SHORE LINE CHANGE ATLAS OF THE INDIAN COAST

(Volume – 4)

Andhra Pradesh, Tamil Nadu and Puducherry

Space Applications Centre (ISRO)
Ahmedabad 380015
and
Coastal Erosion Directorate, Central Water Commission, Ministry of Water Resources, Govt. of India, New Delhi 110606

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Abstract	This Atlas comprises of shoreline change maps prepared using satellite data of 1989-91 and 2004-06 time-frame on 1:25,000 scale for the entire country (Volume – 4 shows maps of Andhra Pradesh, Tamil Nadu and Puducherry). The maps show eroding, stable and accreting coast. Data used, methodology, results, area under erosion and accretion and status of coastal protection measures are briefly described.
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PREFACE

Coastal erosion is one of the most significant coastal hazards leading to loss of valuable land and property along the coastal zone. It is serious problem for the Indian coast, especially during monsoon and cyclonic storms and storm surge events. Developmental activities along the coast as well in the catchment areas of rivers draining into the sea cause changes in the equilibrium of sediment transport along the coast and induce coastal erosion. Climate Change and consequent threat due to predicted sea level rise is expected to further accelerate coastal erosion. Measures have been undertaken for protecting the coast by maritime States and Union Territories of the country at several places. It is required that a proper inventory of current status of coastal erosion and protection measures undertaken so far be made, so that effective planning for protecting the coast can be carried out.

Due to dynamic nature of the coast, baseline data at National level on current status of coastal erosion as well measures taken by maritime States and UTs is lacking and it is in this context and based on recommendations of Coastal Protection and Development Advisory Committee (CPDAC), present work of preparation of Shoreline Change Atlas of India has been undertaken by the Space Applications Centre (ISRO), Ahmedabad and Coastal Erosion Directorate of Central Water Commission (CWC), Ministry of Water Resources, New Delhi. The shoreline change maps depict changes mapped on 1:25, 000 scale using satellite images of 1989-91 and 2004-06 time frame and status of coastal protection measures taken up by maritime states and Union Territories. The entire database is digitized and put under GIS platform. The Atlas is brought out in Six Volumes and highlights type of satellite data used, methodology adopted and salient observations.

This Atlas provides a baseline data for initiating appropriate action for protecting the Indian coast by concerned maritime States and Union Territories besides use by the scientific community as well decision makers of the country. I appreciate efforts put by all those who have made contributions to this significant task.

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Foreword

Coastal Zone is one of the most fragile and dynamic ecosystem having the interface of sea and land. Interactions between various natural processes and human activities are important factors in the coastal areas. About 40% of the world's population lives within 100 km of the coastline and this proportion is increasing. There has been increasing anthropogenic pressure on the coastal ecosystem. In addition, the coastal ecosystems are vulnerable to natural phenomenon such as waves, tides, storm surges, erosion etc.

India has a long coastline of 7516 km including that of its Island territories. Coastal Zone in India, assumes its importance because of high population pressure, development of various industries and spurt in recreational activities, exploitation of renewable and non renewable natural resources, discharge of waste effluents and municipal sewage etc. Periodic storms and cyclones as well as erosion further adds to the problems in the coastal areas. In view of the dynamic nature of the coast, it needs to be monitored regularly.

Taking appropriate coastal protection measures require spatial information on the status of the shoreline and its dynamic behavior including the areas undergoing erosion and accretion. The spatial information on the change in shoreline over a period of time and the associated processes active along the Indian coast are not available. Thus, Space Applications Centre, at the behest of Central Water Commission, Ministry of Water Resources, Government of India has taken up the task of preparation of shoreline change inventory of Indian coast based on maps prepared using satellite data of 1989-91 and 2004-06 on 1:25,000 scale. These maps depict areas under erosion, accretion as well as stable coast. In addition, the status of coastal protection measures taken by states are also depicted. This is for the first time a spatial inventory on shoreline changes using satellite data has been created for the entire country.

I am sure, the present atlas will be useful to the scientific community and decision makers in investigating the coastal changes as well as in taking appropriate action for protecting the Indian coast and thus will go a long way in conserving the coastal environment of the country. I would like to place on record my deep appreciation to all those who have made contributions for the success of this project.

(A.S. Kiran Kumar)

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The baseline data on coastal landuse including delineation of HTL and LTL on 1:25, 000 scale has been prepared for 1989-1991 and 2004-2006 time frames using satellite data under two separate projects funded by Ministry of Environment and Forests (MoEF), Government of India, New Delhi. We gratefully acknowledge the funding support provided by MoEF and to all the participating agencies who have contributed in these projects.

The project on preparation of shoreline change for the Indian coast has been carried out jointly by Space Applications Centre and Central Water Commission, Ministry of Water Resources (MWR), Government of India. Ministry of Water Resources (MWR), Government of India is thankfully acknowledged for providing funds for preparing A-3 size Shoreline change Atlas of India using the available baseline data. We are thankful to Chairman CWC for his guidance and support. Our special thanks are due to Chairman and Members of Coastal Protection and Development Advisory Committee (CPDAC) for necessary support. Sub-Committee members of the Coastal Atlas are acknowledged for their useful suggestions and time to time guidance. Special thanks are to Director, Coastal Erosion Directorate, Central Water Commission, Ministry of Water Resources for his constant support and organizing collection of coastal protection measures data from all the maritime States and U.T. of India.

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INTRODUCTION

Coastal zone is the area of interaction between land and sea. It includes both terrestrial as well as marine resources, which are renewable as well as non-renewable. In addition, interactions between various natural processes and human activities are important factors in the coastal area. India has a long shoreline of about 7500 km including its island territories. Coastal zone in India assumes its importance because of high productivity of its ecosystems, concentration of population, exploitation of natural resources, discharge of waste effluent and municipal sewage, development of various industries, increasing load on harbors, spurt in recreational activities and above all petroleum exploration activities.

The destruction and loss of land due to sea erosion is a severe problem, particularly for a country like India facing explosive population growth. Shoreline is a dynamic geomorphological entity, which responds to the external forces exerted by waves, tides, nearshore currents and the resultant sediment transport. When the resultant sediment transport entering a particular area is greater than the sediment going out from the area, accretion or beach development takes place. On the other hand, when there is a deficit of the incoming sediment supply into a particular area with reference to the sediment going out of the same area, beach erosion takes place. Beaches act as constant absorbers of the wave energy of water and though subject to small disturbances, remain in equilibrium. However, sometimes this equilibrium gets disturbed due to either natural phenomena or human intervention. When shore structures are constructed, it is quite likely that equilibrium condition is altered. Since this can cause considerable damage and reduce the effectiveness of such structures, it is necessary to study the equilibrium condition of shores before constructing such structures. Therefore, it is of utmost importance to get information on accreting, eroding and stable coasts so that effective measures to combat sea erosion may be taken.

Major concern of coastal zone management is to ensure a rational development of area and judicious use of its resources, which is consistent with the surrounding natural systems and environment. Environmentally effective policy decisions pertaining to coastal zone management depends upon accurate and comprehensive scientific data. A basic problem confronting our country is limited availability of geographic data on coastal zone. Accurate and updated scientific data is required on coastal wetlands/landform/land use, shoreline changes, sediment transport and water quality of near shore waters.

Satellite data have proved to be extremely useful in creating baseline inventory of the entire Indian shoreline at 1:250,000, 1:50,000 and 1:25,000 scale (Nayak et al. 1991, SAC, 2012). The prepared landuse/wetland maps show

wetland features between high and low water lines and land use features of the adjoining shore (up to 1.5 km from high waterline).

Coastal Protection and Development Advisory Committee (CPDAC) constituted by Ministry of Water Resources, Govt. of India in April, 1995 is the apex body responsible for formulating policies/ programmes, providing technical guidelines, monitoring, reviewing and co-ordinating coastal zone protection and developmental activities executed by different Central and State Departments along the Indian coastline. The committee recommended the need for preparation of Coastal Atlas showing information related to coastal erosion derived from satellite data and protection measures undertaken by all maritime states of India. A subcommittee was constituted for the purpose. The subcommittee met several times, discussed and finalised the contents of the Atlas. It was decided that shoreline change atlas of the entire Indian coast would be prepared based on Highest High Tide Line depicted on coastal landuse/landcover maps of 1989-91 and 2004-06 time-frame on 1:25,000 scale The baseline data has been generated under two projects funded by Ministry of Environment and Forests (MoEF) with Space Applications Centre, Ahmedabad as a nodal agency with active participation of several related Central & State Government Departments and Academic Institutes.

The entire database of coastal thematic maps prepared using satellite data for the period 1989-91 and 2004-06 time-frames has been digitised and put as part of Coastal Zone Information System (CZIS) in GIS environment developed at Space Applications Centre (ISRO), Ahmedabad. Coastal Zone Information System for entire India (CZIS-India) is developed to include and update all the coastal information viz. landuse, wetland, shoreline, coral reef etc. for all maritime states including Union Territories in ARC/INFO environment. The information is catalogued as per Survey of India topographical map indexing. This data has been used as a baseline data for preparing the shoreline change atlas of India.

The major task involved preparation of a digital shoreline change atlas in GIS environment using existing databases of coastal landuse/landcover maps prepared on 1:25,000 scale (1989-91 and 2004-06 time-frame), depict and quantify shoreline changes as eroding/accreting/stable, show status of shoreline protection measures taken by respective States and generate A3 size State-wise Coastal Atlas of all the maritime states of India.

The detailed tasks taken up are:

i. Quantify and classify the shoreline as shoreline under erosion, stable and accretion for all the maritime states by integrating shoreline using existing database of 1989-91 and 2004-06 period.

ii. Integrate the field information on coastal erosion and shoreline protection measures of all the maritime states of India in GIS environment.

iii. Analyse satellite data of 2011-12 period for selected hotspot areas (areas showing large shoreline changes) and understand coastal processes responsible for such changes.

iv. Generate Six Volumes of A-3 size coloured digital as well as hard copy Coastal Atlas of India (Volume 1 covering Gujarat, Daman & Diu, Volume 2 covering Maharashtra & Goa, Volume 3 covering Karnataka & Kerala, Volume 4 covering Tamilnadu, Puducherry & Andhra Pradesh, Volume 5 covering Odisha & West Bengal and Volume 6 covering Lakshadweep & Andaman & Nicobar islands).

DATA USED

Primarily, landuse/landcover maps on 1:25,000 prepared using IRS-P6 LISS-IV data of 2004-06 period and SPOT-1 & 2 Multispectral and IRS-1A & IRS-1B LISS-II data of 1989-91 period available at Space Applications Centre, Ahmedabad have been utilized. In few cases where suitable data were not available, the data of nearest time frame were used. These maps depict shoreline as Highest High Tide Line (HTL) and Low Tide Line (LTL). Shoreline changes with respect to Highest High Tide Line have been taken up for the present work. The entire database has been put in GIS environment as part of Coastal Zone Information System (CZIS) developed at Space Applications Centre (ISRO), Ahmedabad. Landsat TM, ETM and Resourcesat-1 AWiFS data of corresponding time frames was used for rechecking and confirming the continuity of HTL in adjoining map sheets. Status of coastal protection measures taken up by respective maritime states and UT were prepared in spatial format and were put in the GIS database.

List of the satellite data used is summarised in the Annexure-III (Table 3-6).

The status of coastal protection measures taken up by maritime states and UTs was provided by them through Central Water Commission (CWC), New Delhi. These were prepared in spatial format and were put in the GIS database. Details are provided in Annexure-III (Table 7-12).

METHODOLOGY

Following steps were undertaken:

i. The existing Coastal Zone Information System (CZIS) developed at Space Applications Centre (ISRO), Ahmedabad has been primarily used. Coastal landuse maps for the entire Indian coast prepared on 1:25, 000 scale for 1989-91 and 2004-06 time-frame available in CZIS have been used for shoreline change mapping.

ii. National Spatial framework from NRDB has been used for organizing and creating the database. The basic framework of CZIS-India is prepared for all maritime states and Union territories of India on 1:25,000 scale. One degree consists of 8X8 rectangular grids or cells. Each rectangular grid or cell represents one SOI topographic area on 1:25,000 scale (M.C Gupta et al., 2000).

iii. Spatial layer of Line (LN25) of 1989-91 time-frame (containing High Water Line, rail, road, drainage) has been taken from the CZIS database.

iv. Spatial layer of Line (LN25N) of 2004-06 (containing High Water Line, rail, road, drainage) has been taken from CZIS database.

v. Spatial layer of Point of habitation has been taken from CZIS database.

vi. Registration of two time-frame data sets considering rail, road and HTL of 1989-91 as base has been done.

vii. Output spatial layer showing shoreline changes using overlay of rectified coverage and base coverage is created.

viii. Maps were rechecked using Landsat TM, ETM, AWiFS and LISS-IV data to make it seamless in database.

ix. Polygons for areas under erosion and accretion were created.

x. Areas under erosion and accretion were measured for the main shoreline (excluding creeks, river mouths, estuaries). Shore length under erosion, accretion and stable categories were measured for the main shoreline (excluding creeks, river mouths, estuaries).

xi. A table containing all the above statistics has been generated for each maritime state and U.T.

xii. Status of shoreline protection measures have been depicted as per the information provided by the maritime State/UT agencies through Central Water Commission.

xiii. A standard map composition and layout were finalised and have been used for final map composition of each map.

xiv. Field checks were carried out and based on field observations, corrections were incorporated while finalizing the map. Field photographs were also taken during the field visits.

Accuracy Assessment: Classification as well as planimetric accuracy of the maps was assessed while carrying out the field work. Overall the classification accuracy of these maps range from 90-95% at 90% confidence level. The Planimetric Accuracy of these maps is 6.25 m as per Survey of India (SOI) standard.

xv. Hotspots were identified based on the magnitude of shoreline dynamics. Recent satellite images (2011-12) were acquired and analysed.

xvi. Finalised maps depicting shoreline changes were utilized for preparing shore line change Atlas of the Indian coast (Six Volumes). Volume 1 covers Gujarat, Daman & Diu, Volume 2 covers Maharashtra & Goa, Volume 3 covers Karnataka & Kerala, Volume 4 covers Tamilnadu, Puducherry & Andhra Pradesh, Volume 5 covers Odisha & West Bengal and Volume 6 covers Lakshadweep & Andaman & Nicobar islands. Digital Atlas in form of CD was prepared.

RESULTS

Andhra Pradesh

The Andhra Pradesh coast constitutes part of the eastern coast of India. It is bounded by the Bay of Bengal on the east. It extends from Srikakulam district in the north to Nellore district in the south. The coast is characterized by spits, wide beaches, mangroves, mudflats, bars, barriers, lagoons, sand dunes, salt pans, etc. The Krishna and the Godavari are the prominent rivers that form large deltaic regions. Both these deltas have large mangrove forests. The Pulicat lagoon, located at southeastern end of Andhra Pradesh, is the second largest lagoon along the east coast after the Chilika lagoon in Odisha. The coastal zone is potentially a rich terrain with good agriculture, fisheries, commerce and communication network. There are a number of intermediate and small ports including a natural harbor at Vishakhapatnam.

The shoreline of Andhra Pradesh is 971.27 km (this does not include length of mouth of estuary, rivers, creeks and their inner parts). About 443.88 km shoreline of Andhra Pradesh shows erosion with eroding area of 46.89 sq. km. The total accretion is 25.14 sq. km over a length of 186.94 km. The stable coastal length of Andhra Pradesh is 340.45 km (Table 1, Fig 1). Details for each individual map sheet are provided in Table-1.

