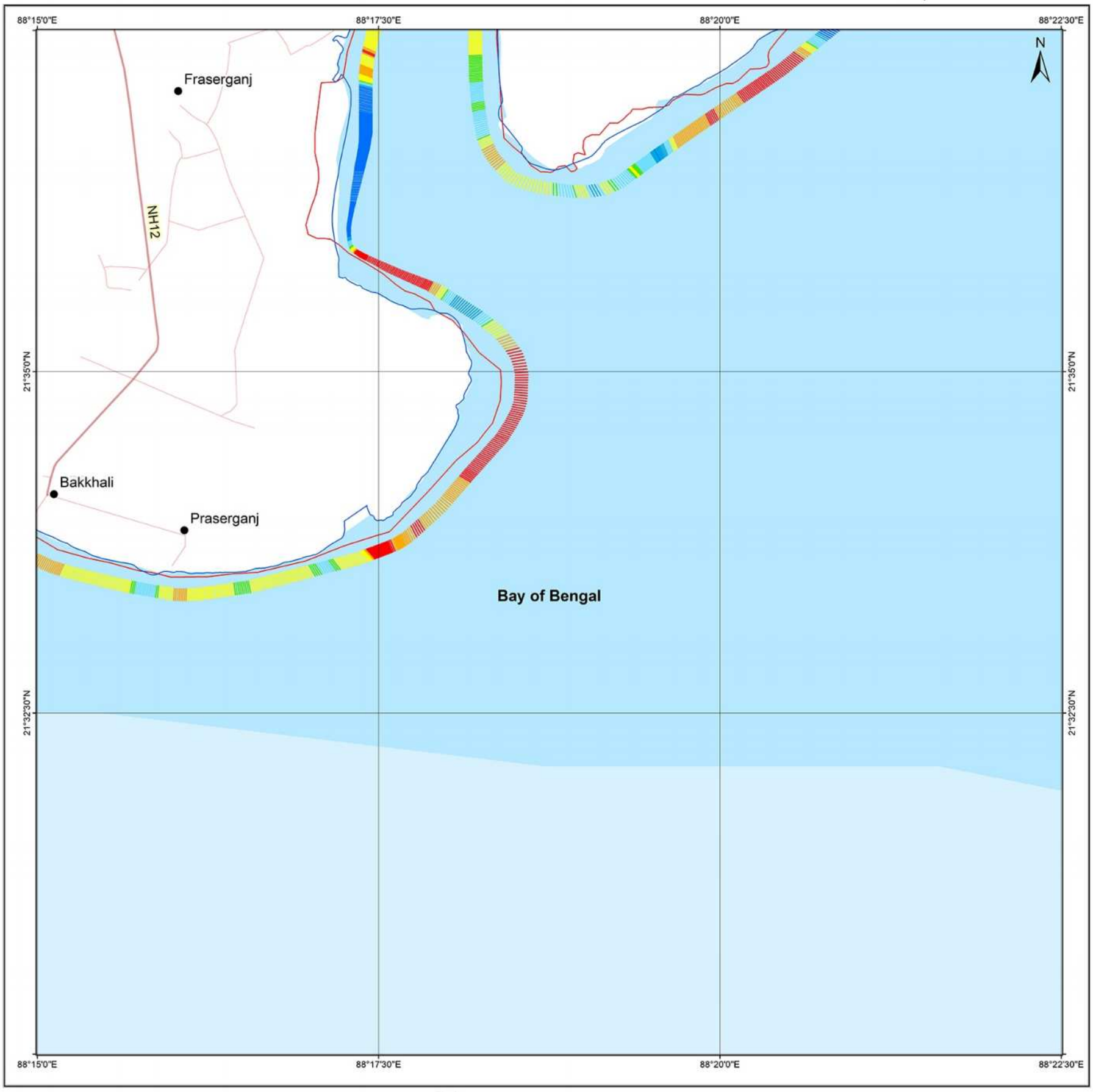
SOUTH 24 PARGANAS

WEST BENGAL

Restricted Use

79 C / 6 / SW

Map No. : NCCR/SCM/513



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 09/20/2018 & 10/05/2018

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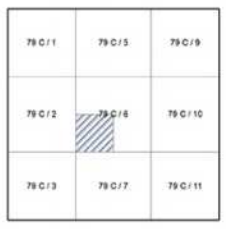


Scale

1000 m 500 0 1 2 km

1:25,000

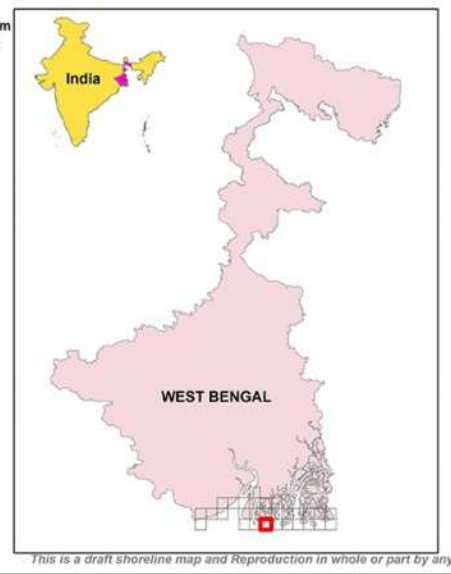
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	09/20/2018 & 10/05/2018
LISS-IV	02/26/2017 & 02/02/2017
LISS-IV	01/15/2016
LISS-IV	02/13/2015 & 03/09/2015
LISS-IV	01/01/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989



- Settlements
- Port
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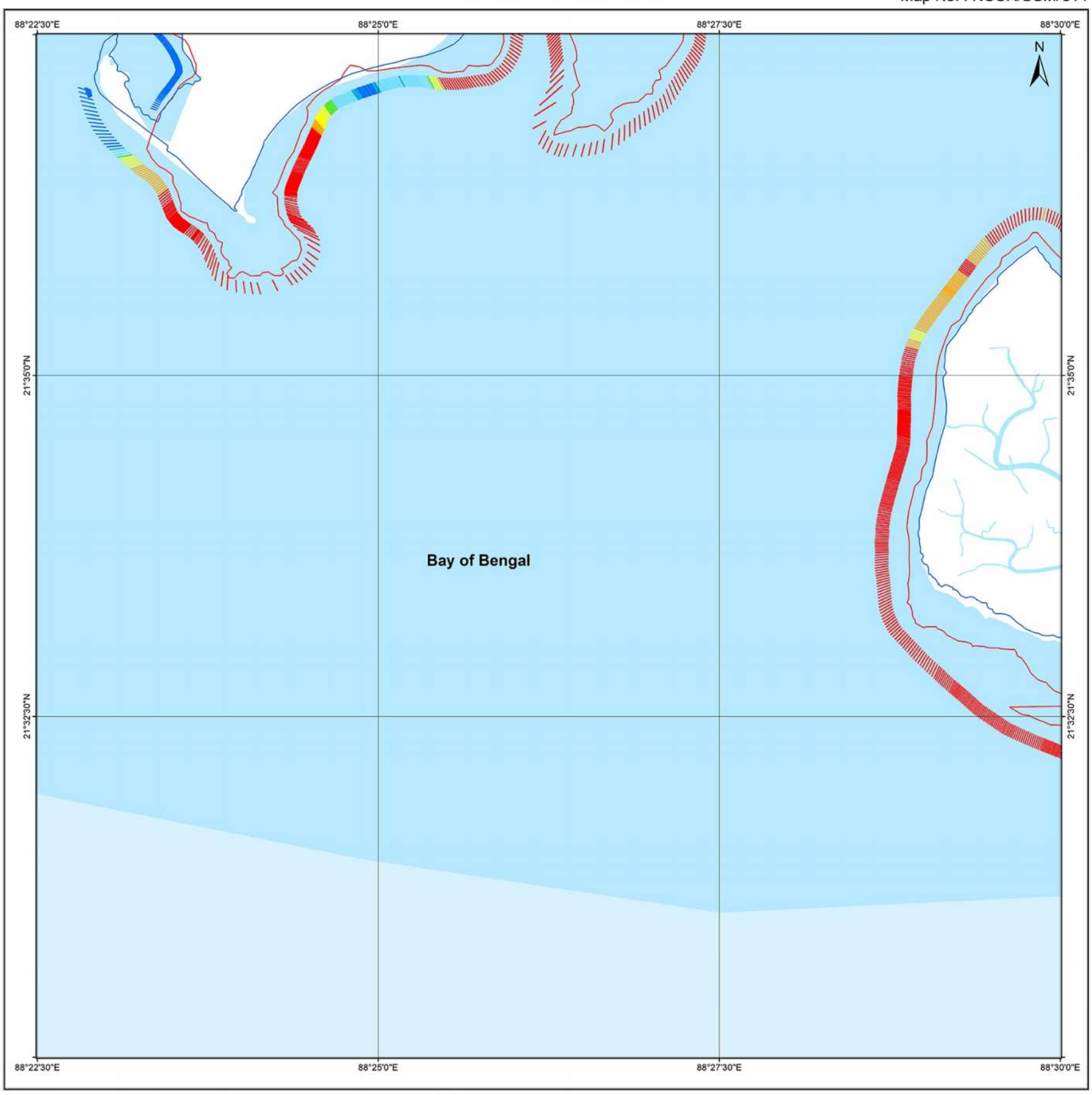
SOUTH 24 PARGANAS

SHORELINE CHANGE MAP
WEST BENGAL

Restricted Use

79 C / 6 / SE

Map No. : NCCR/SCM/514



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 10/05/2018

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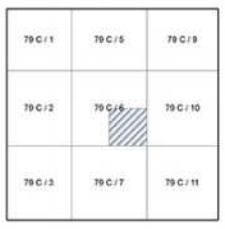


Scale

1000 m 500 0 1 2 km

1:25,000

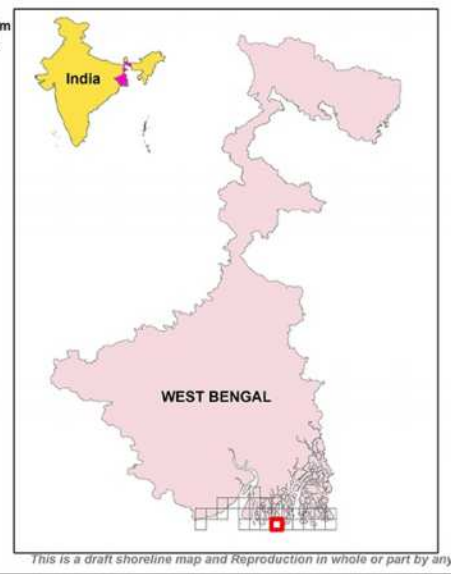
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/05/2018
LISS-IV	02/02/2017
LISS-IV	01/15/2016
LISS-IV	02/13/2015
LISS-IV	03/14/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989



- Settlements
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SOUTH 24 PARGANAS

SHORELINE CHANGE MAP
WEST BENGAL

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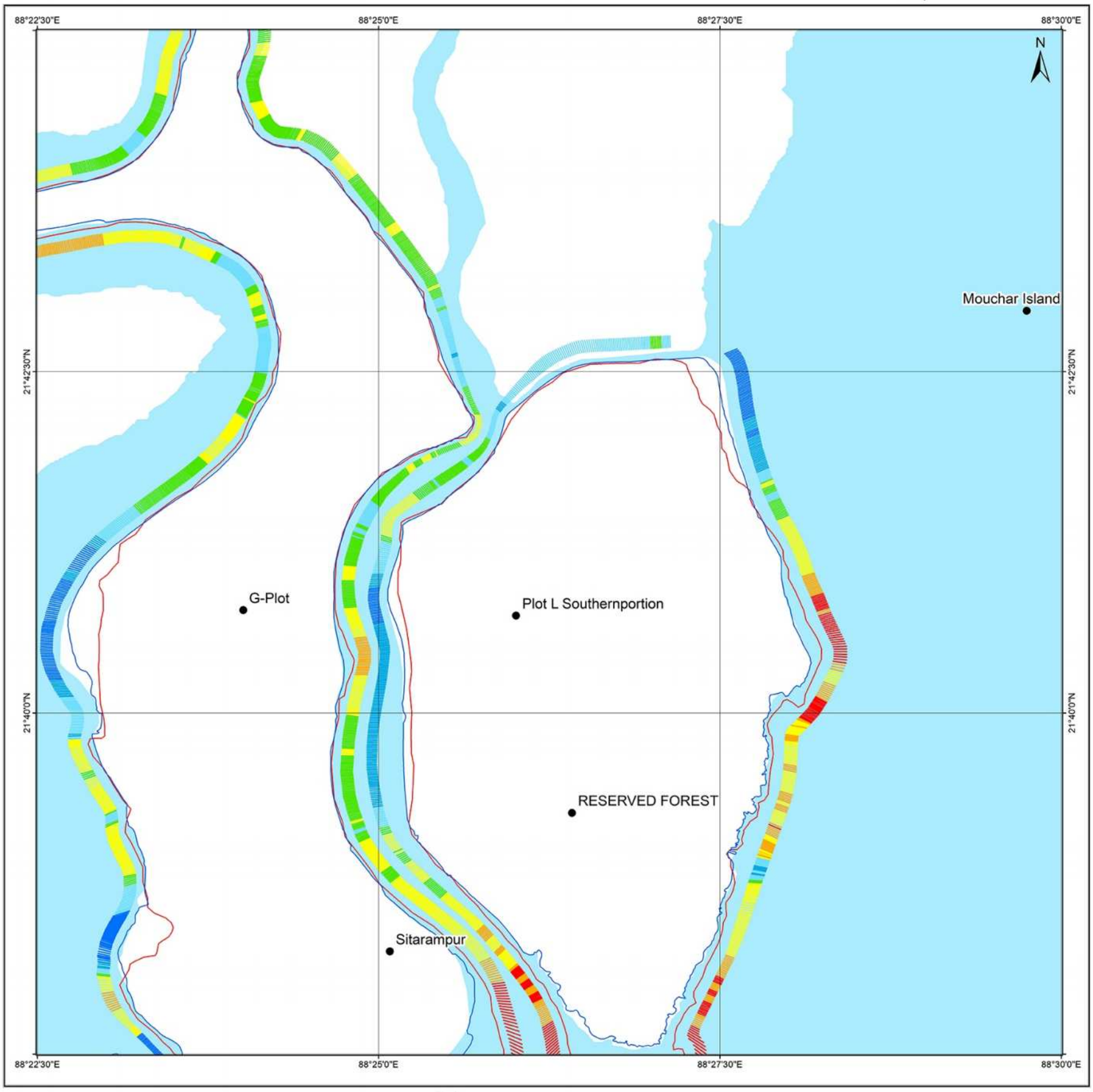
79 C / 6 / NE

Map No. : NCCR/SCM/515



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 10/05/2018

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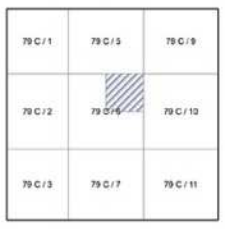


Scale

1000 m 500 0 1 2 km

1:25,000

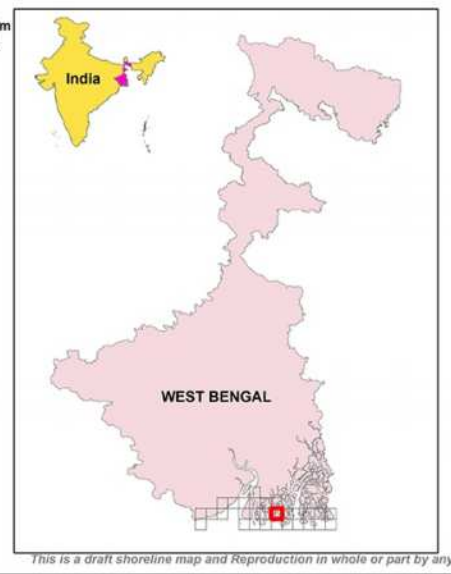
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/05/2018
LISS-IV	02/02/2017
LISS-IV	01/15/2016
LISS-IV	02/13/2015
LISS-IV	03/14/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989



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SHORELINE CHANGE MAP

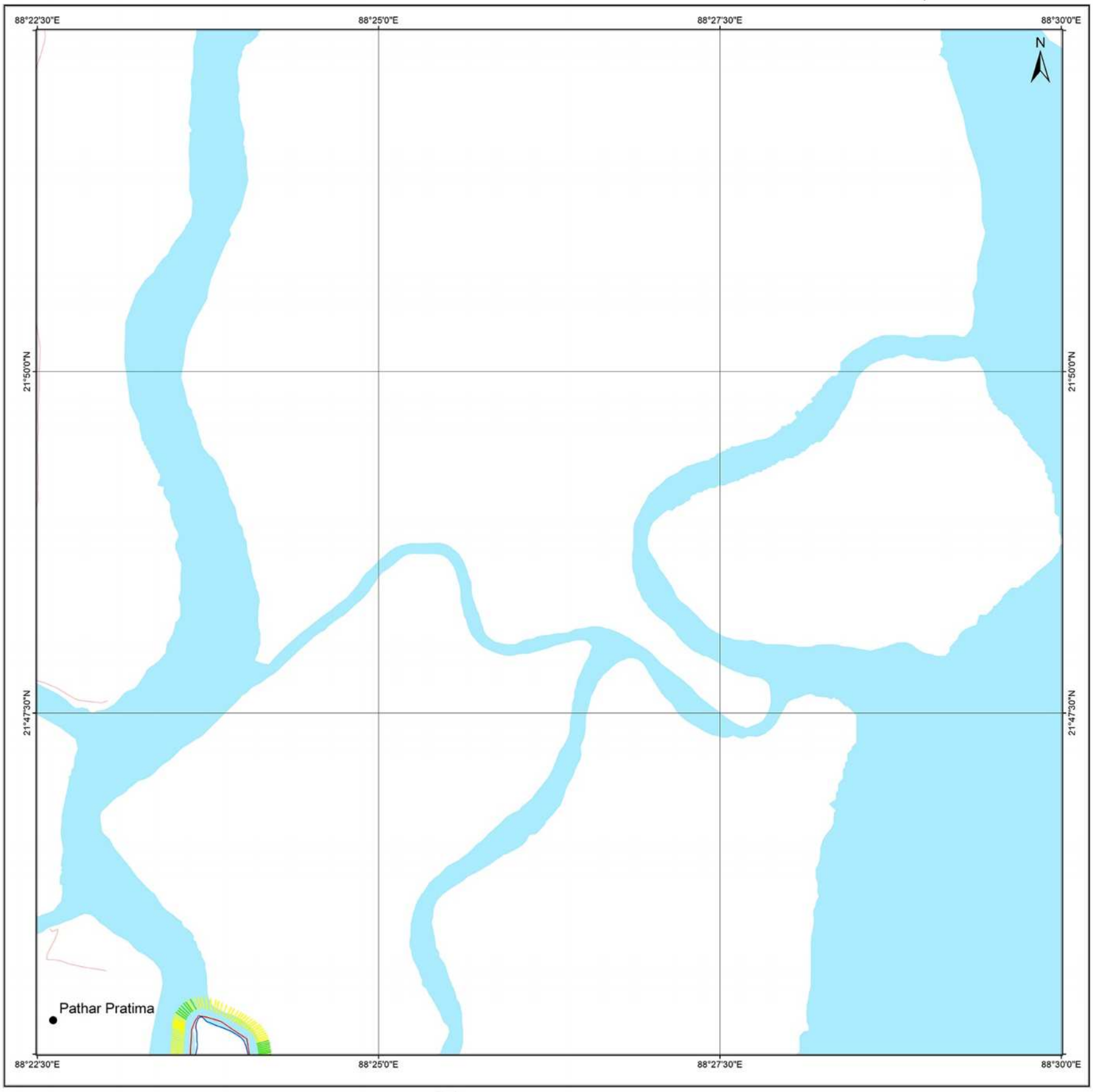
SOUTH 24 PARGANAS

WEST BENGAL

Restricted Use

79 C / 5 / SE

Map No. : NCCR/SCM/516



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 10/05/2018

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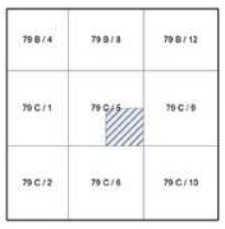
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/05/2018
LISS-IV	02/02/2017
LISS-IV	01/15/2016
LISS-IV	02/13/2015
LISS-IV	03/14/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989