In general, three distinct segments of coast can be identified based on their configuration, relief, geomorphology and landcover viz., Coastal segment north of the Godavari delta, Deltas of the Godavari and the Krishna including inter delta region and Coastal segment South of the Krishna delta.

The coastal region north of the Godavari delta covering parts of Srikakulam, Vizianagaram and Visakhapatnam districts is oriented NE-SW comprising of tidal creeks, small patches of coastal wetlands at the mouth of rivers and inlets, narrow, linear beaches, residual hills and ridges close to the sea, rocky outcrops, headlands, and pocket beaches. Although, rivers like the Bahuda, the Vamsadhara, the Gosthani and the Sarda are flowing in this region, there is no major delta. This stretch shows predominantly erosion and stable nature of coast, with accretion at few locations. Northernmost coast near Pedda Lakshmipuram (Map Sheet No. 74A16SW), Kapasukuddi (Map Sheet No. 74A12SE), area north of Talatampara (Map Sheet No. 74B09NE) in Srikakulam district is observed to be stable. Coastal segment around Tatampara (Map Sheet No. 74B09NE) and further SW upto area north of Rangapuram (Map Sheet No. 74B09SW) in Srikakulam district is observed to be eroding. Coastal segment around Rangapuram and Van Kuluru (Map Sheet No. 74B09SW) is observed to be stable. Area NE and SW of Manchinillapenta (Map Sheet No. 74B06NE) and coastal segments near Ramakrishnapuram,

Devunalltada,, Karavaku, Sunnapalli, Bavanapadu (Map Sheet No. 74B06SE, 74B06SW, Plate 1-4) are observed to be eroding. Coastal segment from Meghavaram (Map Sheet No. 74B07NW) in north upto area south of Kolli Bhimavaram (Map Sheet No. 65N16NW) in south is observed to be accreting to stable in nature except small eroding segment around Pedduru (Map Sheet No. 65N16NW, Plate 5) in Srikakulam district in northern parts of the Andhra Pradesh coast. Coastal stretch of Chintapalli, Mentada, Kothapale in Srikakulam district, Northern Andhra Pradesh coast is observed to be eroding (Map Sheet Number 65N12SE, Plate 6). The entire coastal segment further SW covering the Visakhapatnam district upto Kakinada in East Godavari district is observed to be eroding to stable in nature except few small segments accreting. Severe erosion is observed for coastal segments around Jogannapalem, Chinnapudi (Map Sheet No. 65O02SW), Bangarammapeta (Map Sheet No. 65K11SW) in Visakhapatnam district, Avulamanda (Map Sheet No. 65K08NE), Shamvanipakalu (Map Sheet No. 65K08SE, Plate 7) and Uppada (Map Sheet No. 65K08SW, Plate 8) in East Godavari district. Plates 22-31 are field photographs showing severe coastal erosion near Shamvanipakalu and Uppada. Severe erosion is observed during field checks as vertical cutting of sand dune ridges forming steep scarps, uprooting of casuarina plantation, destruction of hatcheries, uprooting of coconut plantation, destruction of buildings at Uppada, and Uppada-Kakinada road becoming vulnerable to erosion. Shore is being protected by construction of sea wall/geotubes for around 3-4 km at Uppada. This area is one of the hotspot regions along the coast of Andhra Pradesh. Even the Kakinada spit along the Kakinada Bay north of the Godavari delta is reported to have breached several times. Reduced supply of sediments from the Godavari delta to this region as longshore transport is one of the major cause of severe erosion at this location.

The Godavari – Krishna delta and the inter-delta plain in between these two deltas form a vast low lying, luxuriantly vegetated, gently sloping coastal plain in the central part of the Andhra Pradesh coast. The Godavari-Krishna delta plains exhibit two broad units - the fluvial plain in the upper part of the delta and the strand plain in the lower part. The fluvial plain is a gently rolling, river-built plain sloping towards the coast. The lower strand plain, including the inter-delta plain, exhibits features like beach ridges, mudflats, mangrove swamps, lagoons, and spits reflecting the marine influence. A number of tidal creeks dissect mudflats and are flanked by dense mangrove cover such as the one at Coringa and near the mouths of Godavari and Krishna and their distributaries. The sandy beach ridges in the strand plain represent the former shoreline positions in these prograding deltas. The innermost beach ridge that lies up to 35 km inland from the present shoreline marks the maximum Holocene transgression limit. The Godavari River from its delta apex near Rajahmundry bifurcates into two distributaries – the Gautami and the Vasishta. Further downstream, a third distributary, the Vainateyam branches out of the

Vasishta, while the terminal branching of the Gautami forms the fourth distributary mouth, the Nilarevu. The Krishna River flows undivided for a distance of about 60 km from its delta apex near Vijayawada, before a relatively small distributary branches out at Puligadda village. Further downstream, the river again splits into three distributaries i.e., the Golumuttapaya, the Nadimi and the Krishna just within 15 km from the shoreline forming the main delta lobe. The Krishna delta is a bird foot shaped prograding delta with Machilipatnam Bay on its northern side and Nizampatnam Bay on its southern side. The inter-delta plain which has also been built along with the two deltas on either side of it, with coast along Machilipatnam Bay is characterized by series of lagoons like the Kolleru Lake (a former lagoon turned into a freshwater lake) and Goguleru (present lagoon) separated by several sets of beach ridges. The coast is characterized with a relatively low-energy marine environment with microtidal range (spring tide range is <1.5 m), and low to moderate wave conditions. The region is prone to cyclones.

Severe erosion is observed south of Kakinada upto the Nilarevu river mouth (Map Sheet No. 65L05SW, 65L06NW) in the East Godavari district. Coastal segment between Nilarevu river mouth and the Gautami river mouth shows accretion (Map Sheet No. 65L06NW) and erosion on both sides of the Gautami river mouth (Map Sheet No. 65L06SW) in East Godavari district. Coast further south of the Gautami river mouth near Chirrayanam (Map Sheet No. 65L02SE, 65L03NE, Plate 32) is observed to be severely eroding. Casuarina plantation on the dune ridge is uprooted and vertical scarps are observed. It is possible that the continued erosion of the narrow dune ridge may expose the backwater/lagoon directly to sea. Area on both sides of Vainateyam river mouth (Map Sheet No. 65H15NE) is observed to be eroding. Area further south of Vainateyam river mouth upto Vasishta Godavari river mouth is observed to be accreting (Map Sheet No. 65H15NE, 65H15NW, 65H15SW, 65H11SE). Wide, well developed gently sloping beach parallel to the shore is observed at Kesavadasupalem (Map Sheet No. 65H15SW, Plate 33, 34). Mouth of the Vasistha Godavari River (Map Sheet No. 65H15SW) is observed to be widening.

Area west of Vasishta Godavari river mouth upto Mailavanilanka, West Godavari district (Map Sheet No. 65H11SE, Plate 35) is observed to be severely eroding. During field checks and information collected from the local people, it is observed that sand dune ridges with casuarina plantation as well coconut plantation have been eroded and present HHTL is now right near the cyclone shelter (Map Sheet No., 65H11SE, Plate 36-38). Very steep slope to Sea is observed and waves are directly hitting and eroding the coast. Coast further west upto Uralagonditippa and further west in Krishna district around Parvatipuram to Peddapatnam (Map Sheet No. 65H11SW, 65H07SE, 65H07SW, Plate 39) is observed to be stable in nature. Beaches with very

gentle slope, casuarina and coconut plantation on low lying sand dune ridges and palaeomudflats with aquaculture ponds on other side of sand dune ridge towards land are observed. Coast from Janalavatipalem (Map Sheet No. 65H07SW), Tuliapalem (Map Sheet No. 65H03SE), Manginapudi beach near Peddareddipalem, east of Pallepalem (Map Sheet No. 65H04NE, Plate 40) is observed to be accreting and forms well developed wide beaches (Plate 10). Mangroves along creek near Pallepalem (Map Sheet No. 65H04NE, Plate 41) are well developed.

The entire coastal segment further south along both banks of the northernmost small distributary of the Krishna River is observed to be severely eroding (Map Sheet No. 65H04SE, 66E01NE, 66E01NW, Plate 11, 42, 43). The entire area is low lying, dissected with creeks having mangrove cover and prone to flooding and embankment has been constructed all along the coast on southern side this small distributary of the Krishna river mouth (Map Sheet No. 66E01NW, Plate 44) for protection. Along the main delta lobe of the Krishna river further south of this small distributary, severe erosion is observed on both sides of the Krishna river mouth (Map Sheet No. 66A14NW), Nadimi river mouth (Map Sheet No. 66A14NE) and upto southern bank of Golumuttapaya river mouth (Map Sheet No. 66E01SW). Area north of Golumuttapaya river (Map Sheet No. 66E01SW) is observed to be accreting and forms arcuate Bay and a spit is developed northwards. South of the Krishna river mouth spit and barrier islands are observed enclosing mangrove areas (Map Sheet No. 66A13SW) is observed. The spit is elongated in NNW-SSE direction and is observed to have developed further by accretion. Coast towards land, west of Lankevanidibba is observed to be eroding (Map Sheet No. 66A13SW). The arcuate shaped coast of Nizampatnam Bay south of the Krishna river mouth is observed to be accreting to stable in nature upto eastern part of a creek, located east of Suryalanka (Map Sheet No.66A13SW, 66A09NE, 66A09SE, 66A09SW).

The southern coast of Andhra Pradesh extends from coast near Suryalanka in Guntur district (Map Sheet No. 66A09SW) through entire coastal region of Prakasam district upto Korai Kuppam in Nellore district (Map Sheet No. 66C07NW). The region forms coastal segment of Nizampatnam Bay, area around Penner delta and coast around barrier island of Sriharikota of Pulicat lagoon. The entire coastal segment is oriented N-S in general. Severe erosion is observed for the coastal segment from Suryalanka (Map Sheet No. 66A09SW) and coast around Vadarevu, SE of Papayapalem (Map Sheet No. 66A05SE, Plate 45), Coastal segment further south near Potti Sabbarayudupal (Map Sheet No. 66A05SW), area near Pattapalem (Map Sheet No. 66A06NW), area around Pakala (Map Sheet No. 66A03SW) is observed to be stable in nature except eroding coast north of a creek near Tatepuram, Prakasam district (Map Sheet No. 66A03SW). Area on both sides of a creek near Pallepalem (Map Sheet No. 66A04NW) is observed to be eroding. Coast

further south near Alagayapalem (Map Sheet No. 66A04NW) upto Mundevadipalem in Prakasam district (Map Sheet No. 66A04SW) is stable. Coastal segments north of Kottachattram, around Pedda Nattapaem (Map Sheet No. 66B01NW) and Nadumpalli (Map Sheet No. 66B01SW, Plate 12) in Nellore district is observed to be eroding. The entire coastal segment further south through coastal segment around Chambadipalem (Map Sheet No. 66B01SW), Ramachandrapuram (Map Sheet No. 66B02NE), Isakapalle (Map Sheet No. 66B02NW) upto the mouth of the Penneru river (Map Sheet No. 66B02SE) is observed to be stable in general. Mouth of the Penneru river (Map Sheet No. 66B02SE) shows accretion around it, however the spit on the southern bank of the Penneru river has been completely eroded along with some other islands. The entire region further south of the Penneru river mouth upto Pattapupalem (Map Sheet No. 66B02SE, 66B03NE, 66B03SE, 66B04NE, 66B04SE, Plate 14) is low-lying coastal tract. Tropical cyclones frequently affect this coastal tract. A number of cyclone shelters are present in this area. Buckingham canal traverses through the entire coastal tract parallel to the shore. The coast consists of soft sandy material highly vulnerable to erosion. Coast comprises of narrow sandy beaches backed by discontinuous segments of sand dune ridges. Casuarina plantation at some locations along such segments has been done to protect the storm fury. Absence of landforms formed due to longshore transport indicate wave action to be dominating in this region and the entire coastal segment is vulnerable to erosion as observed by eroding to stable nature of the coast with small accreting segments. Small segment of coast further south between Tupilipalem and Kondurupalem (Map Sheet No. 66B04SE) shows accretion, otherwise the entire coastal segment further south from area around Odapalem (Map Sheet No. 66C01NE) upto Sriharikota island near Pulicat (Map Sheet No. 66C07NW) forms a long eroding coastal stretch.

The map sheet wise shoreline changes along the Andhra Pradesh coast are shown in Table 1.

Table-1: Map sheet wise results of shoreline changes for 1989-91 and 2004-06 time-frame for Andhra Pradesh coast.

Sr. No.	Map Sheet No.	Erosion Area (sq. km)	Erosion Length (km)	Accretion Area (sq. km)	Accretion length (km)	Stable Length (km)
1	65N12NE	0.90	0.82	0.00	0.00	0.00
2	65N12SE	1.85	15.14	0.00	0.00	0.00
3	65N16NE	0.00	0.00	0.62	8.80	4.85
4	65N16NW	0.06	1.80	0.00	0.00	13.05
5	74A12SE	0.03	0.78	0.00	0.00	6.79
6	74A16SW	0.10	3.20	0.00	0.00	5.57
7	74B03NE	0.00	0.00	0.79	13.14	1.45
8	74B03SE	0.00	0.00	0.22	3.51	0.00
9	74B03SW	0.00	0.00	0.23	4.60	8.58
10	74B04NW	0.00	0.00	0.00	0.00	1.28
11	74B06NE	0.69	8.90	0.09	3.63	4.68
12	74B06SE	0.37	3.65	0.00	0.00	0.00
13	74B06SW	0.86	14.34	0.00	0.00	0.93
14	74B07NW	0.00	0.00	0.19	4.03	0.91
15	74B09NE	0.37	8.88	0.00	0.00	4.09
16	74B09NW	0.25	5.42	0.00	0.00	0.00
17	74B09SW	0.27	3.94	0.00	0.00	12.98
18	74B10NW	0.00	0.00	0.00	0.00	0.32
19	65N12SW	0.14	2.45	0.00	0.00	5.97
20	65O09NW	0.07	1.05	0.00	0.00	9.76
21	65O05NE	0.05	2.28	0.00	0.00	7.43
22	65O05SE	0.35	6.11	0.00	0.00	9.36
23	65K11SE	0.29	4.98	0.00	0.00	10.33
24	65K11SW	0.49	7.56	0.00	0.00	1.27
25	65K12NW	0.30	5.72	0.00	0.00	0.80
26	65K15NE	0.24	4.20	0.47	0.47	11.90
27	65K15NW	0.40	4.24	0.00	0.00	7.43
28	65K15SW	0.21	2.21	0.00	0.00	0.00
29	65O02NE	0.03	0.86	0.00	0.00	1.27
30	65O02SE	0.38	8.01	1.11	1.11	7.44
31	65O02SW	0.67	12.48	0.00	0.00	1.95
32	65O03NW	0.12	2.06	0.00	0.00	0.00
33	65O05SW	0.13	2.40	0.00	0.00	1.21
34	65O06NW	0.29	8.54	3.50	3.60	7.64
35	65H15NE	0.82	7.60	0.51	6.30	0.00
36	65H15NW	0.00	0.00	0.16	2.90	0.00
37	65H15SW	0.00	0.00	1.22	12.70	0.00
38	65K08NE	1.18	10.98	0.00	0.00	4.82
39	65K08SE	0.15	2.20	0.00	0.00	0.00
40	65K08SW	0.66	11.66	0.29	4.40	0.00