- Settlements
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- Groynes
- Jetty
- Seawall/Ripraps
- Rocky Coast
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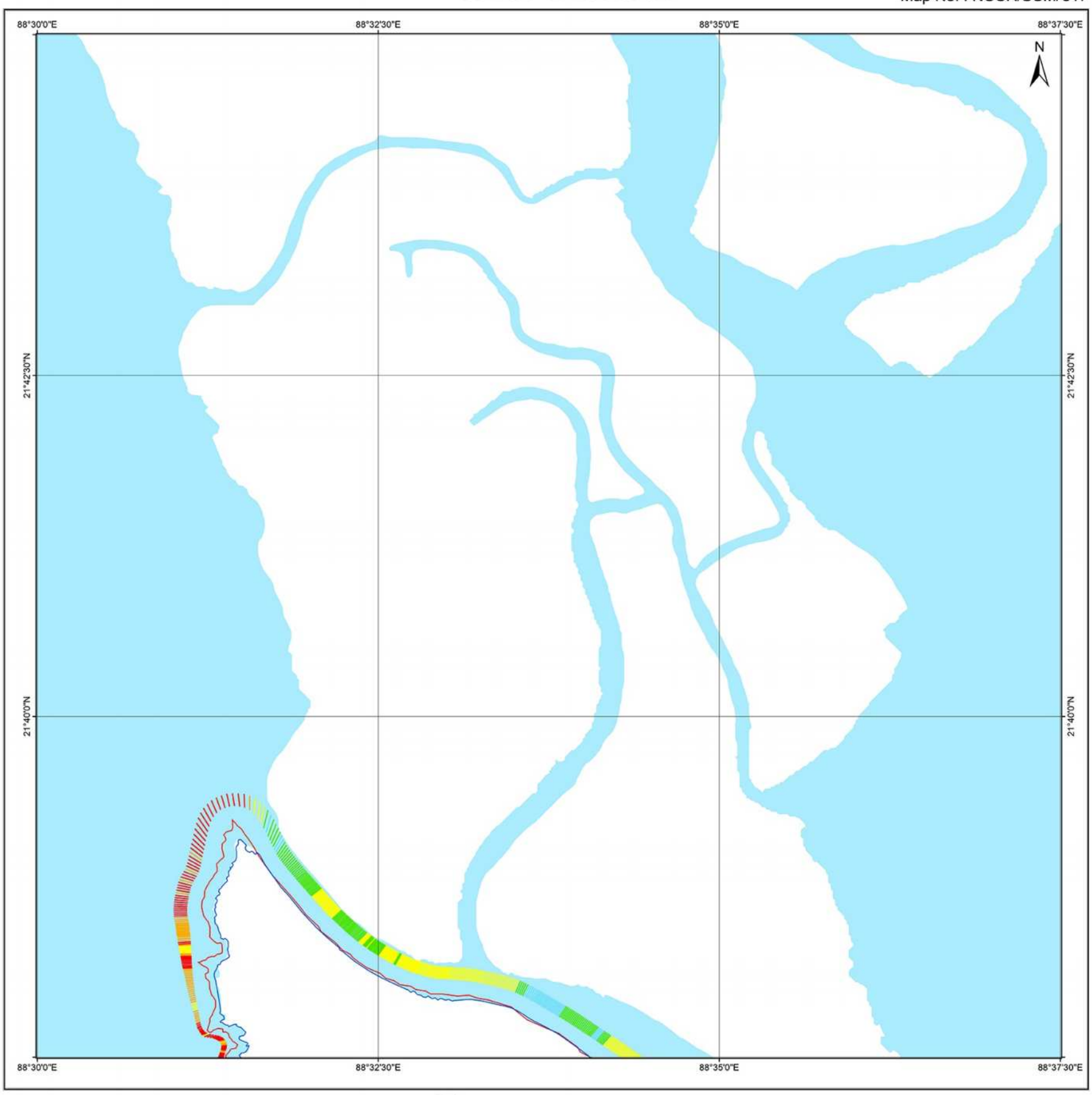
SOUTH 24 PARGANAS

SHORELINE CHANGE MAP
WEST BENGAL

Restricted Use

79 C / 10 / NW

Map No. : NCCR/SCM/517



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 10/05/2018

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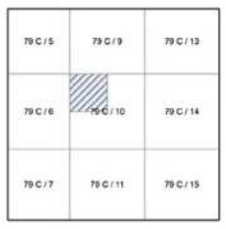
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/05/2018
LISS-IV	02/02/2017
LISS-IV	01/15/2016
LISS-IV	02/13/2015
LISS-IV	03/14/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989

- Settlements
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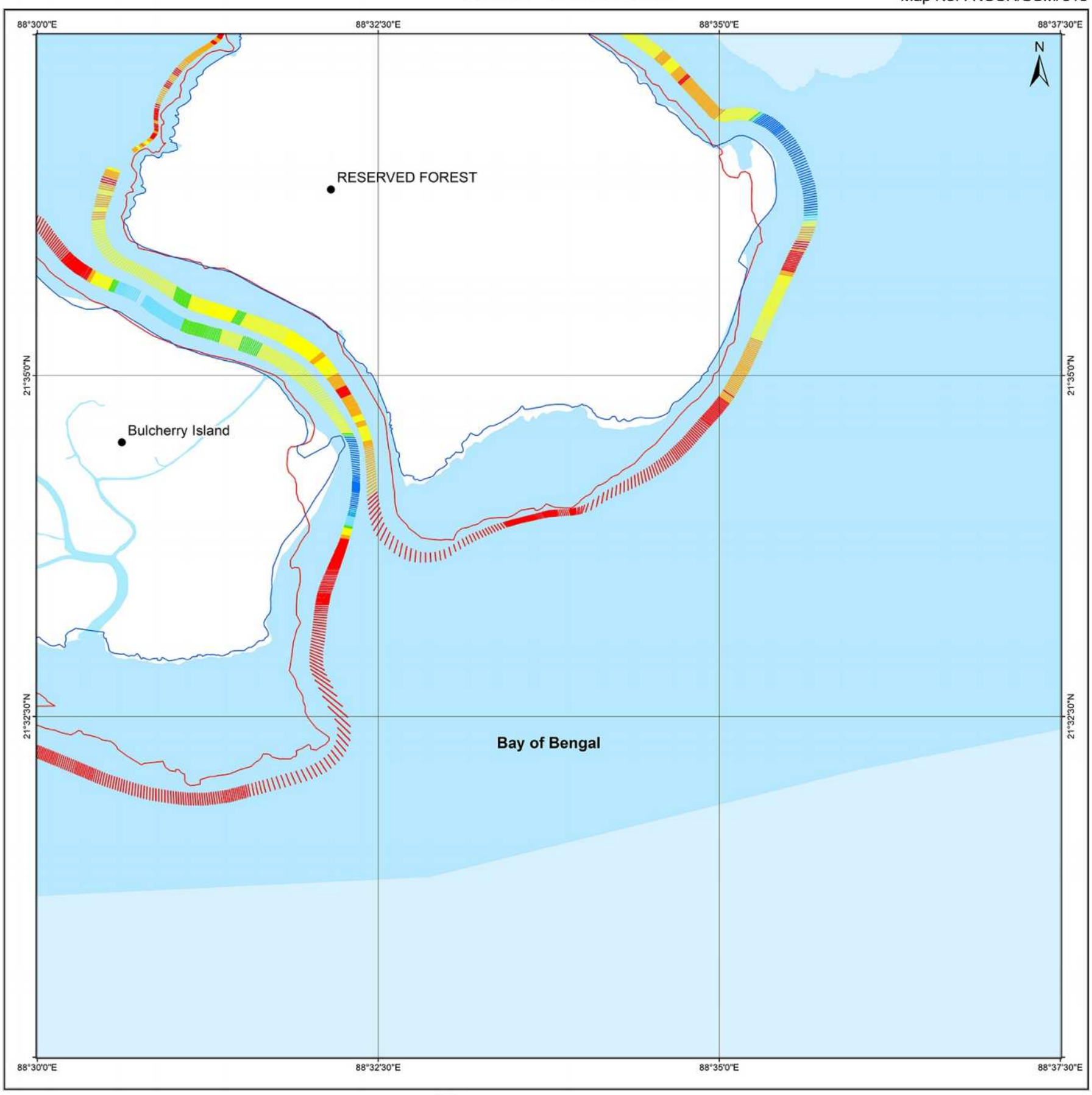
SOUTH 24 PARGANAS

SHORELINE CHANGE MAP
WEST BENGAL

Restricted Use

79 C / 10 / SW

Map No. : NCCR/SCM/518



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 10/05/2018

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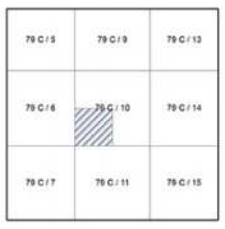


Scale

1000 m 500 0 1 2 km

1:25,000

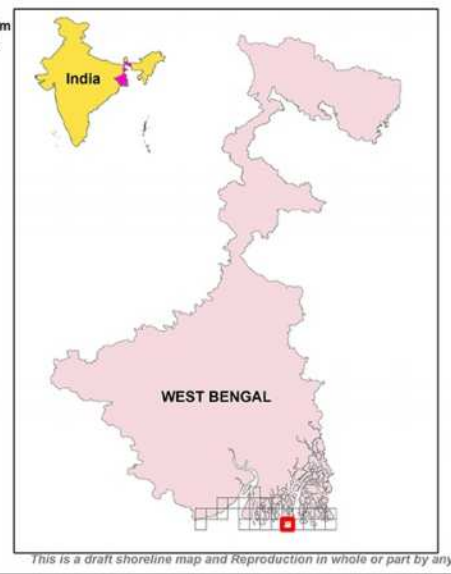
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/05/2018
LISS-IV	02/02/2017
LISS-IV	01/15/2016
LISS-IV	02/13/2015
LISS-IV	03/14/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989



- Settlements
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1990 - 2018

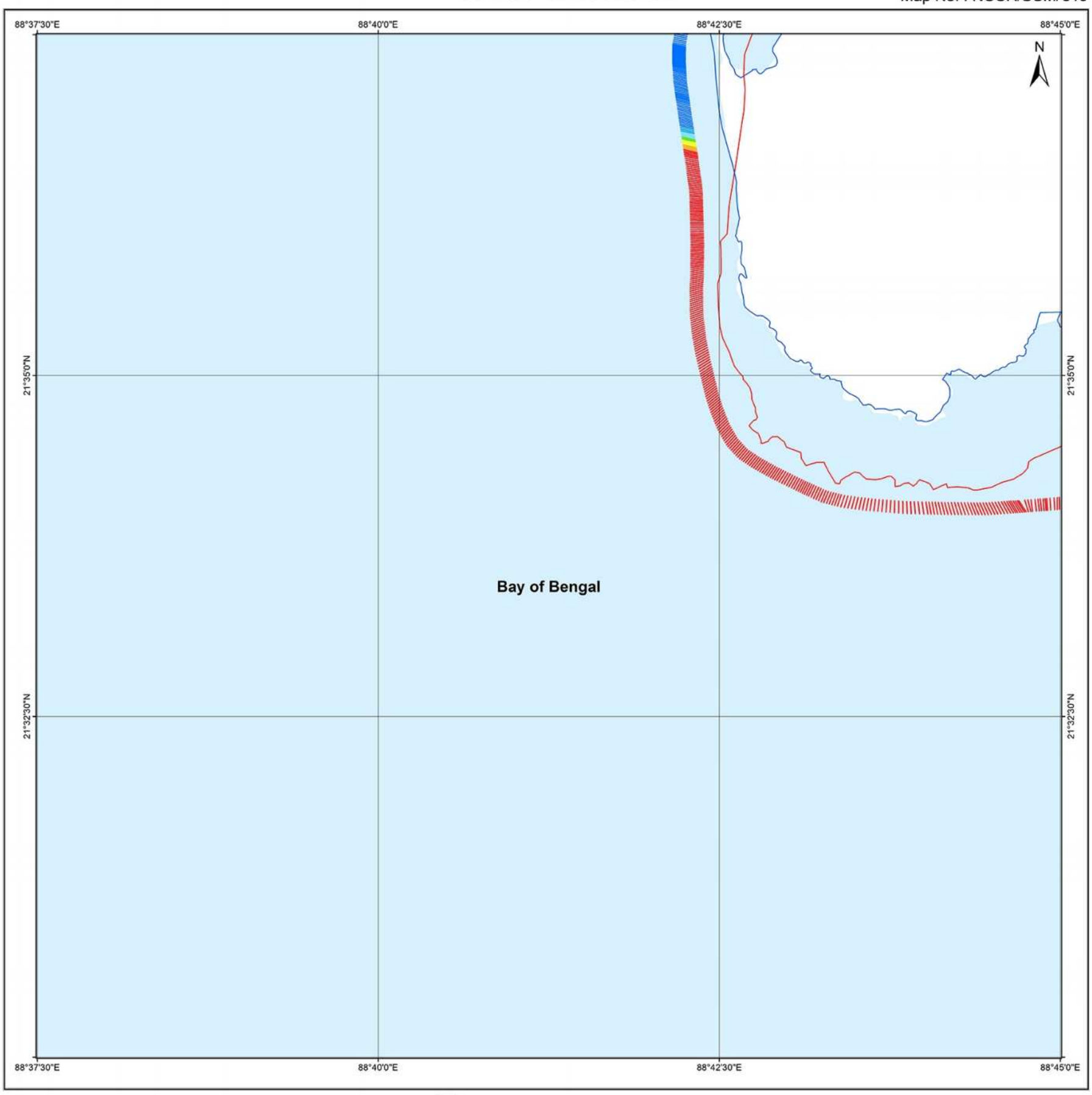
NORTH 24 PARGANAS

SHORELINE CHANGE MAP
WEST BENGAL

Restricted Use

79 C / 10 / SE

Map No. : NCCR/SCM/519



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 10/05/2018

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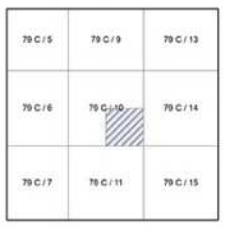
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

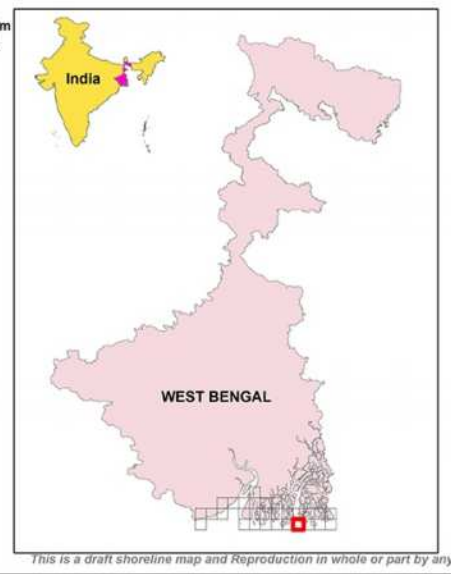
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/05/2018
LISS-IV	03/03/2017
LISS-IV	11/27/2016
LISS-IV	03/14/2015
LISS-IV	03/14/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989



- Settlements
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- Jetty
- Seawall/Ripraps
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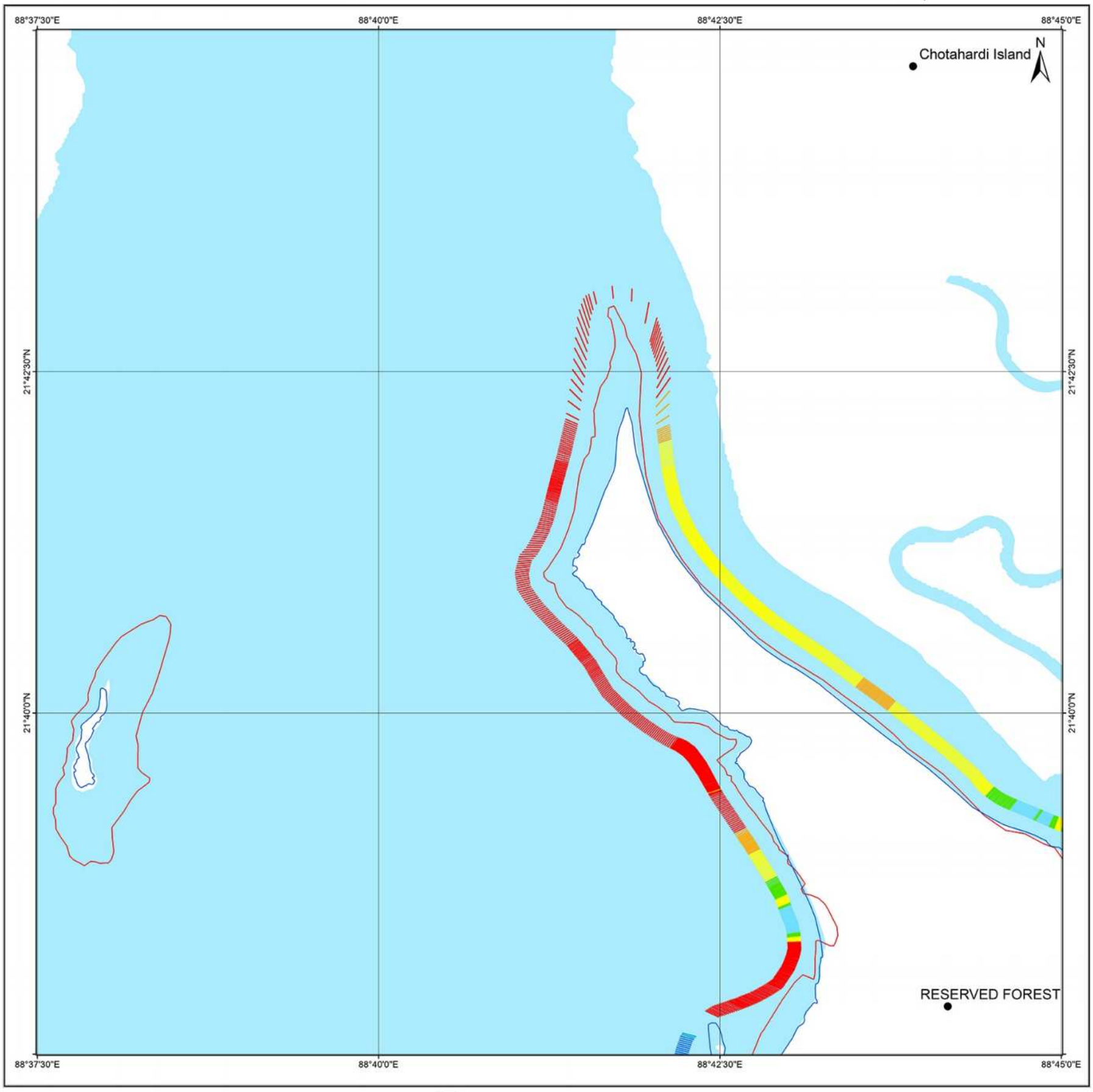
SHORELINE CHANGE MAP
WEST BENGAL

SOUTH 24 PARGANAS &NORTH TWENTY PARGANAS

Restricted Use

79 C / 10 / NE

Map No. : NCCR/SCM/520



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 10/05/2018

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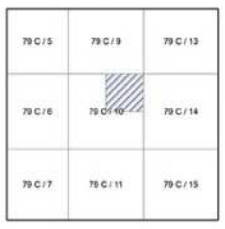

Scale

1000 m 500 0 1 2 km

1:25,000

UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

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LISS-IV	10/05/2018
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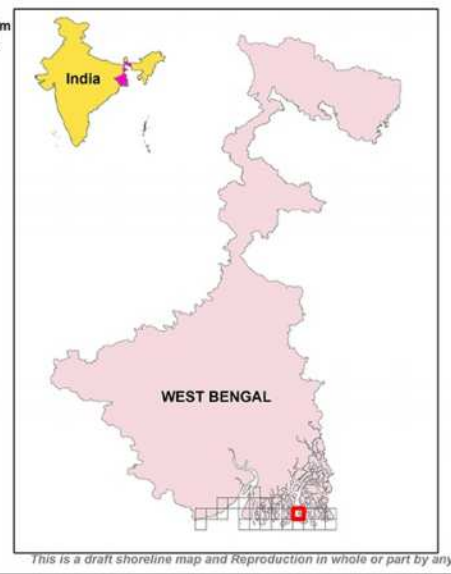
LISS-IV	11/27/2016
LISS-IV	03/14/2015
LISS-IV	03/14/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989



- Settlements
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National Centre for Coastal Research
NIOT Campus, Pallikaranai, Chennai

ESSO

1990 - 2018

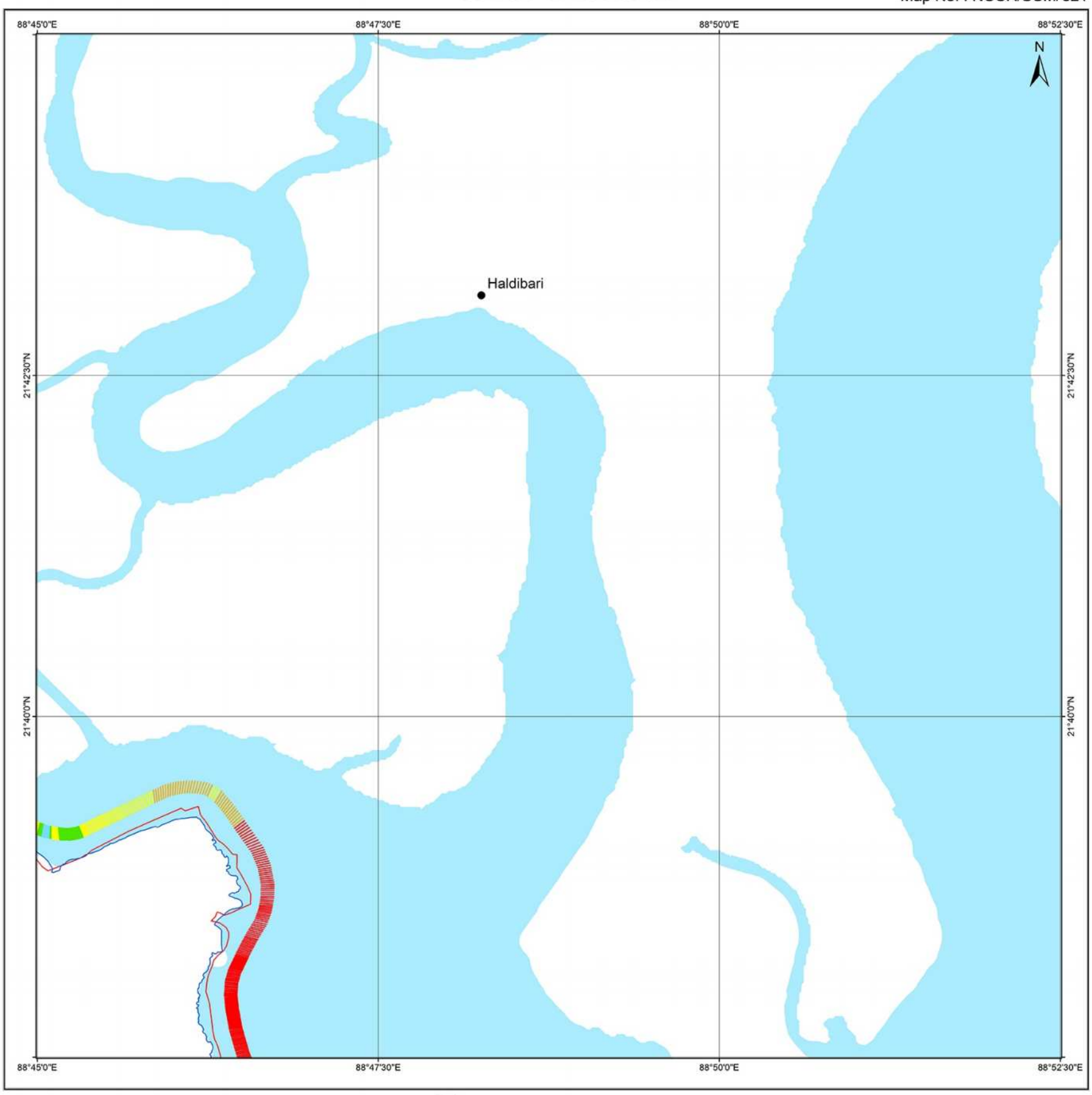
NORTH 24 PARGANAS

SHORELINE CHANGE MAP
WEST BENGAL

Restricted Use

79 C / 14 / NW

Map No. : NCCR/SCM/521



Shoreline Change Trend for Period 1990 - 2018

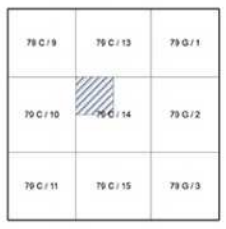
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 10/05/2018

Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

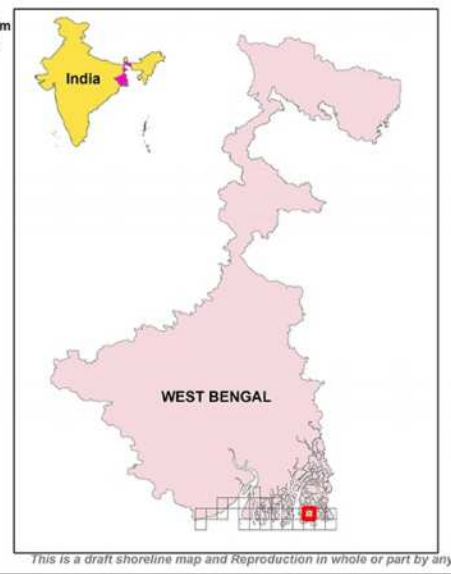
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/05/2018
LISS-IV	03/03/2017
LISS-IV	11/27/2016
LISS-IV	03/14/2015
LISS-IV	03/14/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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1990 - 2018

SHORELINE CHANGE MAP

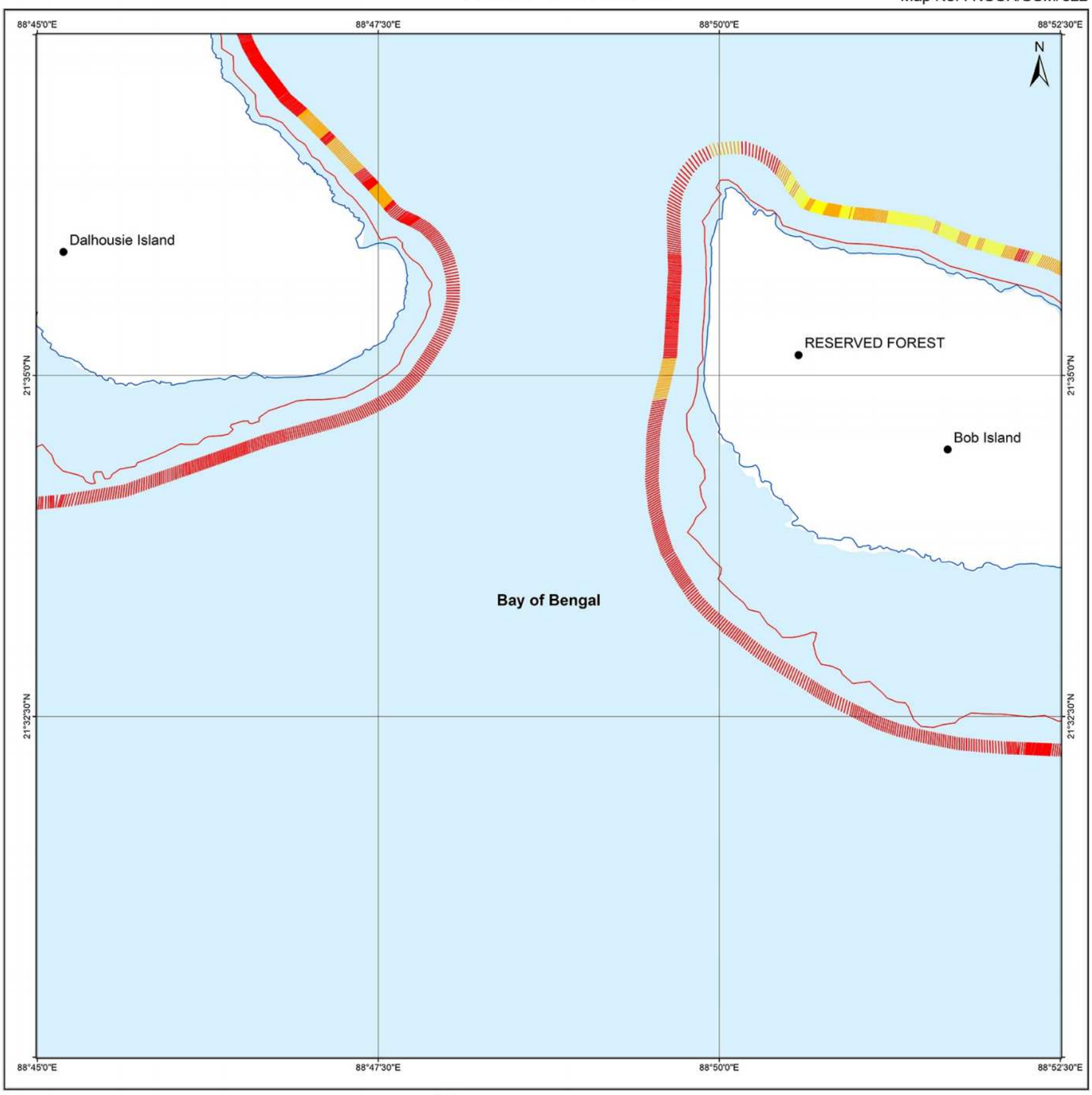
NORTH 24 PARGANAS

WEST BENGAL

Restricted Use

79 C / 14 / SW

Map No. : NCCR/SCM/522



Shoreline Change Trend for Period 1990 - 2018

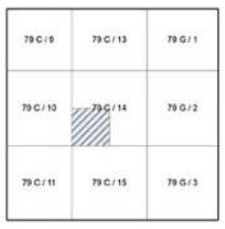
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 10/05/2018

Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

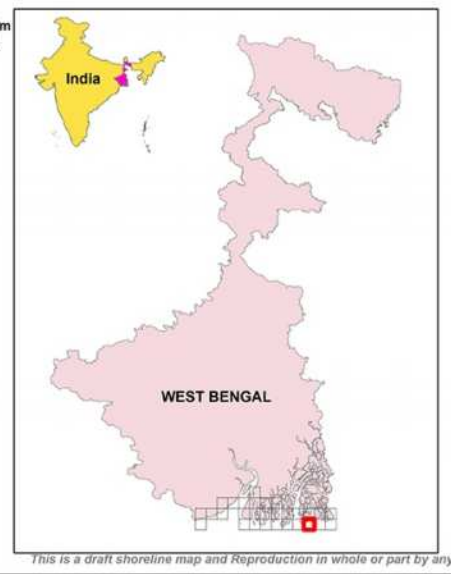
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/05/2018
LISS-IV	03/03/2017
LISS-IV	11/27/2016
LISS-IV	03/14/2015
LISS-IV	03/14/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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1990 - 2018

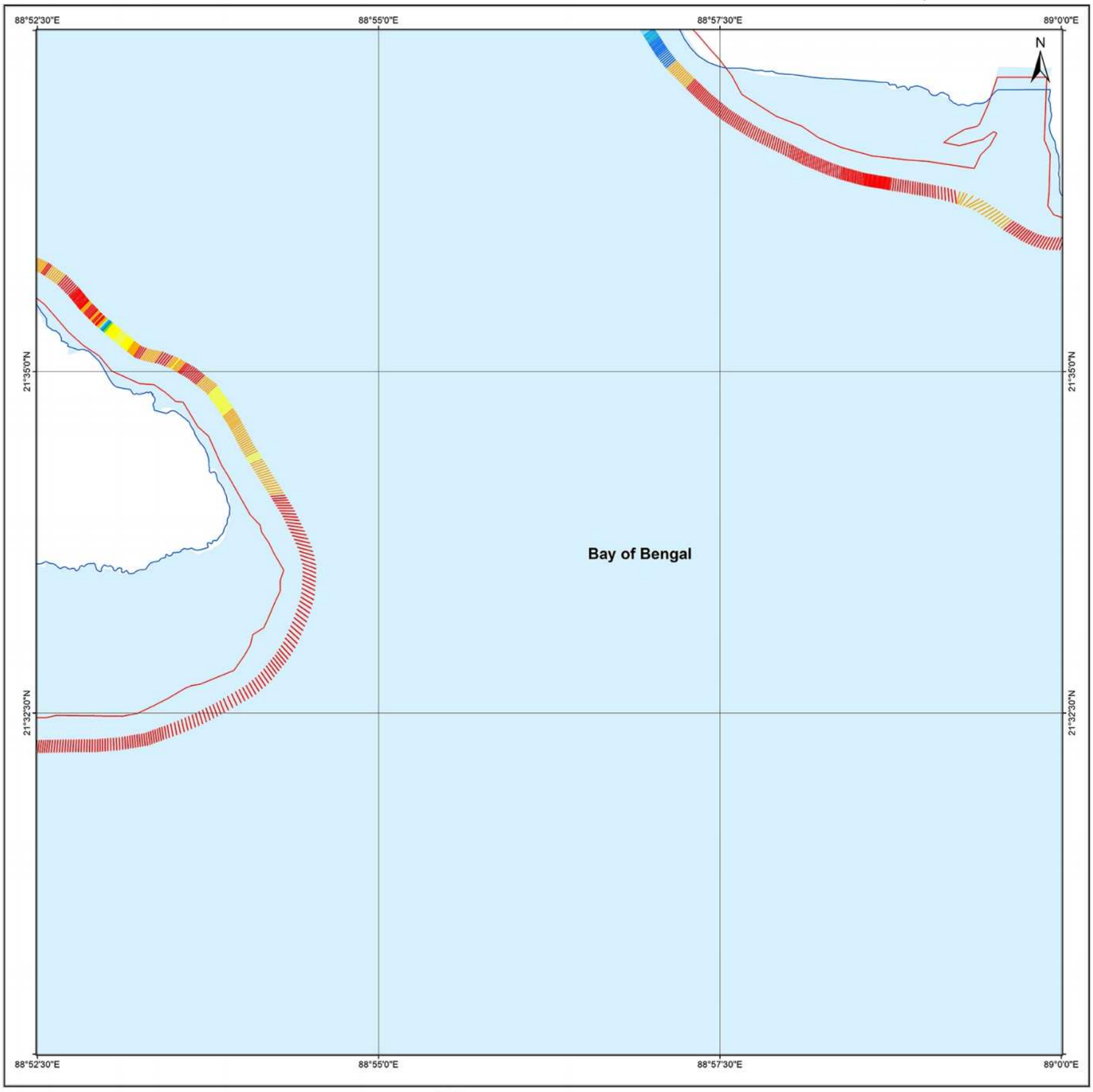
NORTH 24 PARGANAS

SHORELINE CHANGE MAP
WEST BENGAL

Restricted Use

79 C / 14 / SE

Map No. : NCCR/SCM/523



Shoreline Change Trend for Period 1990 - 2018

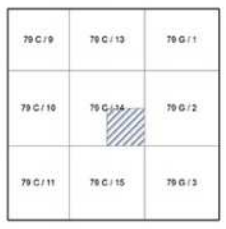
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 10/05/2018 & 11/01/2018

Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

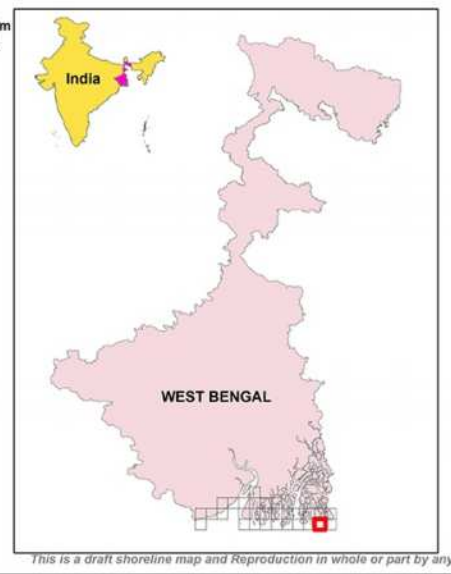
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/05/2018 & 11/01/2018
LISS-IV	03/03/2017
LISS-IV	11/27/2016
LISS-IV	03/14/2015
LISS-IV	04/12/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/2000
TM	01/03/1989



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
- Other Roads
- Railways
- Lakes
- Rivers

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1990 - 2018

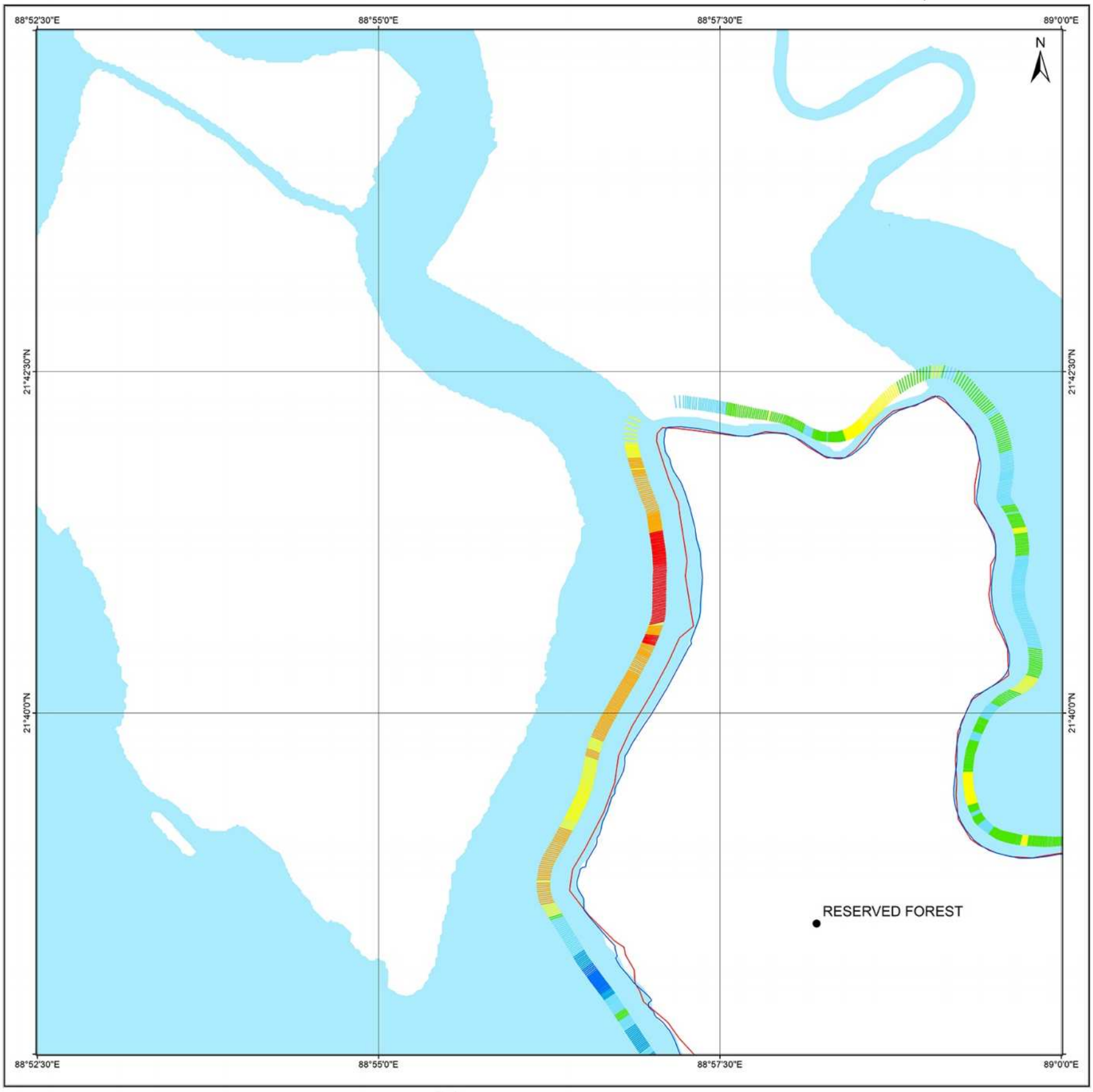
NORTH 24 PARGANAS

SHORELINE CHANGE MAP
WEST BENGAL

Restricted Use

79 C / 14 / NE

Map No. : NCCR/SCM/524



Shoreline Change Trend for Period 1990 - 2018

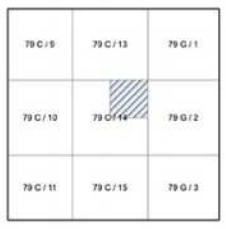
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 10/05/2018 & 11/01/2018

Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

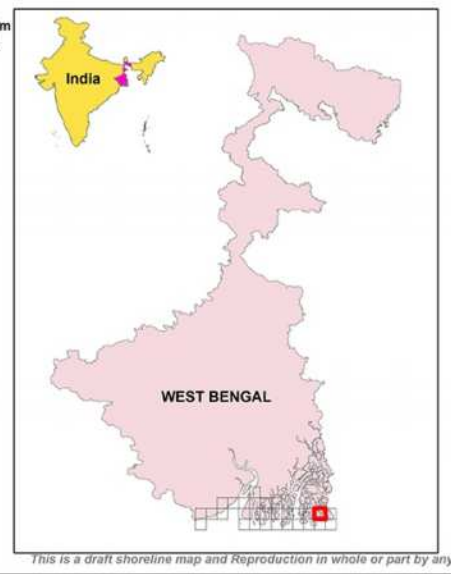
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	10/05/2018 & 11/01/2018
LISS-IV	03/03/2017
LISS-IV	11/27/2016
LISS-IV	03/14/2015
LISS-IV	03/14/2014 & 04/12/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	11/18/2006
ETM+	11/17/2000
TM	01/03/1989



- Settlements
- Port
- Harbour
- Groynes
- Jetty
- Seawall/Ripraps
- Rocky Coast
- Administrative Boundary
- National Highways
- State Highways
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1990 - 2018

SHORELINE CHANGE MAP

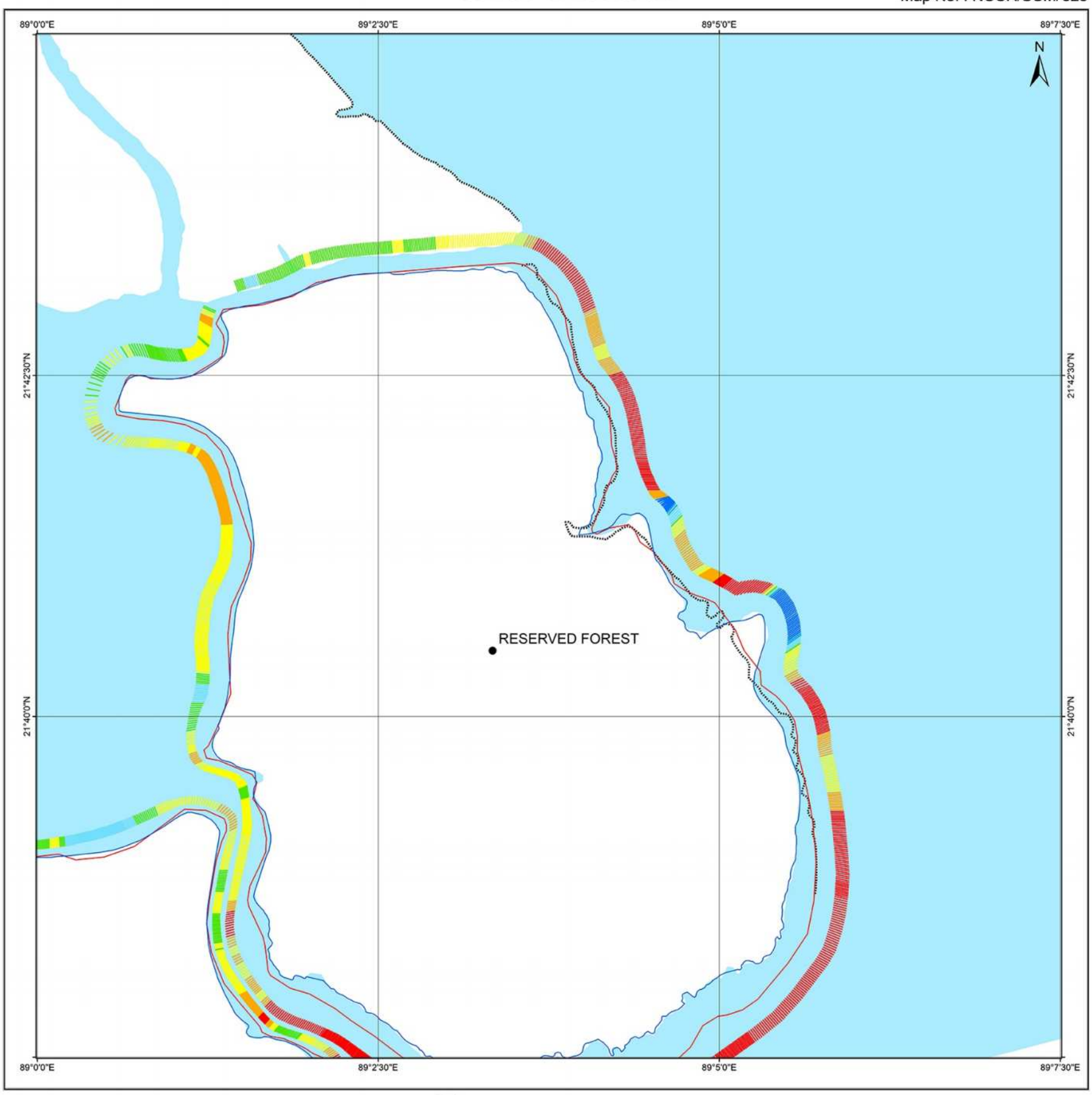
NORTH 24 PARGANAS

WEST BENGAL

Restricted Use

79 G / 2 / NW

Map No. : NCCR/SCM/525



Shoreline Change Trend for Period 1990 - 2018

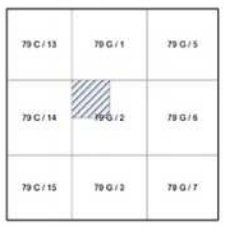
- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 11/01/2018