41	65L01NE	0.06	1.09	0.19	0.35	2.20
42	65L02SE	1.35	6.75	0.49	5.03	0.00
43	65L03NE	0.19	1.35	0.00	0.00	1.46
44	65L03NW	0.40	5.85	0.35	3.86	5.06
45	65L05SW	3.85	11.79	1.86	13.54	0.00
46	65L05NW	0.82	1.79	1.23	5.02	6.65
47	65L06NW	1.27	5.97	1.43	6.10	0.00
48	65L06SW	3.45	6.70	0.25	3.33	0.00
49	65H11SW	0.00	0.00	0.32	1.20	5.40
50	65H11SE	1.50	9.90	0.24	3.30	3.40
51	65H03SE	0.00	0.00	0.26	1.03	0.00
52	65H04NE	0.07	3.11	2.60	12.38	0.00
53	65H04SE	2.77	13.57	0.06	1.65	0.00
54	65H07SE	0.04	0.67	0.06	0.96	12.76
55	66A13SE	0.24	1.10	0.51	4.80	0.00
56	65H07SW	0.00	0.00	0.28	1.90	14.13
57	66A14NE	2.13	15.10	0.00	0.00	0.00
58	66E01NE	1.02	5.22	0.00	0.00	0.00
59	66E01NW	1.48	9.48	0.24	3.05	0.00
60	66E01SW	0.60	1.47	2.34	7.11	0.00
61	66A09NE	0.53	3.31	0.00	0.00	7.66
62	66A09SE	0.02	1.41	0.00	0.00	0.00
63	66A09SW	0.32	4.76	0.00	0.00	8.61
64	66A13SW	0.71	6.30	0.83	6.50	4.41
65	66A14NW	2.27	9.60	0.17	1.50	0.00
66	66A02NE	0.00	0.00	0.02	0.67	0.00
67	66A02SE	0.17	4.85	0.30	5.44	2.91
68	66A03NE	0.03	1.96	0.23	3.26	12.65
69	66A03SE	0.02	0.43	0.00	0.00	0.00
70	66A03SW	0.32	5.96	0.00	0.00	8.94
71	66A04NW	0.88	8.90	0.00	0.00	4.83
72	66A04SW	0.00	0.00	0.08	1.41	12.52
73	66A05SE	1.34	15.15	0.00	0.00	0.00
74	66A05SW	0.00	0.00	0.00	0.00	3.85
75	66A06NW	0.00	0.00	0.00	0.00	16.59
76	66B01NW	0.82	7.92	0.00	0.00	6.42
77	66B01SW	0.17	5.24	0.14	3.80	5.34
78	66B02NE	0.08	2.27	0.15	3.80	6.71
79	66B02NW	0.01	0.56	0.17	3.01	0.00
80	66B02SE	0.27	8.09	0.40	3.85	3.78
81	66B03NE	0.48	10.12	0.00	0.00	3.61
82	66B03SE	0.33	6.29	0.00	0.00	7.67
83	66B04NE	0.01	0.63	0.07	2.89	9.68
84	66B04SE	0.23	4.12	0.47	7.01	2.79
85	66C01NE	0.80	15.23	0.00	0.00	0.00
86	66C01SE	0.54	9.46	0.00	0.00	0.00
87	66C02NE	0.78	14.11	0.00	0.00	0.00

88	66C02SE	0.17	3.01	0.00	0.00	0.00
89	66C05SW	0.15	2.51	0.00	0.00	0.00
90	66C06SW	1.12	11.86	0.00	0.00	0.00
91	66C07NW	0.36	4.46	0.00	0.00	6.36
	Total	46.89	443.88	25.14	186.94	340.45

Figure 1 shows the accreting length, eroding length and stable shoreline of Andhra Pradesh coast.

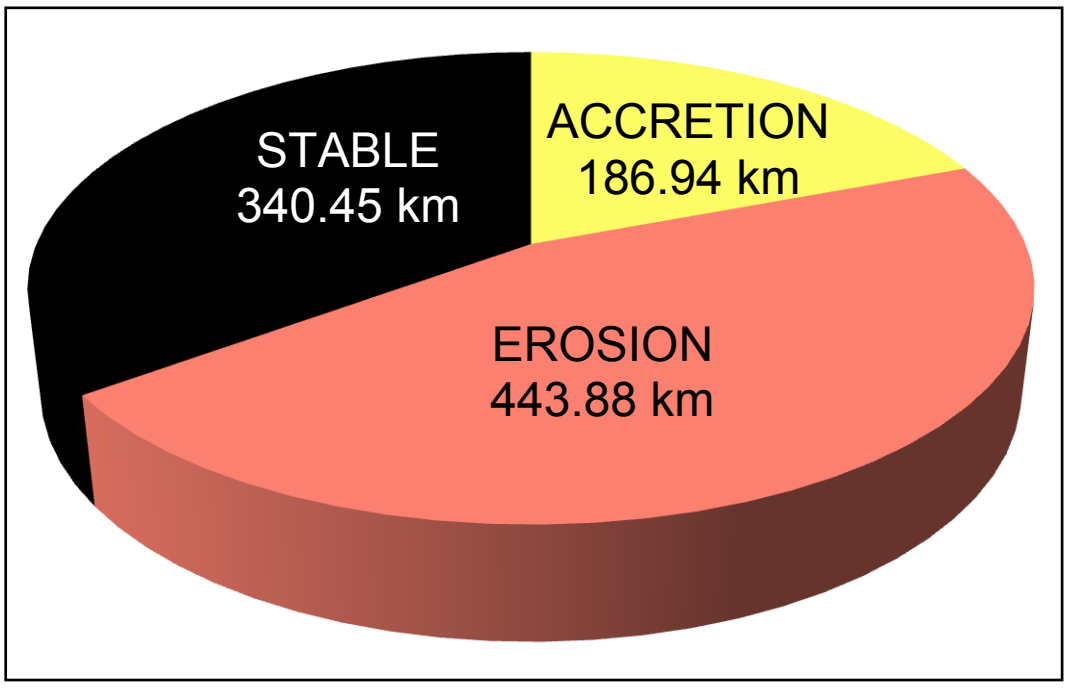


Figure 1: Status of coastal erosion, accretion and stable nature of Andhra Pradesh coast (Total coastal length of 971.27 km does not include length of mouth of estuary, rivers, creeks and their inner parts).

Tamil Nadu and Puducherry

Tamil Nadu is located on the south-east part of the Indian peninsular coast. There are 13 coastal districts in Tamil Nadu from Tiruvallur in north upto Kanniyakumari in south. About 46 rivers, draining a total catchment of about 171 000, sq. km empty along this coastline. These rivers bring considerable sediments, as they traverse long distance, affecting the shore processes very significantly. Ecologically sensitive areas such as Pulicat bird sanctuary, Kaliveli backwaters, Pichavaram mangroves, Vedaranniyam wildlife sanctuary, Muthupet mangroves, Ramanathapuram mangroves and Gulf of Mannar biosphere reserve are the important protected areas of Tamil Nadu coast.

Pulicat is the second largest lagoon in India. It supports a diverse ecology. A well developed spit is observed at the mouth of the Pulicat Lagoon. Apart from this, there are a number of small lagoons along the Tamil Nadu coast. These are observed at locations south east of Cheyyur, near Mahabalipuram, near Pichavaram, Mullipalam etc. Small spits are observed south of Mahabalipuram, Kollidan, and south Rajmatam etc. Coral reefs on Tamil Nadu coast are located near Rameshwaram (Palk Bay) and in the Gulf of Mannar. A solitary fringing reef is present in the Palk Bay, from Pambam to Rameshwaram. Patch reefs namely Kursad, Tivu, Kovi Tivu, Manalli Tivu and Musal Tivu are present in the Gulf of Mannar.

Well developed mangrove forests are observed at Pichavaram in Cuddalore, Vedaranyam, Point Calimere, Muttupet, Chatram and Thoothukudi (Tuticorin). Mudflats are present along lagoons and are used at some places for salt harvesting. Sandy beaches are made up of fine/coarse/medium grained brown sand particles, broken molluscan shells, shingles and pebbles. These occur at Ennore, south of Chennai, from Covelong to Mahabalipuram, from Manakkanam to North Puducherry, South Cuddalore, near Kollidam along the Rameshwaram coast. At Vattakatti, Rasthakadu and Muttam beach consist of black sand with red sand patches. Red sand forms a very thin layer over black sand. Black sand consists of heavy minerals like magnetite, ilmenite, garnet, monozite etc. Well developed coastal dunes are observed along the coast of Ennore, Mahabalipuram, from Manakkanam to Puducherry, Cuddalore to Pichavaram, from Karaikal to Velangani, Vedaranniyam to Manamelkudi, and Pudupattanam to Tondi. The coastal dunes are stabilized and covered by Casuarina, coconut plantations.

Puducherry is a Union Territory scattered over two locations in Tamil Nadu: Puducherry and Karaikal. The main territory of Puducherry lies about 180 km south of Chennai. The Karaikal region is about 150 km south of Puducherry, in more or less a flat land in the Cauvery delta.

The shoreline of Tamil Nadu and Puducherry is 824.92 (this does not include length of mouth of estuary, rivers, creeks and their inner parts). About 281.56 km shoreline shows erosion with eroding area of 17.19 sq. km. The total accretion is 42.64 sq. km over a length of 514.11 km. The stable coastal length of Tamil Nadu and Puducherry is 29.25 km (Table 2, Fig 2). Details for each individual map sheet are provided in Table-2.

In general, three distinct segments of coast can be identified based on their configuration, relief, geomorphology and landcover viz., Coastal segment north of the Cauvery delta (Northern Tamil Nadu coast comprising of Chennai-Cuddalore sector), coastal segment around the Cauvery delta (Central Tamil Nadu coast), coastal segment south of the Cauvery delta around the Palk Bay & the Gulf of Mannar (Southern Tamil Nadu coast).

Along the northern Tamilnadu coast, coastal segment south of the Pulicat lagoon along the coast near Karungali, Kattupali in Thiruvallur district, north of the Ennore Port (Map Sheet No. 66C07SW) is observed to be accreting. Accretion is also observed near the southern breakwater of the Ennore Port. The entire coastal segment north of the Chennai fishing harbor upto Ennore creek is severely eroding and a series of groynes and sea wall for around 11 km is constructed to protect the coast (Map Sheet No. 66C08NW, Plate 46-47). The coastal segment is east of Kattivakkam, Tiruvottiyur, Sattangadu, in Chennai district (Map Sheet No. 66C08NW). This coastal segment is one of the hotspot area along the Tamil Nadu coast. Severe erosion is due to construction of the Chennai Port/ Royapuram Harbor (Map Sheet No. 66C08SW). Accretion is observed south of the Chennai Port forming the famous Marina beach of the Chennai (Map Sheet No. 66C08SW). The cause of erosion north of the Chennai Port is due to the reduced supply of sediments as the southern breakwater of the Chennai Port has obstructed the northwards longshore transport of sediments predominant along the east coast of India and has formed wide Marina beach at Chennai. Further south, accretion is observed to continue for coast near Besant Nagar, Neelankarai, Kancheepuram district (Map Sheet No. 66D05NW). The coastline is straight oriented NNE-SSW, parallel to the Chennai-Mahabalipuram Express Highway. The coastline further south upto Kovalam, Kacheepuram district (Map Sheet No. 66D05SW) is observed to be eroding, except accretion at Kovalam beach. Coastal segment south of Kovalam (Map Sheet No. 66D05SW) upto coast east of Voyalur Vengadu (Map Sheet No. 66D03NE) is observed to be stable to accreting in general. However, some recent erosion around Shore temple at Mamallapuram (Mahabalipuram, Map Sheet No. 66D02SE) is observed during field checks and a sea wall is constructed along the Shore temple to protect the heritage structure (Plate 48-52). Coastline south of Allikuppam (Map Sheet No. 66D03NE) is oriented NE-SW and is observed to be stable to eroding upto coast around Mugaiyur (Map Sheet No. 66D03NW) in Kancheepuram district.

Accretion is observed between areas south of Mugaiyur upto Chirmakuppam (Map Sheet No. 66D03SW). Entire coastal segment between Chirmakuppam in Kancheepuram district (Map Sheet No. 66D03SW) through the entire coast of Villuppuram district upto Puducherry (Map Sheet No. 58M13NW) is observed to be eroding to stable in general. Severe erosion is observed along coast near Alamparai (Map Sheet No. 66D03SW), Kaipanikuppam, Pudukuppam, Komutichavadi, Villuppuram district (Map Sheet No. 57P16NE). Coastal segment south of Tondiriyarkuppam and around Puducherry is severely eroding (Map Sheet No. 58M13NW). A sea wall for around 6 km length has been constructed to protect the coast (Plate 53-54). Accretion for a small coastal segment near Virampattinam (Map Sheet No. 58M13NW) is observed. Further south upto Cuddalore (Map Sheet No. 58M14NW), coast is eroding and a sea wall has been constructed at Cuddalore for protection.

Along the northernmost parts of the central sector of the Tamilnadu coast, coastal segment south of Cuddalore from coast near Settikkuppam, Cuddalore district (Map Sheet No. 58M14NW), through entire coast in Map Sheet No. 58M14SW, 58M15NW (Cuddalore district) upto coast near Todivaipattanacheri in Nagapattinam district (Map Sheet No. 58M15SW) for a stretch of around 40 km (excluding creek/river mouths) is observed to be accreting. Erosion is observed for coast further south from area near Talarndi upto Kaveripattinam, Nagapattinam district (Map Sheet No. 58M16NW) for a stretch of around 7 km (excluding creek/river mouths). Sea wall is constructed at Pumpukar, Nagapattinam district (Map Sheet No. 58M16NW). The coastal segment near Chidambarapakkam (Map Sheet No. 58M16SW) upto Nagapattinam (Map Sheet No. 58N13SW) is oriented N-S and is remarkably straight for around 39 km with few creeks dissecting it. Accreting as well eroding segments with sea walls constructed at number of locations are observed (Plate 55-57). Along the northern parts of the Cauvery river delta, from the coast south of Nagapattinam (Map Sheet No. 58N14NW, 58N14SW, 58N15NW,) upto the Agastyampalli north of Vedaranniyam mangroves (Map Sheet No. 58N15SW) in Nagapattinam district, the entire coastal segment is observed to be accreting. The southern parts of the Cauvery delta from Kodiakkadu in Nagapattinam district (Map Sheet No. 58N15SW, Plate 58-59) upto Pillaiyarthidal, Thanjavur district (Map Sheet No. 58N07SW) is also observed to be accreting in general. Accretion is observed in north Thanjavur district along Mallipattinam, Pillaiyarthidal (Map Sheet No. 58N07SW) upto coastal segment in Map Sheet No. 58N08NW. This coastal segment forms parts northern parts of the Palk Strait.