Index to sheets

Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

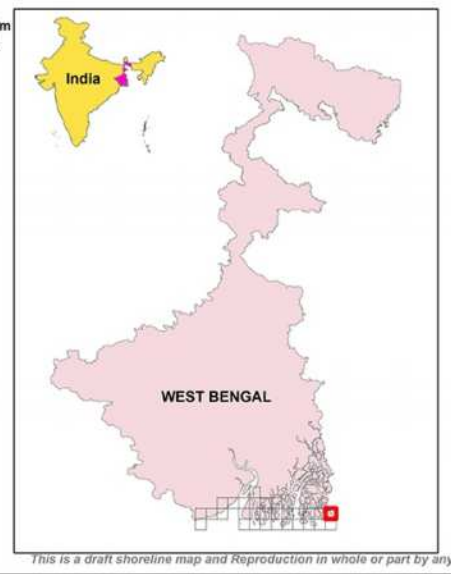
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	11/01/2018
LISS-IV	03/03/2017
LISS-IV	11/27/2016
LISS-IV	03/14/2015
LISS-IV	04/12/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	11/18/2006
ETM+	11/17/2000
TM	01/03/1989



- Settlements
- Port
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- Seawall/Ripraps
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1990 - 2018

SHORELINE CHANGE MAP

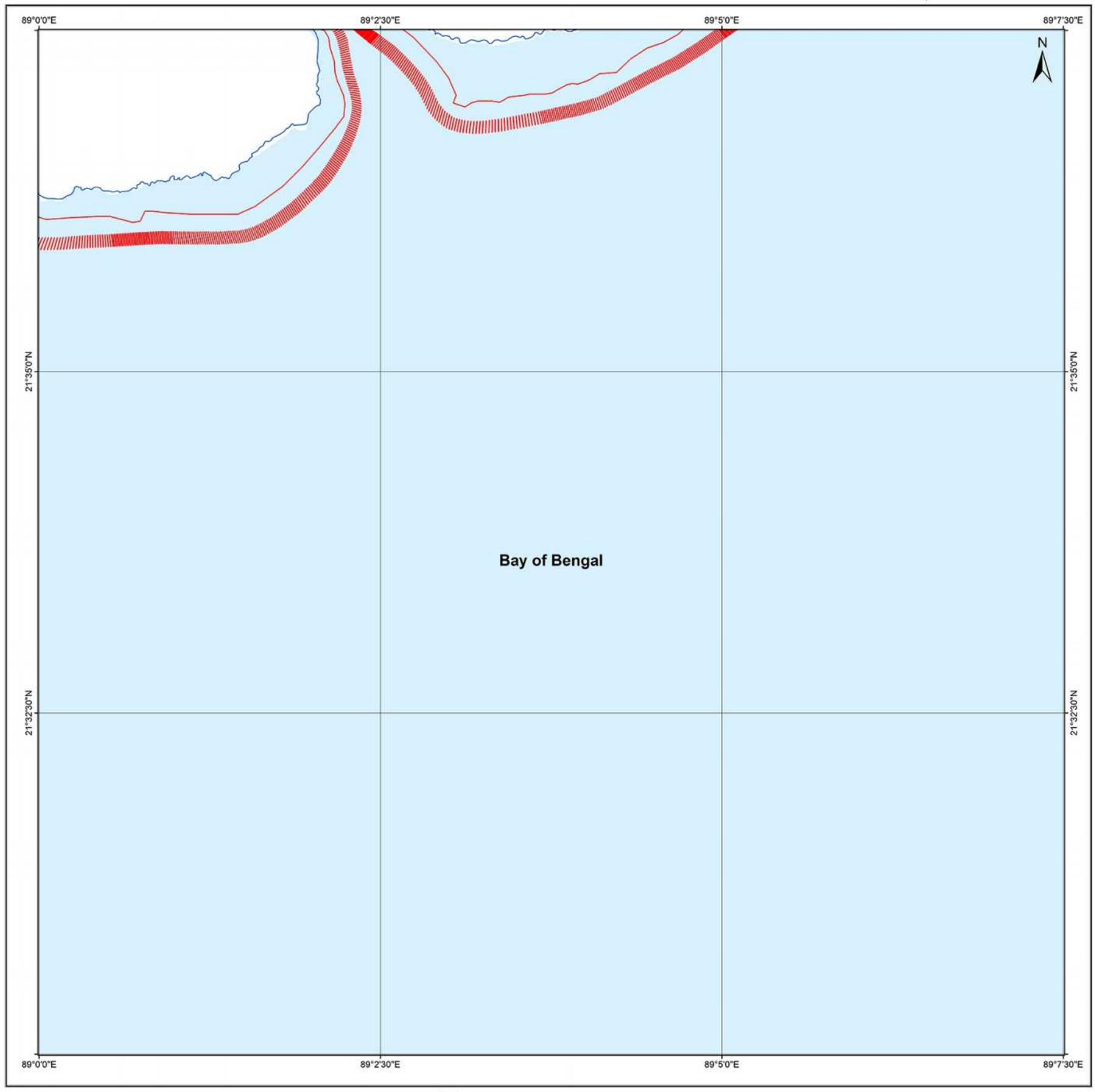
NORTH 24 PARGANAS

WEST BENGAL

Restricted Use

79 G / 2 / SW

Map No. : NCCR/SCM/526



Shoreline Change Trend for Period 1990 - 2018

- High Erosion
- Moderate Erosion
- Low Erosion
- Stable Coast
- Low Accretion
- Moderate Accretion
- High Accretion

Shoreline date

- 01/03/1989
- 11/01/2018

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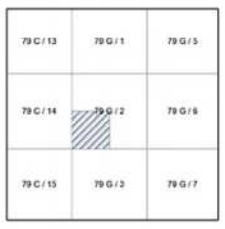
Incidence on 1:50,000 Sheets



Scale

1000 m 500 0 1 2 km

1:25,000

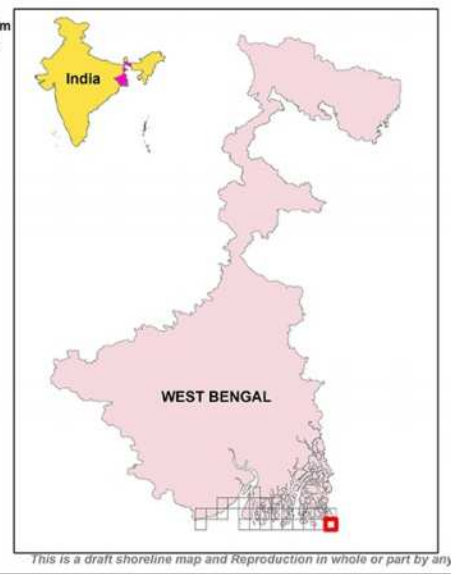
UTM Coordinates Zone 45

Datum : The World Geodetic System 1984 (WGS84)

Spheroid : The World Geodetic System 1984 (WGS84)

Data Sources: Satellite Data

Sensors	Date of acquisition
LISS-IV	11/01/2018
LISS-IV	03/03/2017
LISS-IV	11/27/2016
LISS-IV	03/14/2015
LISS-IV	04/12/2014
LISS-IV	-
LISS-IV	-
LISS-III	-
PAN (Cartosat-1)	07/07/2006
ETM+	11/17/200
TM	01/03/1989



- Settlements
- Port
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- Seawall/Ripraps
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ANNEXURE

Grid Details - For Shoreline Change Maps (1990-2018) in 1:25000

East Coast of India

Tamil Nadu

SL NO	TOPO NO	GRID NO	DISTRICT	PAGE NO
1	58 H/3/ SE	283	Kanyakumari	25
2	58 h /4/NE	284	Kanyakumari	26
3	58 H/8/NW	285	Kanyakumari	27
4	58 H/8/SW	286	Kanyakumari	28
5	58 H/8/SE	287	Kanyakumari	29
6	58 H/12/SW	288	Kanyakumari	30
7	58 H/12/NW	289	Tirunelveli & Kanyakumari	31
8	58 H/12/NE	290	Tirunelveli	32
9	58 H/16/NW	291	Tirunelveli	33
10	58 H/15/SW	292	Thoothukudi & Tirunelveli	34
11	58 H/15/SE	293	Thoothukudi & Tirunelveli	35
12	58 L/3/SW	294	Thoothukudi	36
13	58 L/3/NE	295	Thoothukudi	37
14	58 L /3/NW	296	Thoothukudi	38
15	58 L /2/ SW	297	Thoothukudi	39
16	58 L/2/SE	298	Thoothukudi	40
17	58 L/2/NE	299	Thoothukudi	41
18	58 L /1/SE	300	Thoothukudi	42
19	58 L /1/NE	301	Thoothukudi	43
20	58 L /5/NW	302	Thoothukudi	44
21	58 K /8/SW	303	Ramanathapuram & Thoothukudi	45
22	58 K/8/SE	304	Ramanathapuram	46
23	58 K/8/NE	305	Ramanathapuram	47
24	58 K /12/NW	306	Ramanathapuram	48
25	58 K/12 /NE	307	Ramanathapuram	49
26	58 K/16/NW	308	Ramanathapuram	50
27	58 K/16/NE	309	Ramanathapuram	51
28	58 O /8/NW	310	Ramanathapuram	52
29	58 O /8/NE	311	Ramanathapuram	53
30	58 O/7/SW	312	Ramanathapuram	54
31	58 O/3/SE	313	Ramanathapuram	55
32	58 O /3/SW	314	Ramanathapuram	56
33	58 K/15/SE	315	Ramanathapuram	57
34	58 K/15/SW	316	Ramanathapuram	58
35	58 K /15/NE	317	Ramanathapuram	59
36	58 K/14/SE	318	Ramanathapuram	60
37	58 K/14/NE	319	Ramanathapuram	61
38	58 O/2/NW	320	Ramanathapuram	62
39	58 O/1/SW	321	Pudukottai& Ramanathapuram	63
40	58 O/1/NW	322	Pudukottai	64

41	58 O/1/NE	323	Pudukottai	65
42	58 N/8/SW	324	Pudukottai	66
43	58 N/4/SE	325	Pudukottai	67
44	58 N/4/NE	326	Thanjavur	68
45	58 N/8/NW	327	Thanjavur	69
46	58 N/7/SW	328	Thanjavur	70
47	58 N/7/SE	329	Tiruvarur & Thanjavur	71
48	58 N/11/ SW	330	Tiruvarur	72
49	58 N/11/SE	331	Nagapattinam & Tiruvarur	73
50	58 N/15/ SW	332	Nagapattinam	74
51	58 N/15/SE	333	Nagapattinam	75
52	58 N/15/ NW	334	Nagapattinam	76
53	58 N/15/SW	335	Nagapattinam	77
54	58 N/14/NW	336	Nagapattinam	78
55	58 N/13/SW	337	Nagapattinam & Karaikal	79
56	58 N/13/NW	338	Karaikal	80
57	58 M/16/SW	339	Nagapattinam	81
58	58 M/16/NW	340	Nagapattinam	82
59	58 M/15/SW	341	Nagapattinam	83
60	58 M/15/NW	342	Cuddalore	84
61	58 M/14/SW	343	Cuddalore	85
62	58 M/14/NW	344	Cuddalore	86
63	58 M/13/SW	345	Cuddalore & Puducherry	87
64	58 M/13/NW	346	Puducherry & Villupuram	88
65	58 P/16/SW	347	Villupuram	89
66	58 P/16/SE	348	Kancheepuram	90
67	57 P/16/NE	349	Villupuram & Kancheepuram	91
68	66 D/4/NW	350	Kancheepuram	92
69	66 D/3/SW	351	Kancheepuram	93
70	66 D/3/NW	352	Kancheepuram	94
71	66 D/3/NE	353	Kancheepuram	95
72	66 D/2/SE	354	Kancheepuram	96
73	66 D/2/NE	355	Kancheepuram	97
74	66 D/1/SE	356	Kancheepuram	98
75	66 D/5/SW	357	Kancheepuram	99
76	66 D/5/NW	358	Kancheepuram	100
77	66 C/8/SW	359	Thiruvallur	101
78	66 C/8/NW	360	Thiruvallur	102
79	66 C/7/SW	361	Thiruvallur	103
80	66 C/7/NW	362	Thiruvallur	104

Andhra Pradesh

SL NO	TOPO NO	GRID NO	DISTRICT	PAGE NO
1	66 C / 6 / SW	363	Nellore	105
2	66 C / 2 / SE	364	Nellore	106
3	66 C / 2 / NE	365	Nellore	107
4	66 C / 5 / SW	366	Nellore	108
5	66 C / 1 / SE	367	Nellore	109
6	66 C / 1 / NE	368	Nellore	110
7	66 B / 4 / SE	369	Nellore	111
8	66 B / 4 / NE	370	Nellore	112
9	66 B / 3 / SE	371	Nellore	113
10	66 B / 3 / NE	372	Nellore	114
11	66 B / 2 / SE	373	Nellore	115
12	66 B / 2 / NE	374	Nellore	116
13	66 B / 2 / NW	375	Nellore	117
14	66 B / 1 / SW	376	Nellore	118
15	66 B / 1 / NW	377	Nellore	119
16	66 A / 4 / SW	378	Prakasam	120
17	66 A / 4 / NW	379	Prakasam	121
18	66 A / 3 / SW	380	Prakasam	122
19	66 A / 3 / SE	381	Prakasam	123
20	66 A / 3 / NE	382	Prakasam	124
21	66 A / 2 / SE	383	Prakasam	125
22	66 A / 2 / NE	384	Prakasam	126
23	66 A / 6 / NW	385	Prakasam	127
24	66 A / 5 / SW	386	Prakasam	128
25	66 A / 5 / SE	387	Guntur	129
26	66 A / 9 / SW	388	Guntur	130
27	66 A / 9 / SE	389	Guntur	131
28	66 A / 9 / NE	390	Guntur	132
29	66 A / 13 / SW	391	Guntur	133
30	66 A / 14 / NW	392	Krishna	134
31	66 A / 14 / NE	393	Krishna	135
32	66 A / 13 / SE	394	Krishna	136
33	66 E / 1 / SW	395	Krishna	137
34	66 E / 1 / NW	396	Krishna	138
35	66 E / 1 / NE	397	Krishna	139
36	65 H / 4 / SE	398	Krishna	140
37	65 H / 4 / NE	399	Krishna	141
38	65 H / 3 / SE	400	Krishna	142
39	65 H / 7 / SW	401	Krishna	143
40	65 H / 7 / SE	402	Krishna	144
41	65 H / 11 / SW	403	Krishna	145
42	65 H / 11 / SE	404	West Godavari	146
43	65 H / 15 / SW	405	East Godavari	147
44	65 H / 15 / NW	406	East Godavari	148
45	65 H / 15 / NE	407	East Godavari	149
46	65 L / 3 / NW	408	East Godavari	150
47	65 L / 3 / NE	409	East Godavari	151
48	65 L / 2 / SE	410	East Godavari	152

49	65 L / 6 / SW	411	East Godavari	153
50	65 L / 6 / NW	412	East Godavari	154
51	65 L / 5 / SW	413	East Godavari	155
52	65 L / 5 / NW	414	East Godavari	156
53	65 K / 8 / SW	415	East Godavari	157
54	65 K / 8 / SE	416	East Godavari	158
55	65 K / 8 / NE	417	East Godavari	159
56	65 K / 12 / NW	418	East Godavari	160
57	65 K / 11 / SW	419	Vishakhapattinam	161
58	65 K / 11 / SE	420	Vishakhapattinam	162
59	65 K / 15 / SW	421	Vishakhapattinam	163
60	65 K / 15 / NW	422	Vishakhapattinam	164
61	65 K / 15 / NE	423	Vishakhapattinam	165
62	65 O / 3 / NW	424	Vishakhapattinam	166
63	65 O / 2 / SW	425	Vishakhapattinam	167
64	65 O / 2 / SE	426	Vishakhapattinam	168
65	65 O / 2 / NE	427	Vishakhapattinam	169
66	65 O / 6 / NW	428	Vishakhapattinam	170
67	65 O / 5 / SW	429	Vishakhapattinam	171
68	65 O / 5 / SE	430	Vishakhapattinam	172
69	65 O / 5 / NE	431	Vizhiyanagaram	173
70	65 O / 9 / NW	432	Vizhiyanagaram	174
71	65 N / 12 / SW	433	Vizhiyanagaram	175
72	65 N / 12 / SE	434	Vizhiyanagaram	176
73	65 N / 12 / NE	435	Srikakulam	177
74	65 N / 16 / NW	436	Srikakulam	178
75	65 N / 16 / NE	437	Srikakulam	179
76	74 B / 4 / NW	438	Srikakulam	180
77	74 B / 3 / SW	439	Srikakulam	181
78	74 B / 3 / SE	440	Srikakulam	182
79	74 B / 3 / NE	441	Srikakulam	183
80	74 B / 7 / NW	442	Srikakulam	184
81	74 B / 6 / SW	443	Srikakulam	185
82	74 B / 6 / SE	444	Srikakulam	186
83	74 B / 6 / NE	445	Srikakulam	187
84	74 B / 10 / NW	446	Srikakulam	188
85	74 B / 9 / SW	447	Srikakulam	189
86	74 B / 9 / NW	448	Srikakulam	190
87	74 B / 9 / NE	449	Srikakulam	191
88	74 A / 12 / SE	450	Srikakulam	192

Odisha

SL NO	TOPO NO	GRID NO	DISTRICT	PAGE NO
1	74 A /16/SW	451	Ganjam& Srikakulam	193
2	74 A /16/NW	452	Ganjam	194
3	74 A /16/NE	453	Ganjam	195
4	74 A /15/SE	454	Ganjam	196
5	74 E/3/SW	455	Ganjam	197
6	74 E/3/NW	456	Ganjam	198
7	74 E/3/NE	457	Puri &Ganjam	199
8	74 E/2/SE	458	Puri &Ganjam	200
9	74 E/6/SW	459	Puri	201
10	74 E/6/SE	460	Puri	202
11	74 E/6/NE	461	Puri	203
12	74 E/10/NW	462	Puri	204
13	74 E/10/NE	463	Puri	205
14	74 E/9/SE	464	Puri	206
15	74 E/13/SW	465	Puri	207
16	74 E/13/SE	466	Puri	208
17	74 I/1/SW	467	Puri	209
18	74 I/1/SE	468	Puri	210
19	74 I/1/NE	469	Puri	211
20	74 I/5/NW	470	Puri & Jagatsinghpur	212
21	74 I/5/NE	471	Jagatsinghpur	213
22	73 L/8/SE	472	Jagatsinghpur	214
23	73 L/8/NE	473	Jagatsinghpur	215
24	73 L/12/NW	474	Jagatsinghpur	216
25	73 L 12/NE	475	Jagatsinghpur	217
26	73 L/15/SW	476	Kendrapara	218
27	73 L/11/SE	477	Jagatsinghpur & Kendrapara	219
28	73 L/11/NE	478	Kendrapara	220
29	73 L/15/NW	479	Kendrapara	221
30	73 L/14/SW	480	Kendrapara	222
31	73 L /14/SE	481	Kendrapara	223
32	73 L/14/NE	482	Kendrapara	224
33	73 P/2/NW	483	Kendrapara	225
34	73 P/1/SE	484	Kendrapara & Bhadrak	226
35	73 L/13/SE	485	Kendrapara & Bhadrak	227
36	73 L/13/NE	486	Bhadrak	228
37	73 K /16/ SE	487	Bhadrak	229
38	73 K /16/SW	488	Bhadrak	230
39	73 K /16/NW	489	Bhadrak & Baleswar	231
40	73 K/15/SW	490	Baleswar	232
41	73 K/15/SE	491	Baleswar	233
42	73 K/15/NE	492	Baleswar	234
43	73 O/3/NW	493	Baleswar	235
44	73 O/2/SW	494	Baleswar	236
45	73 O/2/SE	495	Baleswar	237
46	73 O/6/SW	496	Baleswar	238
47	73 O/ 6/SE	497	Baleswar & East Midnapore	239

West Bengal

SL NO	TOPO NO	GRID NO	DISTRICT	PAGE NO
1	73 O/10/SW	498	East Midnapore	240
2	73 O/10/NW	499	East Midnapore	241
3	73 O/10/NE	500	East Midnapore	242
4	73 O/14/NW	501	East Midnapore	243
5	73 O/13/SW	502	East Midnapore	244
6	73 O/13/SE	503	East Midnapore	245
7	79 C/1/SW	504	South 24 Parganas	246
8	79 C/2/NW	505	South 24 Parganas	247
9	79 C/2/SW	506	South 24 Parganas	248
10	79 C/2/SE	507	South 24 Parganas	249
11	79 C/2/NE	508	South 24 Parganas	250
12	79 C/1/SE	509	South 24 Parganas	251
13	79 C/1/NE	510	South 24 Parganas	252
14	79 C/5/SW	511	South 24 Parganas	253
15	79 C/6/NW	512	South 24 Parganas	254
16	79 C/6/SW	513	South 24 Parganas	255
17	79 C/6/SE	514	South 24 Parganas	256
18	79 C/6/NE	515	South 24 Parganas	257
19	79 C/5/SE	516	South 24 Parganas	258
20	79 C/10/NW	517	South 24 Parganas	259
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24	79 C/14/NW	521	North 24 Parganas	263
25	79 C/14/SW	522	North 24 Parganas	264
26	79 C/14/SE	523	North 24 Parganas	265
27	79 C/14/NE	524	North 24 Parganas	266
28	79 G/2/NW	525	North 24 Parganas	267
29	79 G/2/SW	526	North 24 Parganas	268

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