Along the southern parts of the Tamilnadu coast, comprising of coast along western and southern parts of the Palk Bay, coast along the Gulf of Mannar and coast NW of Kanniyakumari upto Kerala border, erosion is observed along coast near Subramanyapuram, Puddukkotai district (Map Sheet No. 58N04SE) and area further south east (Map Sheet No. 58N08SW), around Manamelkudi,

Vanichchikarium (Map Sheet No. 58N04SE) upto Kottappattanam (Map Sheet No. 58O01NE, Plate 15) in Puddukkotai district. Coastal segment around Mumpalai Pillaiyaritidal and Vadakku Armapatinam coast, Puddukkotai district (Map Sheet No. 58N04SE, 58N08SW) is observed to be accreting. Accreting coast is observed along Kilamanjakkudi upto Mimisal Chatrapattinam (Map Sheet No. 58O01NE) in Puddukkotai district. A number of creeks, river mouths are observed to dissect the coast (Map Sheet No. 58O01SW, 58O02NW, 58K14NE) and are accreting in general further south upto Sanbai in Ramanathapuram district (Map Sheet No. 58K14NE). Eroding segments are observed around Nattanipurasakudi, Pudukkotai district (Map Sheet No. 58O01SW) and Moreppanai, Tiruppalakkudi, Pathanendal (Map Sheet No. 58K14SE) in Ramanathapuram district. Coast further south changes its orientation and trends NW-SE (Map Sheet No. 58K15NE, 58K15SE, Plate 16 & 17) upto Pillaimadam (Map Sheet No. 58O03SW) in Ramanathapuram district forming south-western parts of the Palk Bay and is observed to be eroding in general with stable segment near Chorantoppu (Map Sheet No. 58K15NE, Plate 60) and accreting segment near Mandapam (Map Sheet No. 58O03SE, Plate 61). Coast from Pillaimadam again changes its orientation and is aligned W-E upto Rameswaram (Map Sheet No. 58O03SE, 58O07SW, Plate 62) and further orients NW-SE upto Dhanushkodi forming the southern coast of the Palk Bay in the Ramanathapuram district. This part of the coast is observed to have both accreting as well eroding segments. Coast north of Rameswaram is observed to be accreting and south-east of Rameswaram is a narrow sandy strip with accreting (Plate 63) as well eroding segments (Map Sheet No. 58O08NW, 58O08NE). Plate 64 shows the recently constructed seawall at Dhanushkodi. A very small segment of the coast under intertidal zone in Map Sheet No. 58O08NE is observed.

The northern parts of the Gulf of Mannar coast forming parts of the southern Tamilnadu coast (Map Sheet No. 58O08NW 58O07SW, 58O03SE, 58O03SW, 58K15SE) is observed to be accreting in general upto Pudumadam (Map Sheet No. 58K15SE). Coast near Periapattinam (Map Sheet No. 58K15SE), Tinaikkulam (Map Sheet No. 58K15SW) and east of a creek east of Chengalanirodai (Map Sheet No. 58K16NW) in Ramanathapuram district is observed to be eroding. The NW parts of the Gulf of Mannar coast from area near Chengalanirodai (Map Sheet No. 58K16NW), Valinockam (Map Sheet No. 58K12NE), Kill Manduri (Map Sheet No. 58K12NW), Rockalnanagar (Map Sheet No. 58K08SE) in Ramanatapuram district, Periasamypuram (Map Sheet No. 58K08SW), Tharuvalkulam (Map Sheet No. 58L01NE) upto Thoothukkudi (Map Sheet No. 58L01SE) in Thoothukkudi district is also observed to be accreting. Area further south upto northern breakwater of Tuticorin Port (Map Sheet No. 58L01SE) is observed to be eroding in general. Area south of the southern breakwater of the Tuticorin Port (Plate 65-66) and east of Thangammalpuram (Map Sheet No. 58L02NE) is observed to be accreting

upto Manappad in Thoothukkudi district (Map Sheet No. 58L03NW). Mangroves are observed along creek near Tuticorin Port (Plate 67).

The south-western coastal segment of the Gulf of Mannar coast forming parts of the southern Tamilnadu coast from area near Alagappapuram is oriented ENE-WSW and is observed to be eroding. Coastal segment further SE in Tirunelveli district (Map Sheet No. 58H15SE, 58H15SW) upto Avudiyapuram (Map Sheet No. 58H16NW) is observed to be accreting in general. Coastal segment beween Perumanipuraja and Idinakarai (Map Sheet No. 58H12NE) is observed to be eroding and groynes are constructed at Idinakarai in Tirunelveli district. Further south upto Meram (Map Sheet No. 58H12SW) in Kanniyakumari district accretion is observed. Erosion is observed at Kanniyakumari (Map Sheet No. 58H12SW) and a sea wall has been constructed to protect the coast (Plate 68). Coastal stretch south of Agasteewaram (Map Sheet No. 58H12SW), Tamarakulam (Map Sheet No. 58H08SE, Plate 69) is observed to be eroding. Coastal segment west of Kizha Kattuvilai (near Kanniyakumari) (Map Sheet No. 58H08SE, Plate 70-72) is observed to be accreting and stabilized sand dunes with casuarina plantation are observed during field checks.

The coastal segment in Kanniyakumari district further trends WNW-ESW and then changes to NW-SE upto border with Kerala State and is wave dominating coast facing the Arabian Sea. This coastal segment forms parts of the southern Tamilnadu coast. The entire coast NW of Melmidalam, around Puttantura and further NW upto Puttural (Map Sheet No. 58H04NE, Plate 18-19, 73-78) is very steep, eroding and sea walls are constructed at number of locations to protect the coast. The coast further NW upto border with Kerala near Martandamtur (Map Sheet No. 58H03SW) is eroding to stable in nature (Plate 20-21).

The map sheet wise shoreline changes along the Tamil Nadu and Puducherry coast are shown in Table 2.

Table-2: Map sheet wise results of shoreline changes for 1989-91 and 2004-06 time-frame for Tamil Nadu and Puducherry coast

Sr. No.	Map Sheet No.	Erosion area (sq. km)	Erosion Length (km)	Accretion area (sq km)	Accretion Length (km)	Stable Length (km)
1	66C07SW	0	0	3.42	16.9	0
2	66C08NW	0.91	12.3	0.24	5.23	0
3	66C08SW	0.12	4.36	0.21	12.9	0
4	66D05NW	0	0	0.9	14.1	0
7	66D05SW	0.16	6.65	0.09	3.55	0
5	66D01SE	0.98	5.29	0	0	0
6	66D02NE	0	0	1.46	13.2	0
8	66D02SE	0	0.2	0.36	5.67	5.92
9	66D03NE	0.11	5.6	0.12	1.29	2.68
10	66D03NW	0.13	4.74	0.01	1.38	0
11	66D03SW	0.56	6.28	0.64	8.39	0
12	66D04NW	0	0	0.05	1.3	0
13	57P16NE	0.78	14.8	0.01	0.22	0
14	57P16SE	0.15	5.61	0.15	3.59	0
15	57P16SW	0	0	0.06	4.03	0
16	58M13NW	0.68	3.15	0.13	6.94	0
17	58M13SW	0.43	10.1	0.01	0.43	0
18	58M14NW	0	0.22	0.75	8.95	0
19	58M14SW	0	0.16	1.45	16.8	0
20	58M15NW	0.53	6.9	2.32	21.3	0
21	58M15SW	0	0	2.05	13.4	0
22	58M16NW	0.46	7.37	0.12	1.64	0
23	58M16SW	0.05	2.25	0.12	4.12	0
24	58N13NW	0.02	0.45	0.91	12.4	12.7
25	58N13SW	0.77	8.22	0.47	11.5	0
26	58N14NW	0	0	0.86	22	0
27	58N14SW	0	0	0.43	10.1	1.47
28	58N15NW	0	0	0.78	2.05	0
29	58N07SW	0	0	0.94	6.35	0
30	58N08NW	0	0	0.78	11.2	0
31	58N04SE	0.25	3.1	0.12	3.23	0
32	58N08SW	0.25	3.1	0.12	3.23	0
33	58O01NE	0.24	8.2	0.19	5.81	0
34	58O01NW	0.01	0.31	0	0	0
35	58001SW	0.14	4.51	0.22	6.01	0
36	58O02NW	0.02	1.42	0.09	2.4	1.7

37	58K14NE	0.05	1.94	0.25	7.23	0
38	58K14SE	0.73	7.59	0.01	3.02	0
39	58K15NE	0.79	16.2	1.08	4	0
40	58K15SE	0.74	13.3	0.3	5.55	0
41	58O03SW	0.45	7.13	1.77	16.3	0
42	58O03SE	0.85	17.5	1.09	14.3	0
43	58O07SW	0.12	1.29	0.11	5.6	0
44	58O08NW	0.74	11.7	0.51	9.8	0
45	58K16NE	0.08	1.34	0	0	0
46	58K15SW	0.19	2.01	0	0	0
47	58K16NW	0.28	2.94	1.19	9.66	0
48	58K12NE	1.03	13.7	0.12	6.22	0
49	58K12NW	0	0	2.1	14.6	0
50	58K08NE	0.05	1.34	0.01	2.97	0
51	58K08SE	0	0	0.99	10.8	0
52	58K08SW	0.01	0.63	0.57	9.96	0
53	58L05NW	0	0	0.04	1.12	0
54	58L01NE	0	0	2.06	12.3	0
55	58L01SE	1.15	13.5	0.94	16	0
56	58L02NE	0.07	1.42	1.41	6.35	0
57	58L02SE	0	0	1.58	12.2	0
58	58L02SW	0	0	0.07	2.25	0
59	58L03NE	0.12	1.3	0.07	1.28	0
60	58L03NW	0.06	2.54	0.93	12.7	0
61	58L03SW	0.3	5.54	0.17	3.26	3.02
62	58H15SE	0.04	3.19	0.06	1.25	0
63	58H15SW	0	0	1.08	4	0
64	58H16NW	0.08	1.55	0.97	8.76	0
65	58H12NE	0.39	8.25	0.27	4.97	0
66	58H12NW	0.01	0.4	0.46	6.93	0
67	58H12SW	0.03	1.76	0.28	9.78	1.74
68	58H08SE	0.32	0.53	0.53	9.24	0
69	58H08SW	0.14	2.26	0.54	4.67	0
70	58H08NW	0.07	3.58	0.3	6.12	0
71	58H04NE	0.29	4.56	0.19	9.09	0
72	58H03SE	0.14	3.94	0	0	0
73	58H03SW	0.12	3.34	0.01	0.23	0
	TOTAL	17.19	281.56	42.64	514.11	29.25

Figure 2 shows the length of erosion, accretion and stable coast of Tamil Nadu and Puducherry.

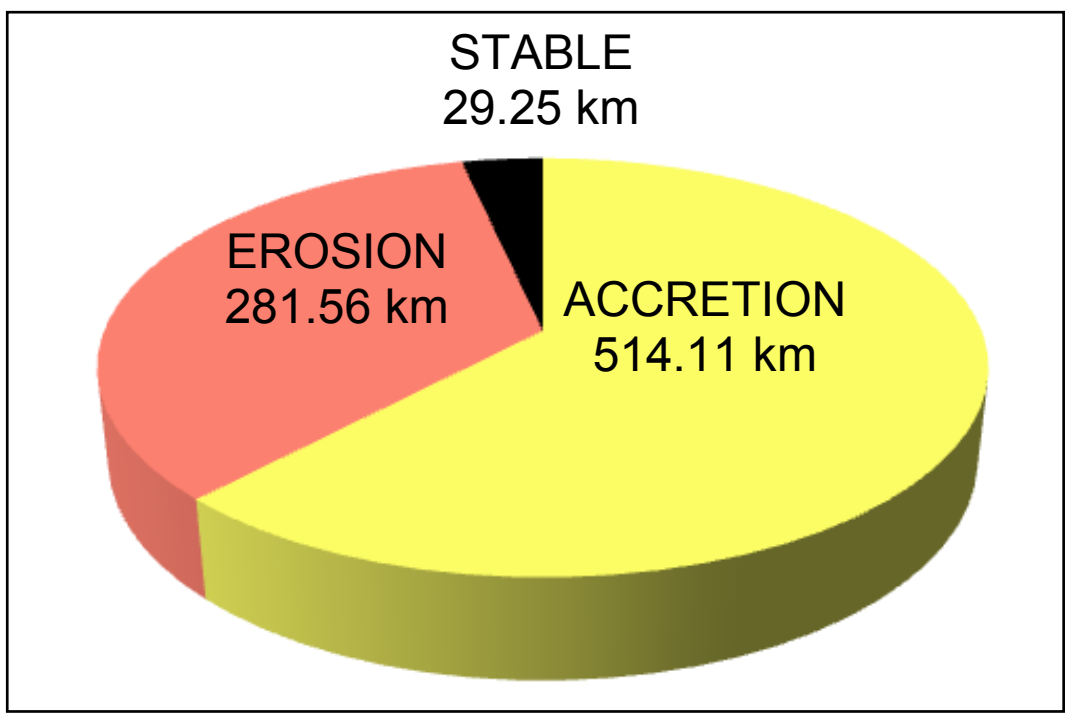


Figure 2: Status of coastal erosion, accretion and stable nature of Tamil Nadu and Puducherry coast (Total coastal length of 824.92 km does not include length of mouth of estuary, rivers, creeks and their inner parts)

END USE

The Atlas can be used as a reference material for obtaining information on status of shoreline changes during 1989-91 and 2004-06 time-frames along entire Indian shoreline. Areas under coastal erosion and status of coastal protection measures taken up by respective maritime State and Union Territory are depicted and can be used for planning coastal protection measures.

The Atlas is extremely useful to Coastal Erosion Directorate, Central Water Commission for providing guidance towards coastal protection works in maritime states of India.

All the State Public Works Departments, Ports and Harbour Authorities, Coastal Regulation Zone Authorities shall be able to have better management of the shorelines in respective states.

REFERENCES

Gupta M.C. et. al., Coastal Zone Management Information System for Gujarat, Technical Report, SAC/MWRD/TR/04/2000.

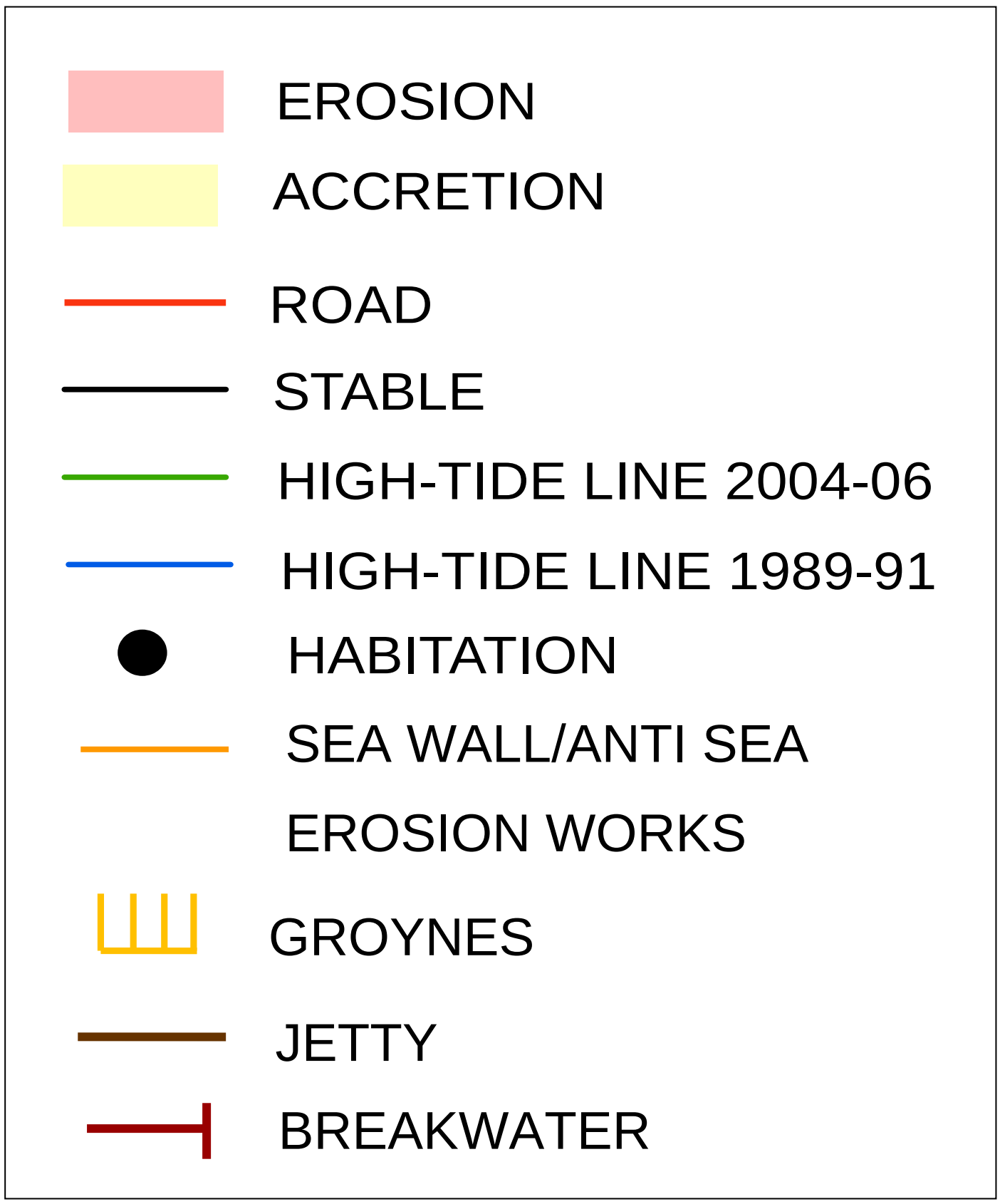
Nayak, S. R., Bahuguna, A., Shaikh, M., Rao, R. S., Trivedi, C. R., Prasad, K. N., Kadri, S. A., Vaidya, P. H., Patel, V. B., Oza, S. H., Patel, S. S., Rao, T. A., Shereiff, A. N. and Suresh, P. V., 1991, *Manual for mapping of coastal wetlands/landforms and shoreline changes using satellite data*: Technical Note, IRSUP/SAC/MCE/TN/32/91 (Space Applications Centre, Ahmedabad), 63 p.

SAC, 2012, *Coastal Zones of India*, Space Applications Centre (ISRO), 2012, 601 p. ISBN: 978-81-909978-9-8.

Annexure-I

(Shoreline Change Maps)

COMPLETE LEGEND TO SHORELINE CHANGE MAPS

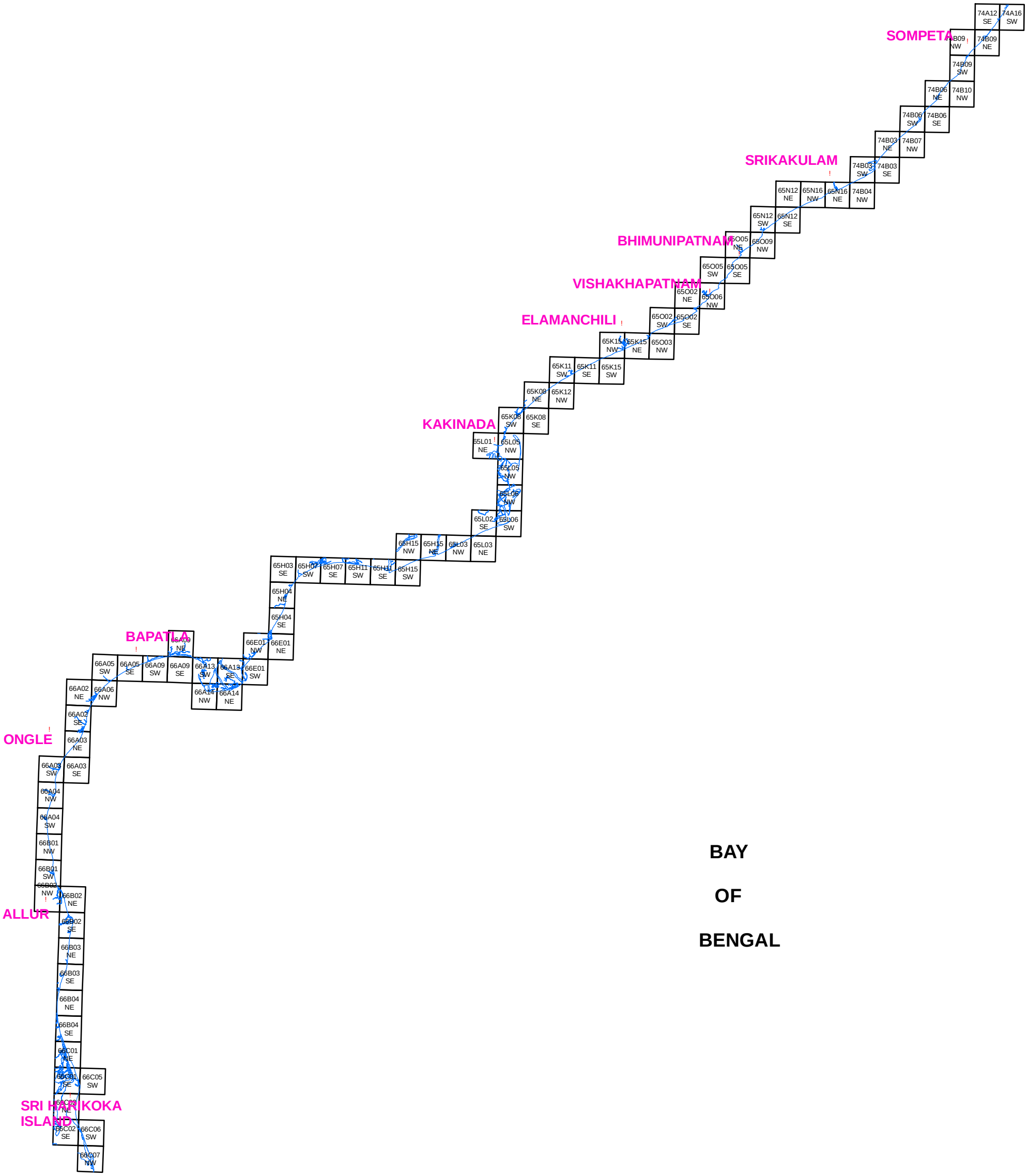


SHORELINE CHANGE MAPS

ANDHRA PRADESH

SHORELINE CHANGE INDEX MAP

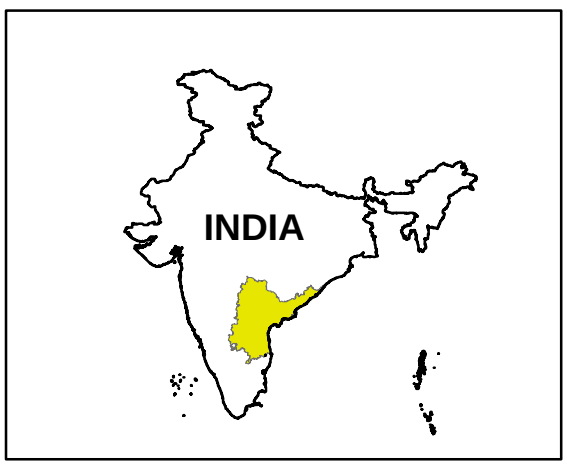
ANDHRA PRADESH



BAY

OF

BENGAL



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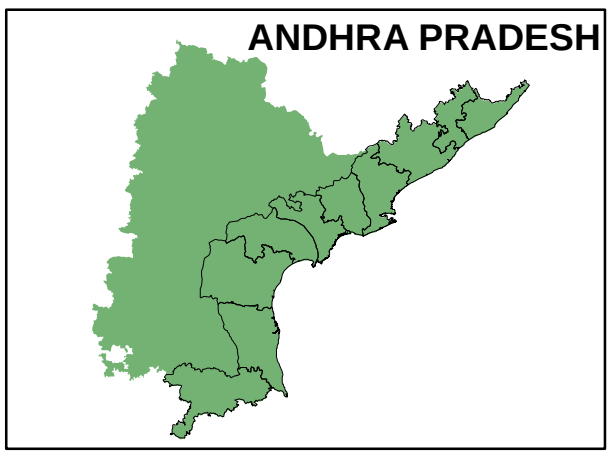
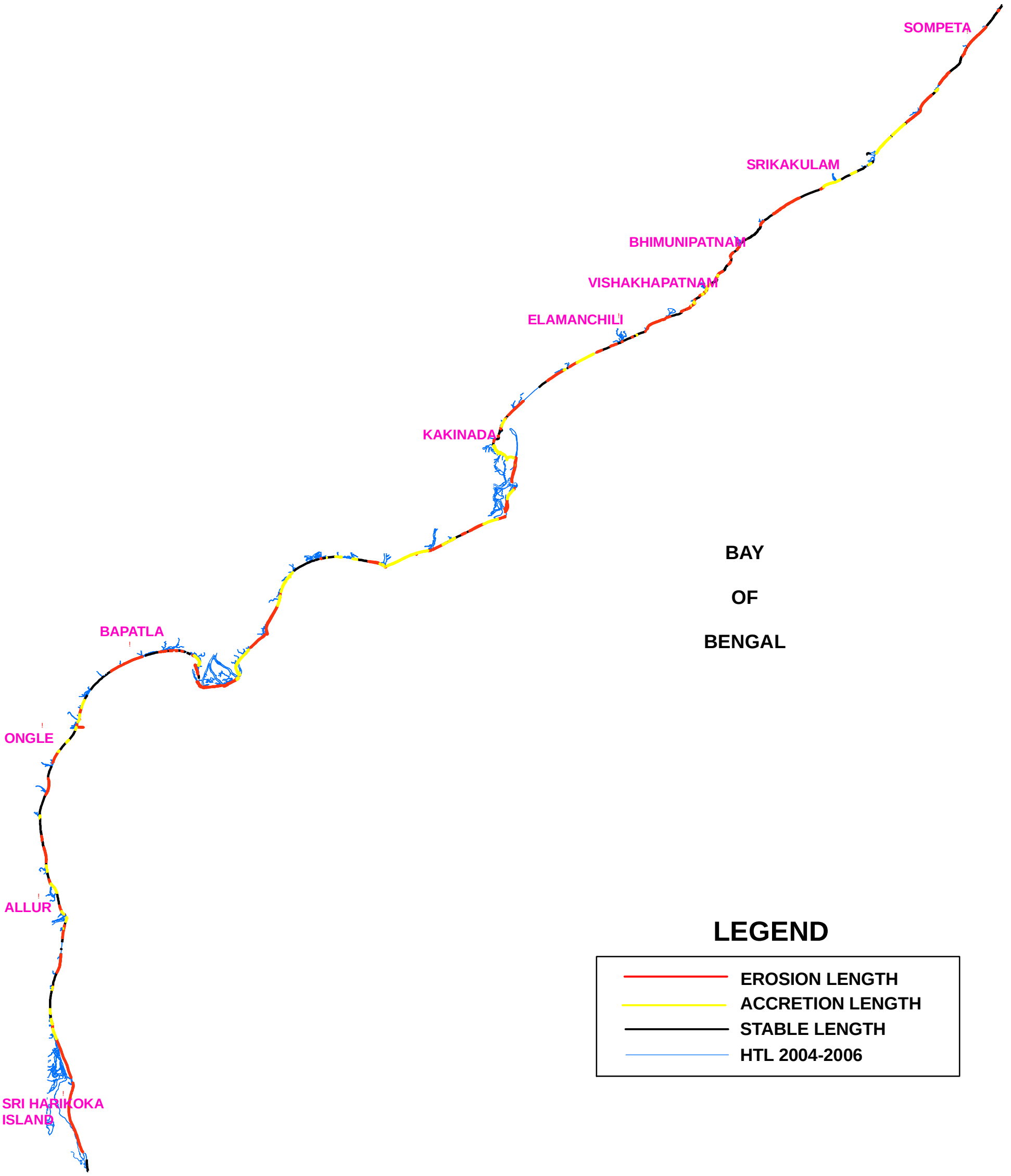
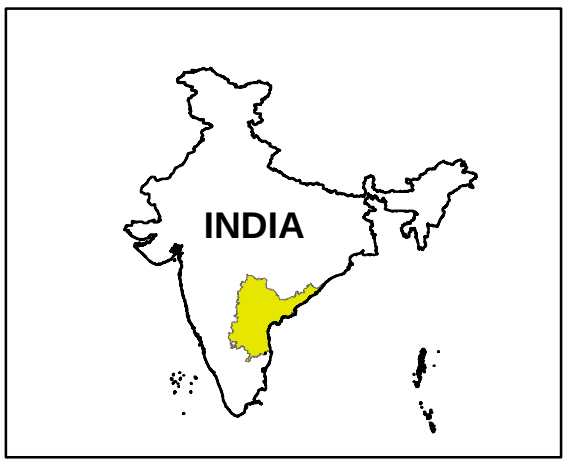


SHORELINE CHANGE MAP

ANDHRA PRADESH





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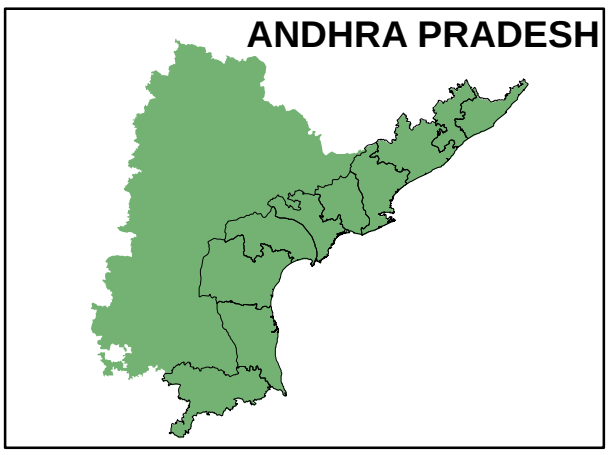

SHORELINE CHANGE MAP

ANDHRA PRADESH

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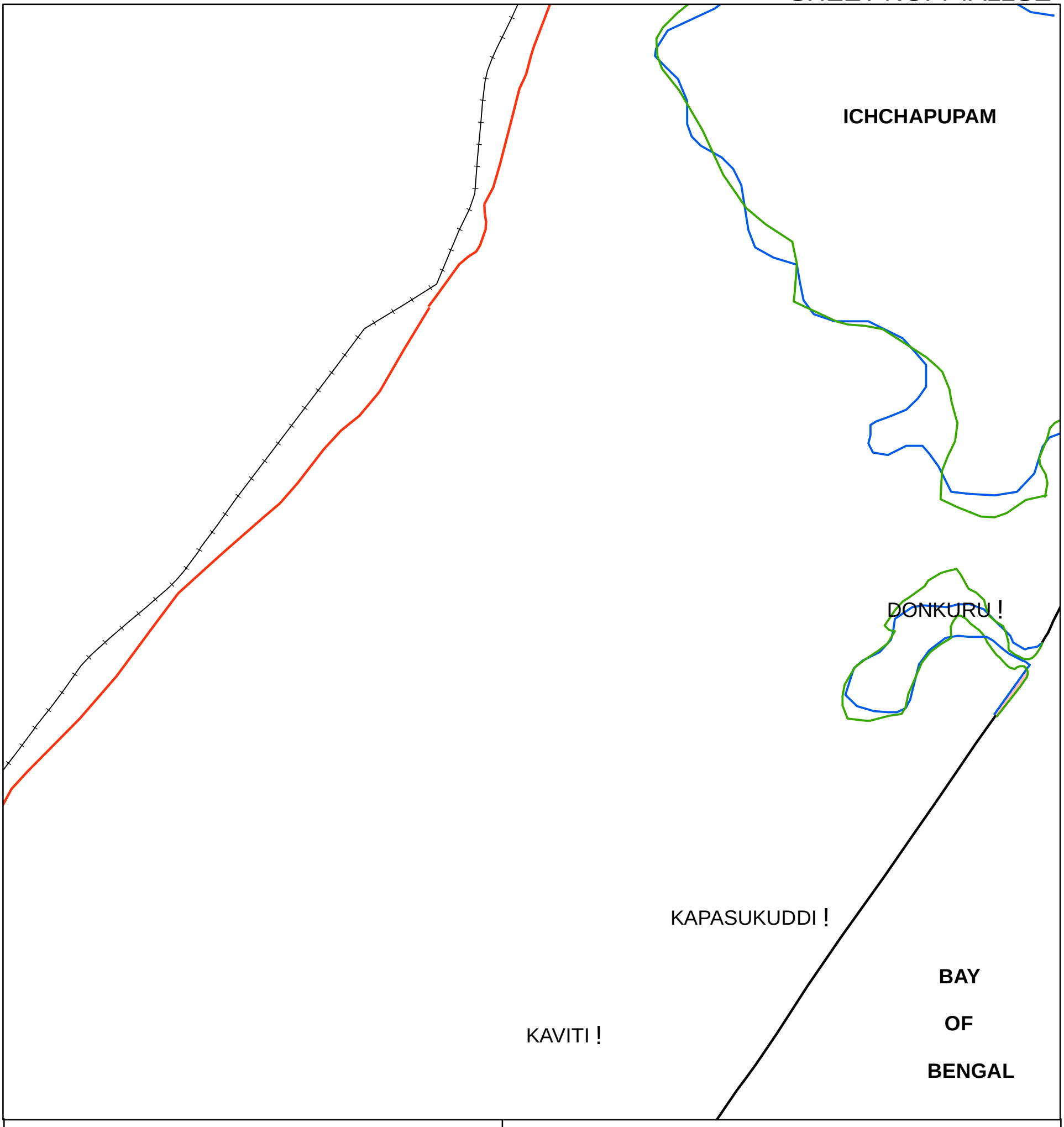
SRIKAKULAM DISTRICT

SHEET NO. 74A12SE



Legend

- EROSION
- STABLE
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

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74A12 SW		74A16 SW
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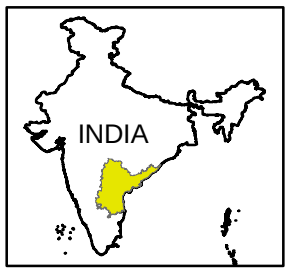

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

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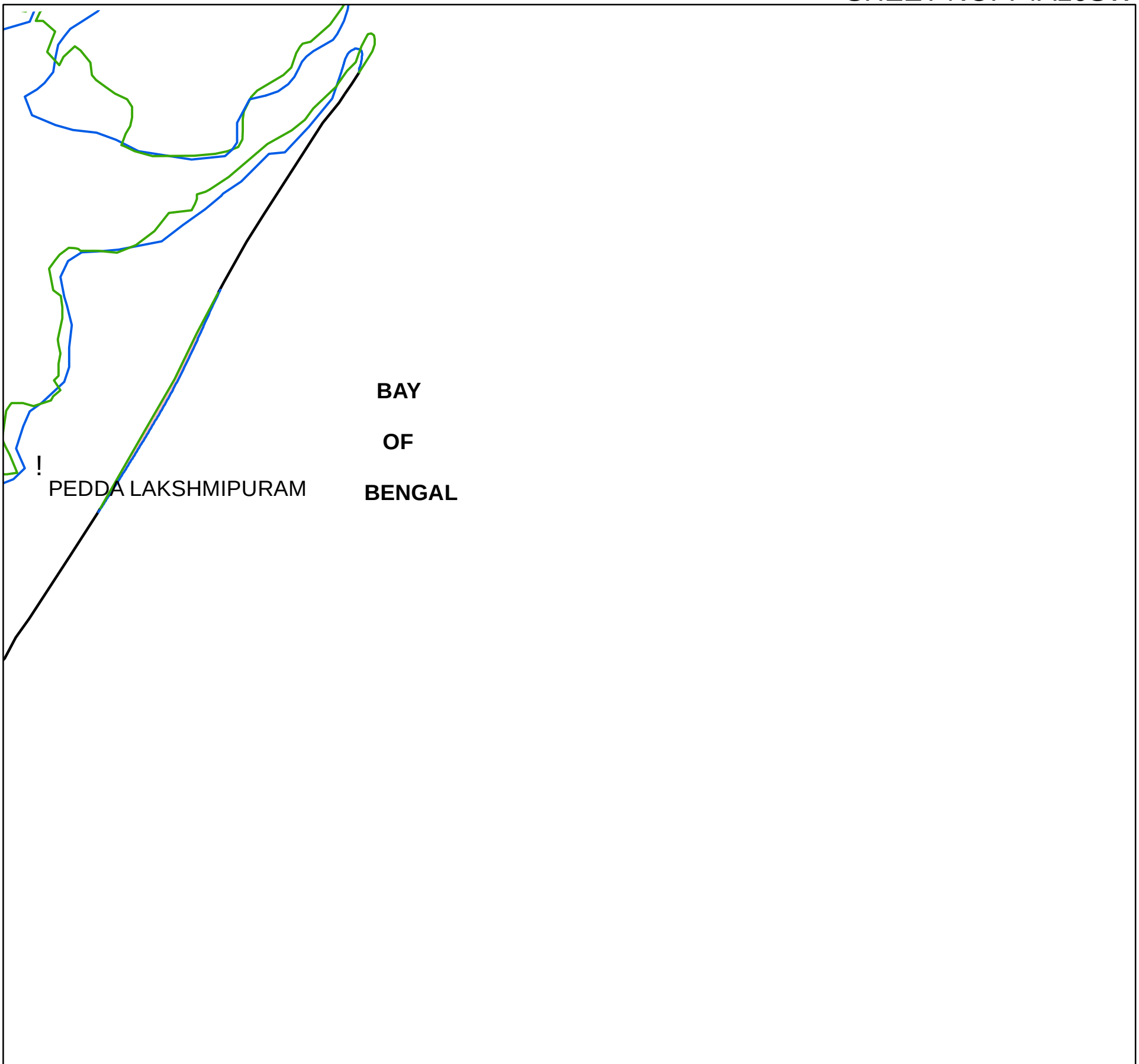

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- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

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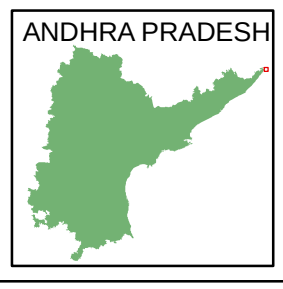
74A12 SE		SEA
74B09 NE	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

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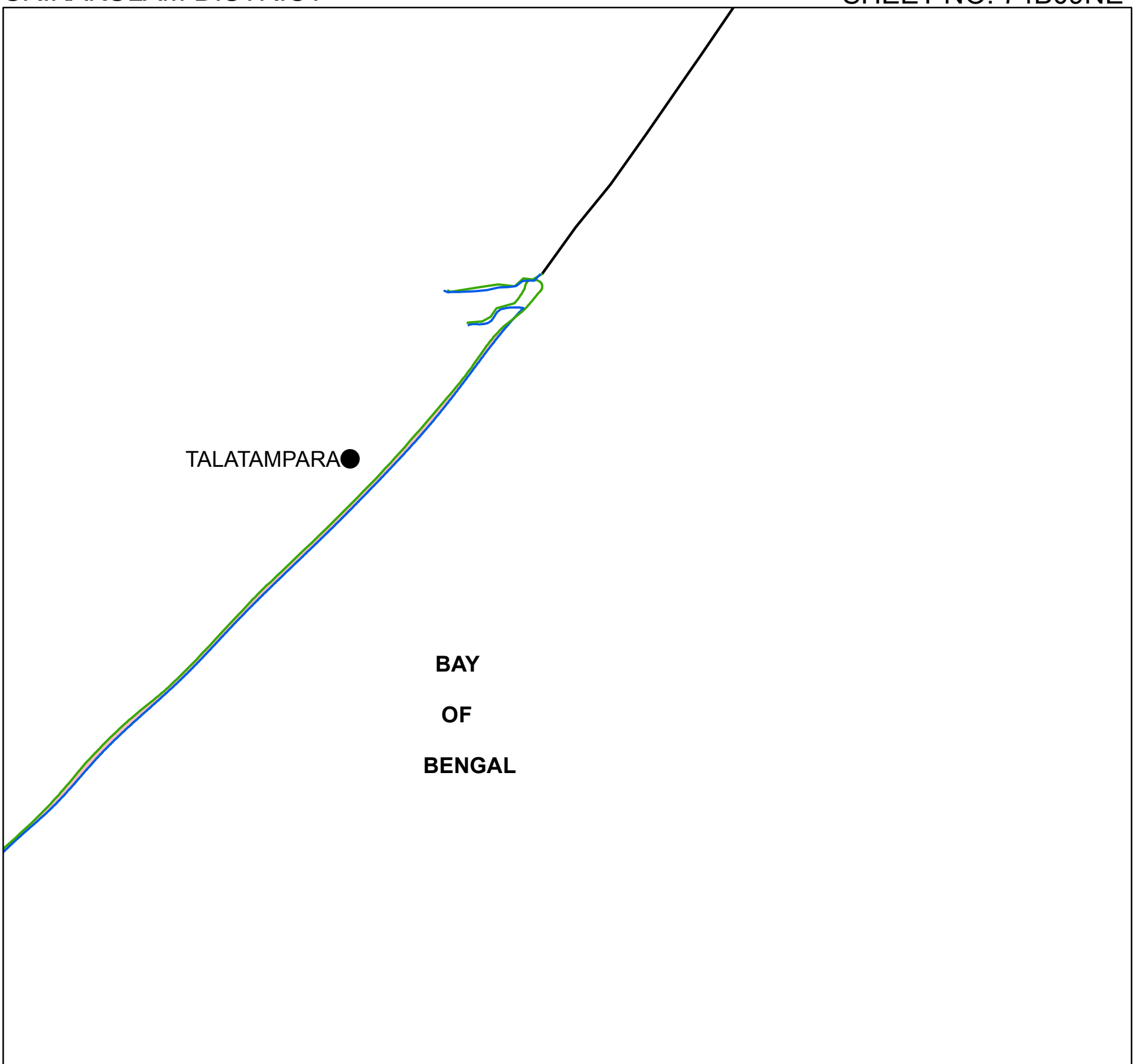
SHEET NO. 74B09NE



Legend

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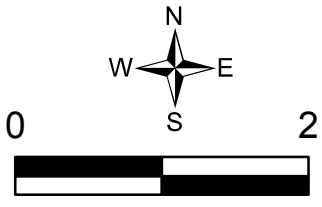
- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- HABITATION



Scale in Km

INDEX TO SHEETS

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DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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SRIKAKULAM DISTRICT

SHEET NO. 74B09NW

BAY

OF

BENGAL

Legend

- EROSION
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

74A08 SE	74A12 SW	74A12 SE
74B05 NE		74B09 NE
74B05 SE	74B09 SW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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SRIKAKULAM DISTRICT

SHEET NO. 74B09SW

TURAKA SASANAM !

BAY

OF

BENGAL

RANGAPURAM !

!
VAN KULURU

Legend

- EROSION
- STABLE
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

74B05 NE	74B09 NW	74B09 NE
74B05 SE		SEA
74B06 NE	74B10 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

SRIKAKULAM DISTRICT

SHEET NO. 74B10NW

BAY

OF

BENGAL

Legend

STABLE

HIGH-TIDE LINE 2004-06

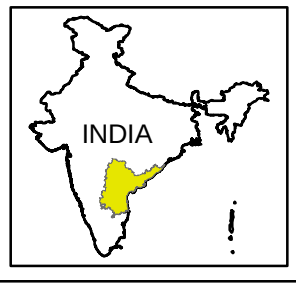
HIGH-TIDE LINE 1989-91

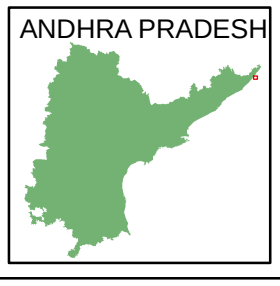
0 2

Scale in Km

INDEX TO SHEETS

74B05 SE	74B09 SW	SEA
74B06 NE		SEA
74B06 SE	SEA	SEA





DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

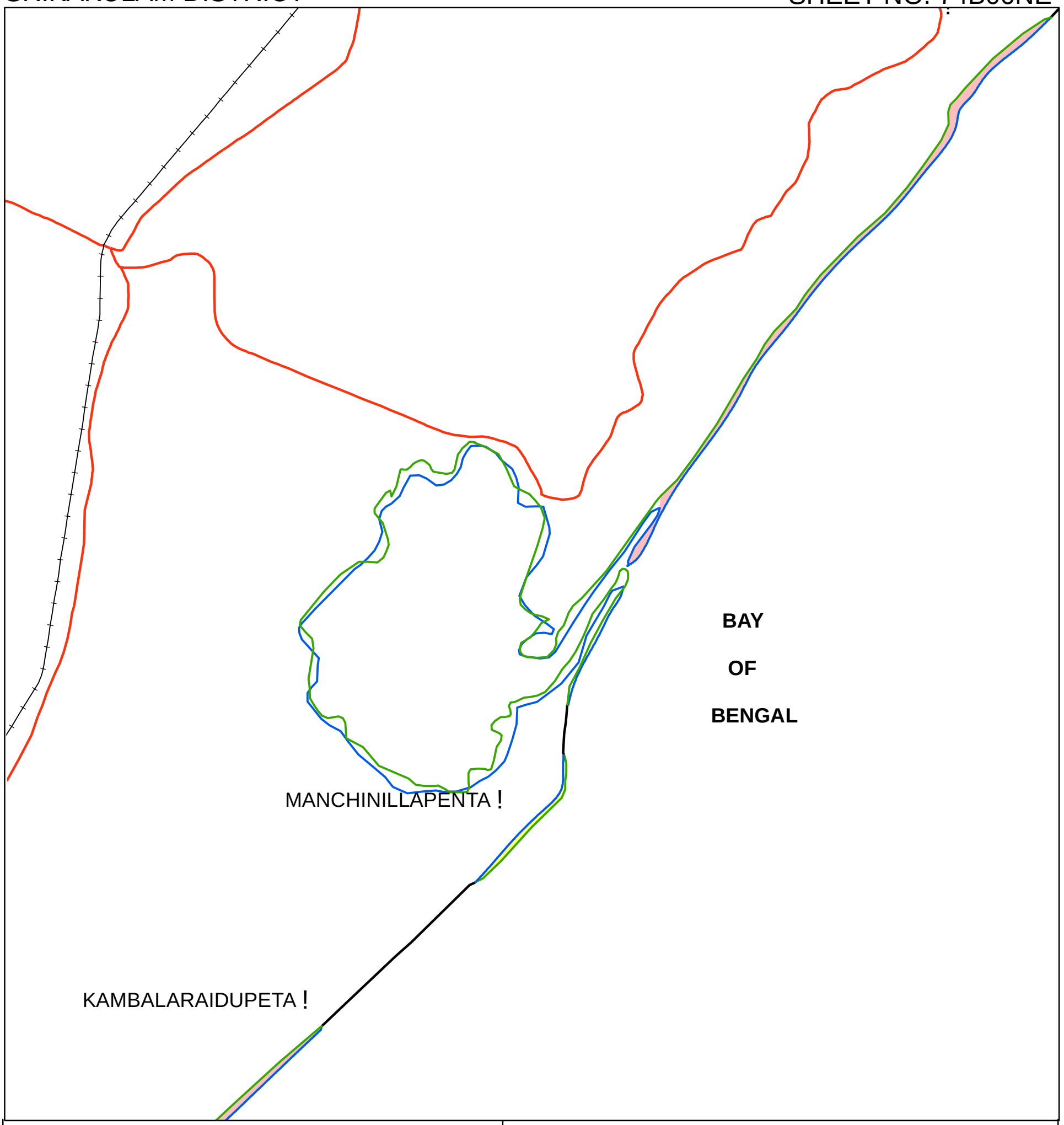
SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

SRIKAKULAM DISTRICT

SHEET NO. 74B06NE



Legend

- EROSION
- ACCRETION
- STABLE
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

74B05 SW	74B05 SE	74B09 SW
74B06 NW		74B10 NW
74B06 SW	74B06 SE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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SRIKAKULAM DISTRICT

SHEET NO. 74B06SE

RAMAKRISHNAPURAM

BAY

OF

BENGAL

Legend

EROSION

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

HABITATION

N

W E

S

0 2

Scale in Km

INDEX TO SHEETS

74B06 NW	74B06 NE	74B10 NW
74B06 SW		SEA
74B07 NW	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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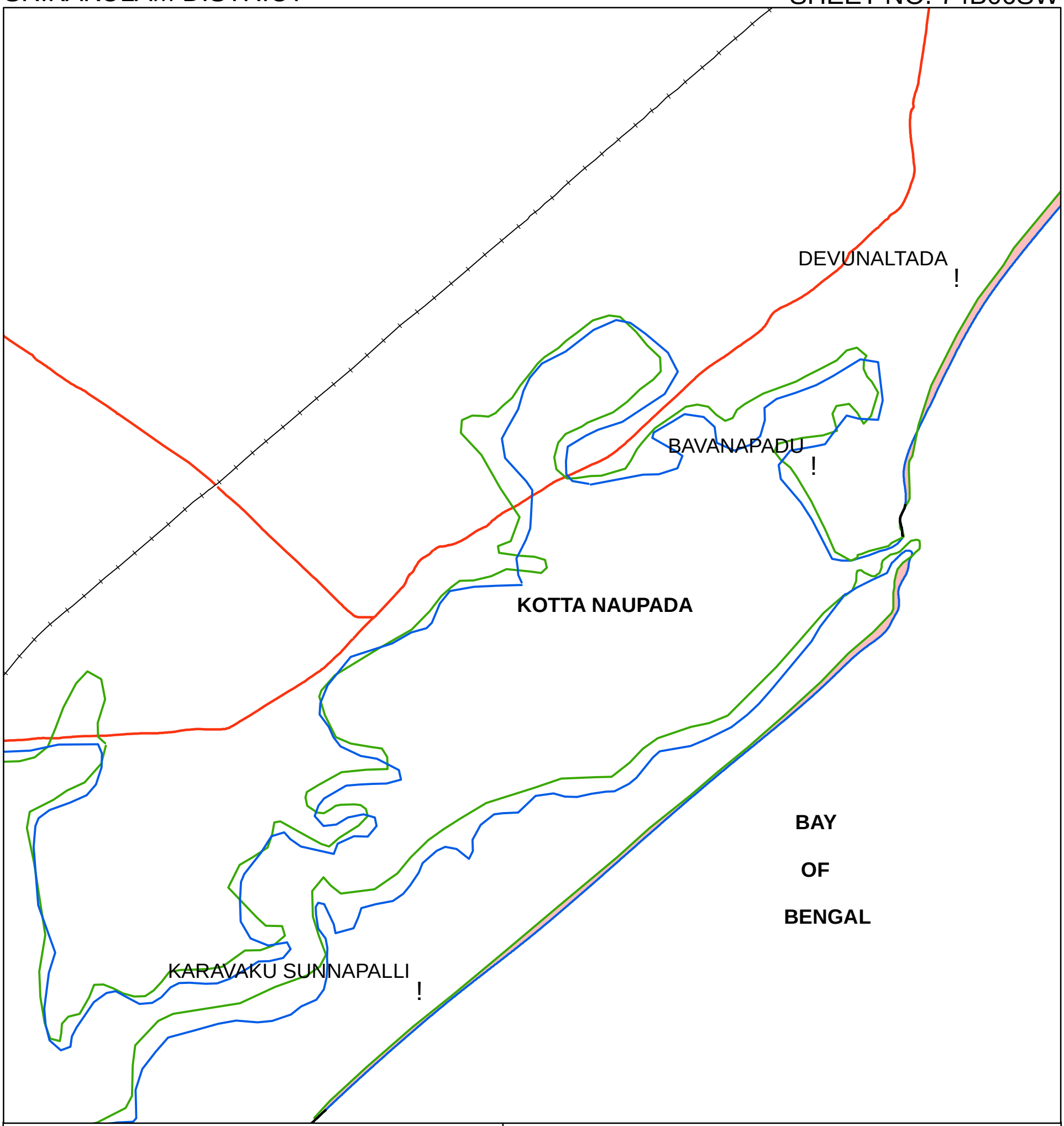
SRIKAKULAM DISTRICT

SHEET NO. 74B06SW



Legend

- EROSION
- STABLE
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

74B02 NE	74B06 NW	74B06 NE
74B02 SE		74B06 SE
74B03 NE	74B07 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

ANDHRA PRADESH

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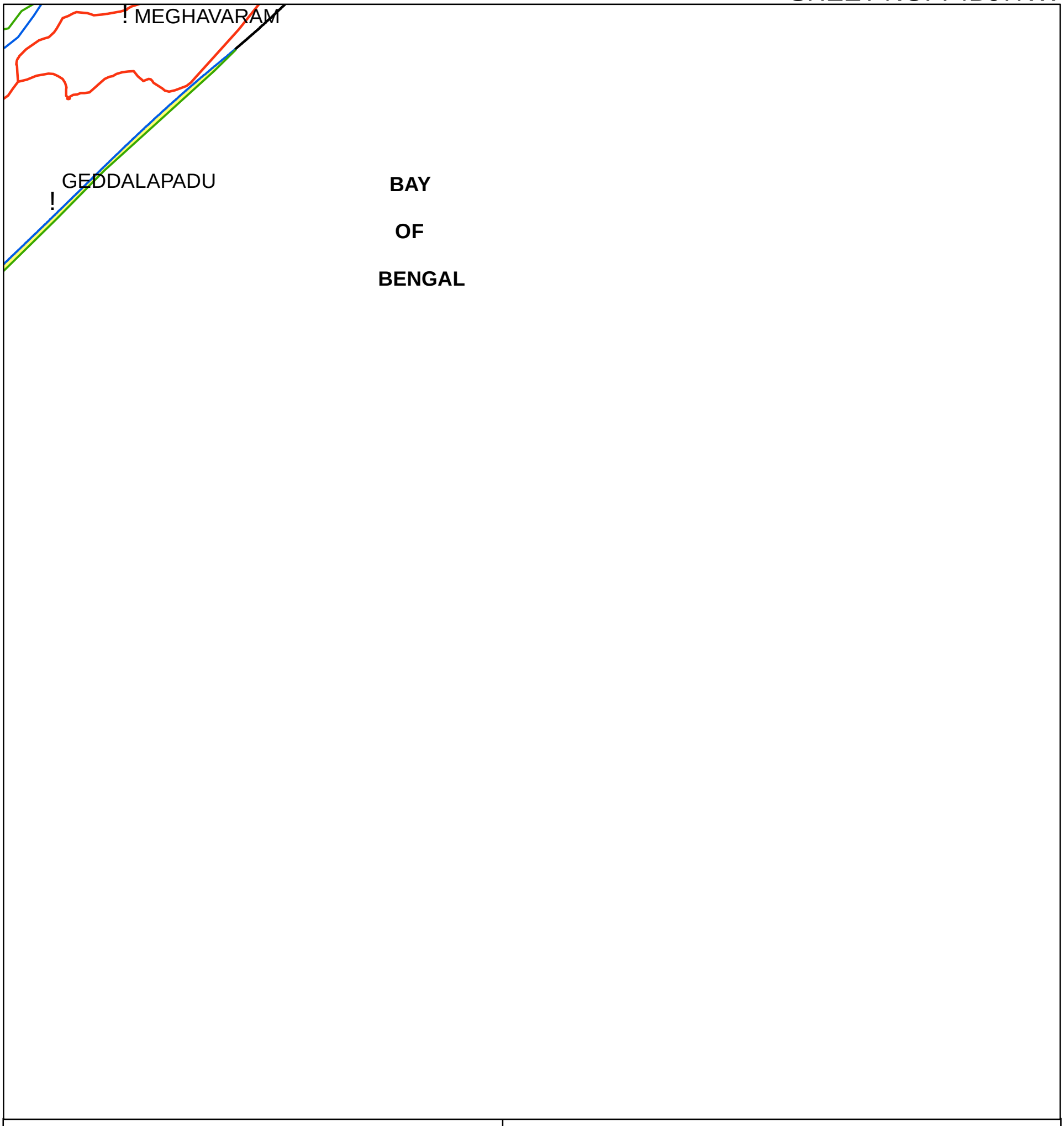
SRIKAKULAM DISTRICT

SHEET NO. 74B07NW



Legend

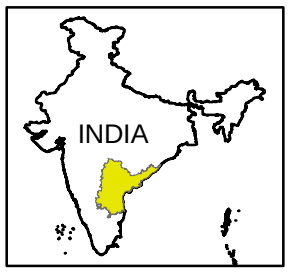
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

74B02 SE	74B06 SW	74B06 SE
74B03 NE		SEA
74B03 SE	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

SRIKAKULAM DISTRICT

SHEET NO. 74B03NE

SIPURAM

GANTAVANIPETA

JAGANNADHAPURAM

UMILADA

GOLLAMPETA

SURARAM

BAY

OF

BENGAL

Legend

- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

74B02 SW	74B02 SE	74B06 SW
74B03 NW		74B07 NW
74B03 SW	74B03 SE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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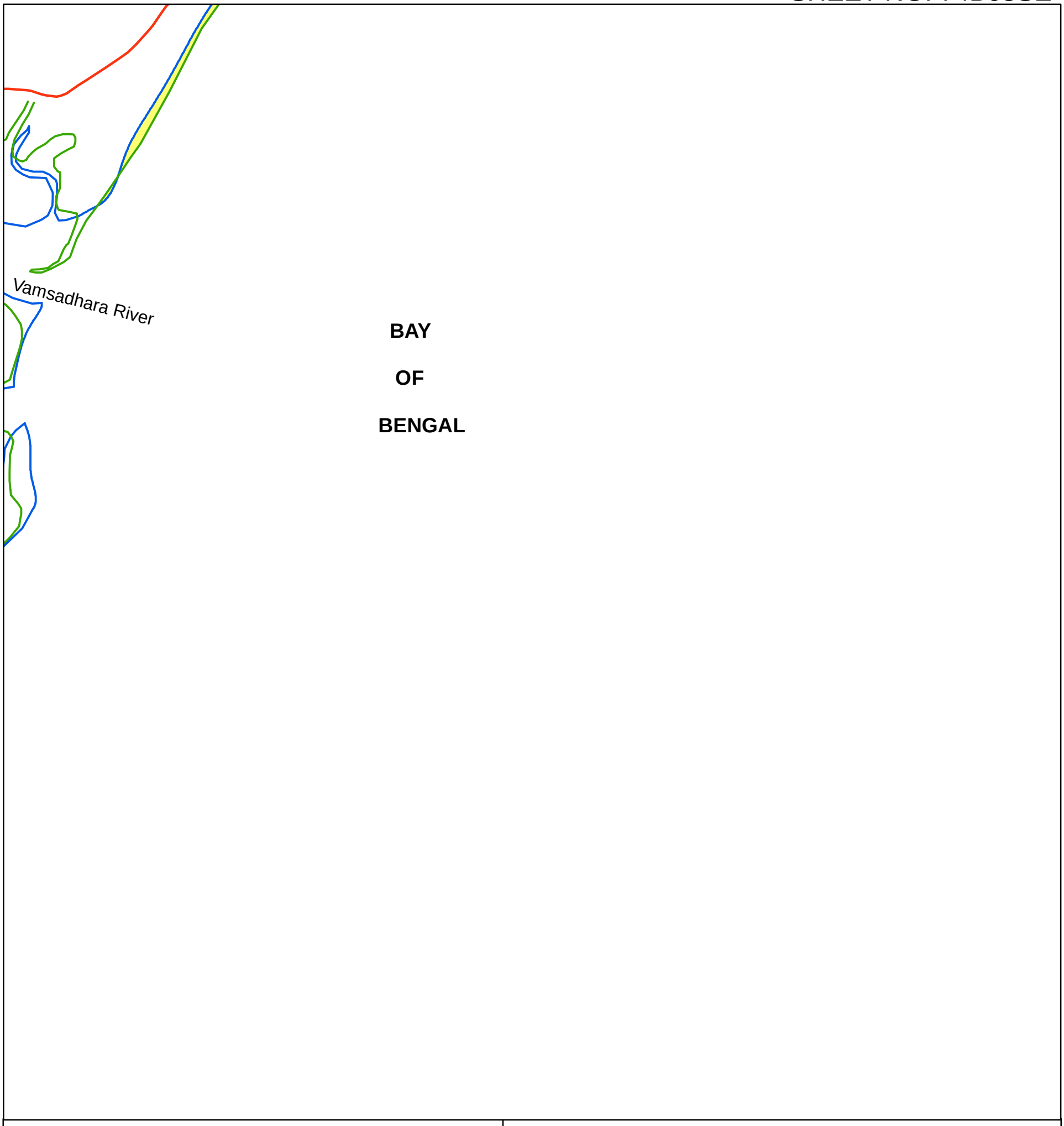
SRIKAKULAM DISTRICT

SHEET NO. 74B03SE



Legend

- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

74B03 NW	74B03 NE	74B07 NW
74B03 SW		SEA
74B04 NW	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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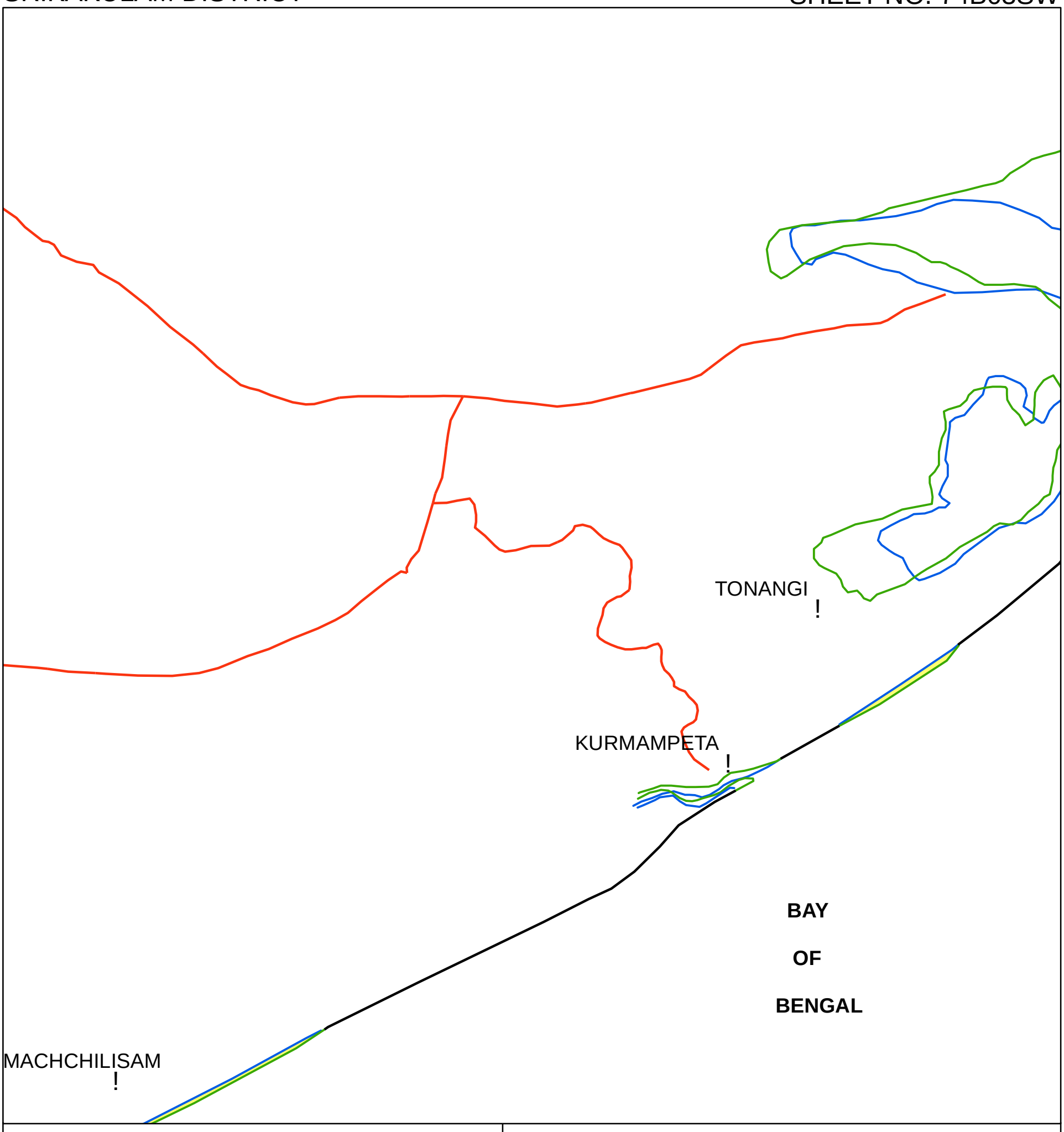
SRIKAKULAM DISTRICT

SHEET NO. 74B03SW



Legend

- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65N15 NE	74B03 NW	74B03 NE
65N15 SE		74B03 SE
65N16 NE	74B04 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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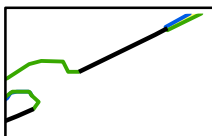
SRIKAKULAM DISTRICT

SHEET NO. 74B04NW



BAY

OF

BENGAL

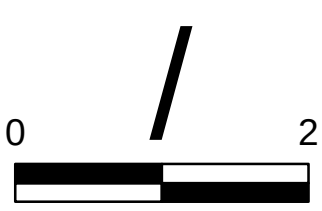
Legend

ACCRETION

STABLE

HIGH-TIDE LINE 2004-06

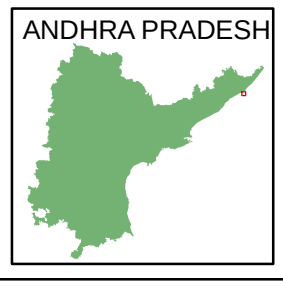
HIGH-TIDE LINE 1989-91



Scale in Km

INDEX TO SHEETS

65N15 SE	74B03 SW	74B03 SE
65N16 NE		SEA
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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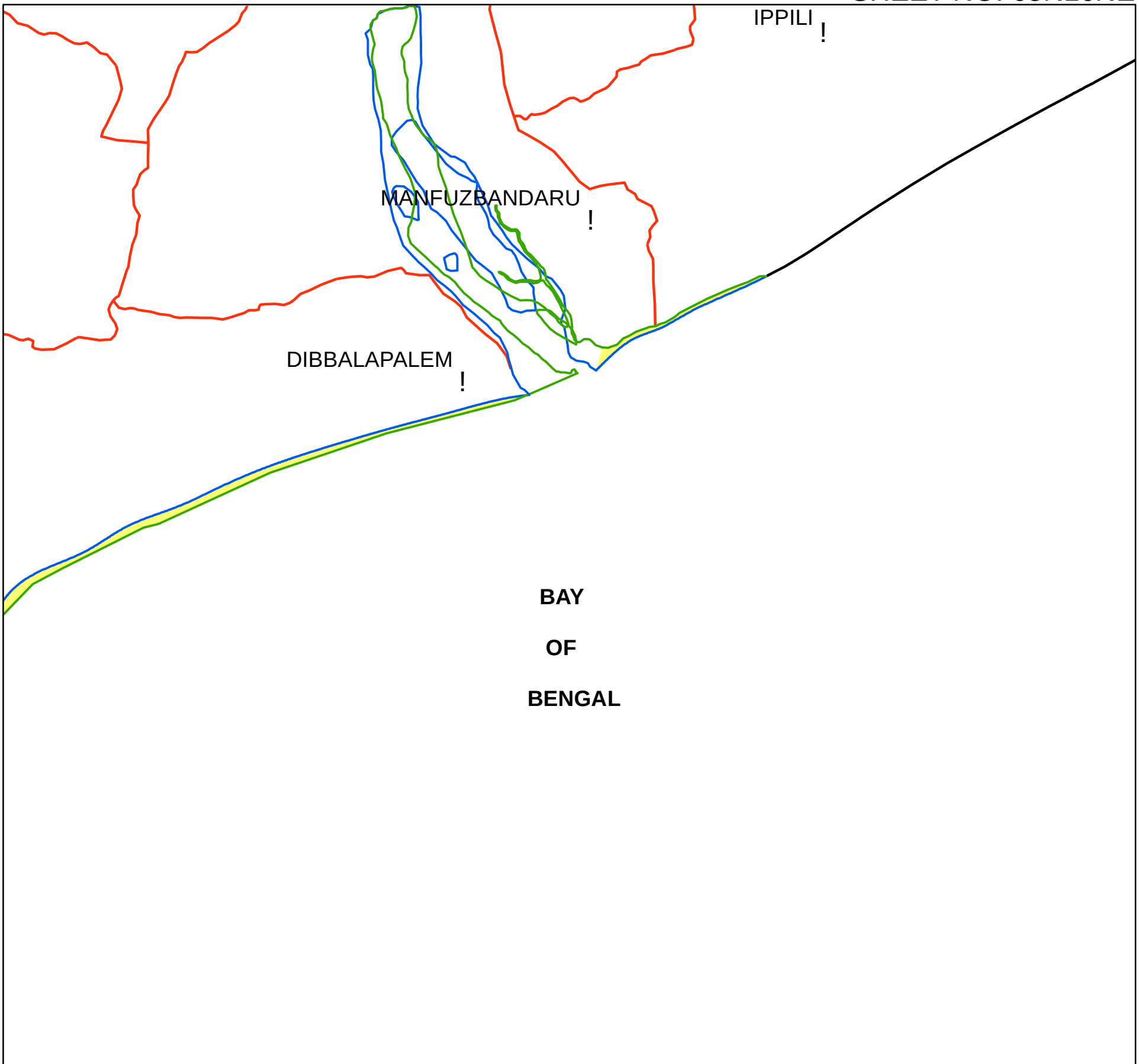
SRIKAKULAM DISTRICT

SHEET NO. 65N16NE



Legend

- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65N15 SW	65N15 SE	74B03 SW
65N16 NW		74B04 NW
SEA	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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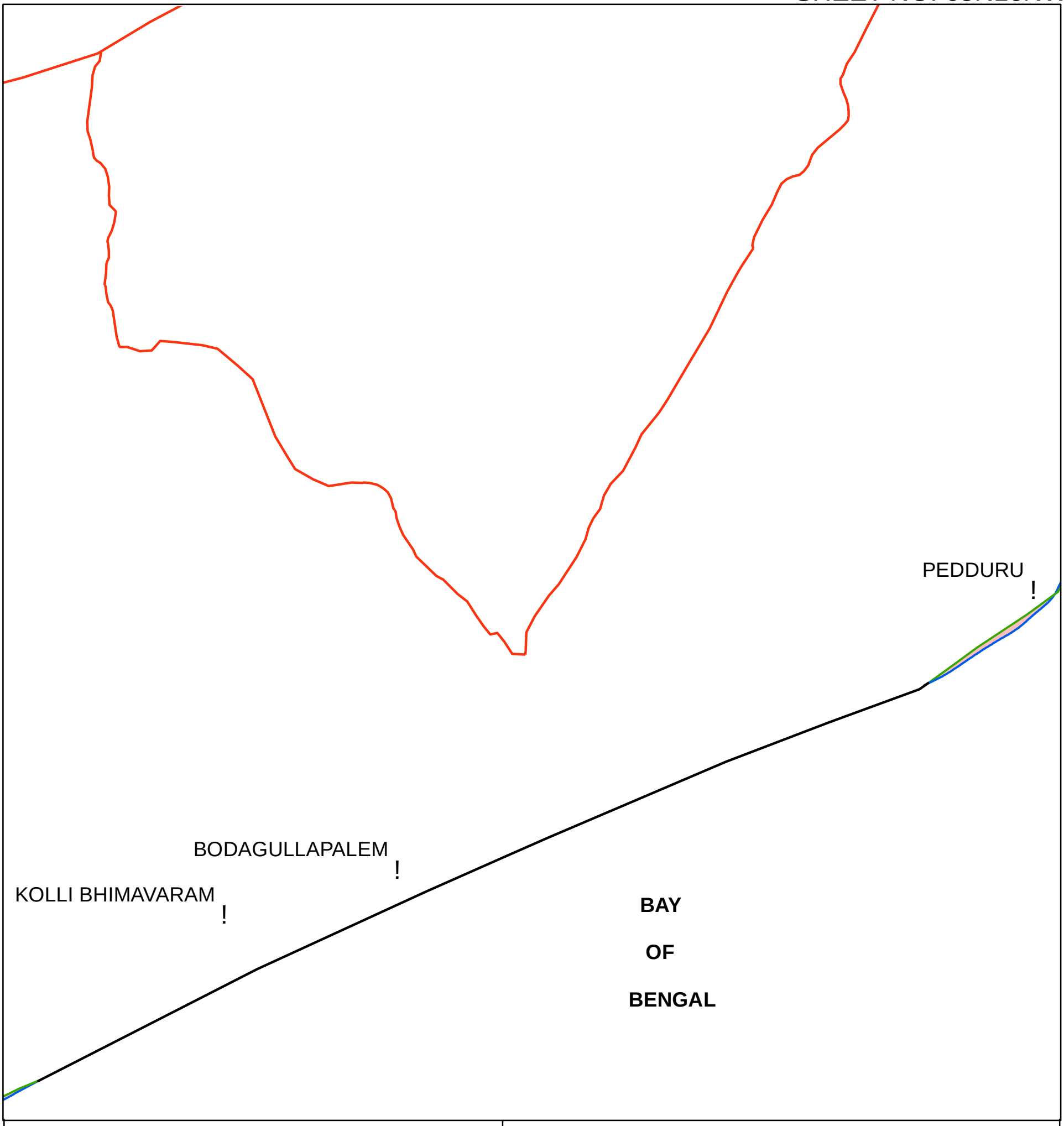
SRIKAKULAM DISTRICT

SHEET NO. 65N16NW



Legend

- EROSION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65N11 SE	65N15 SW	65N15 SE
65N12 NE		65N16 NE
65N12 SE	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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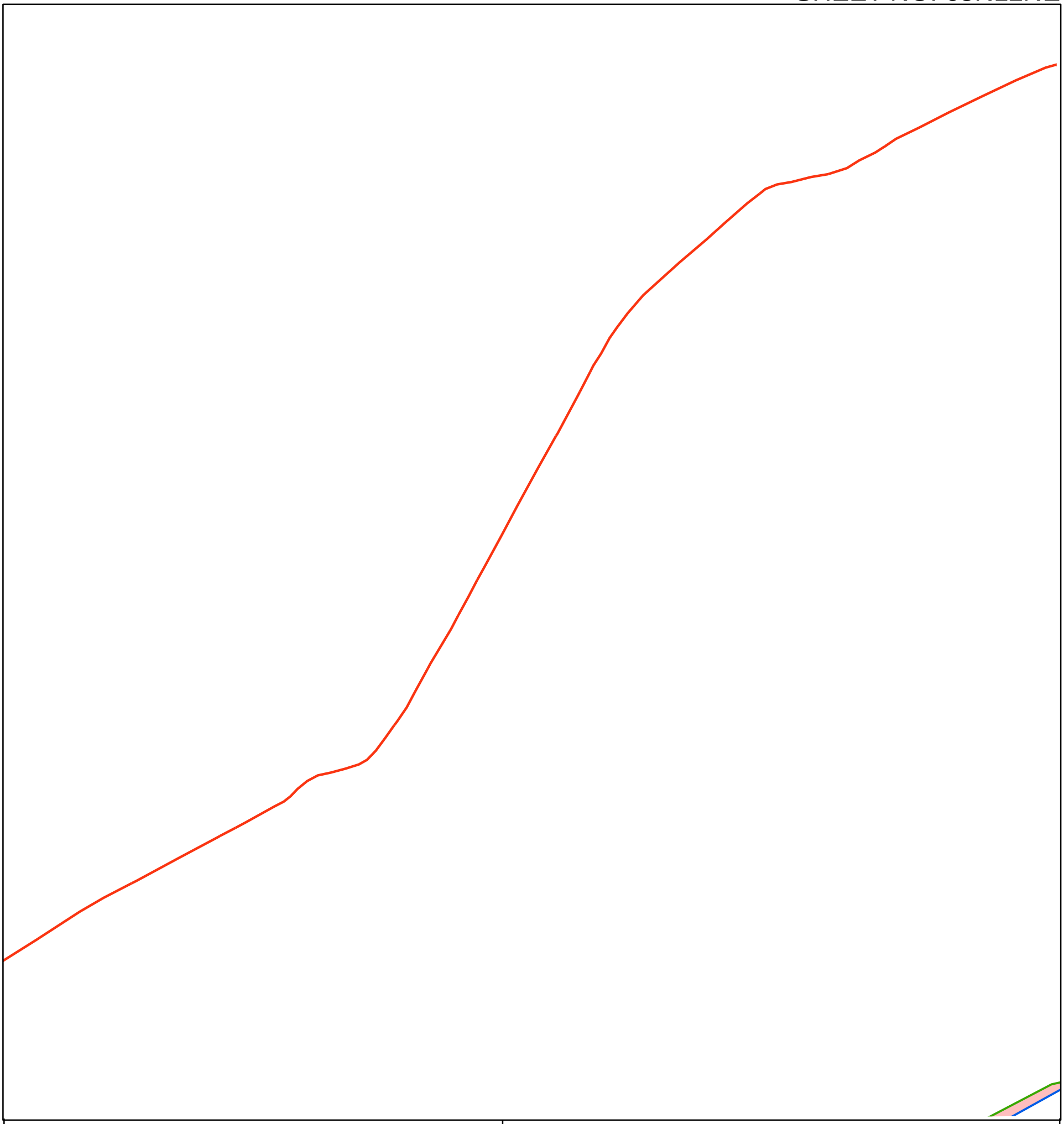
SRIKAKULAM DISTRICT

SHEET NO. 65N12NE



Legend

EROSION

ROAD

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

65N11 SW	65N11 SE	65N15 SW
65N12 NW		65N16 NW
65N12 SW	65N12 SE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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SRIKAKULAM DISTRICT

SHEET NO. 65N12SE

KOTHAPALE !

MENTADA !

CHINTAPALLI !

BAY

OF

BENGAL

Legend

EROSION

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65N12 NW	65N12 NE	65N16 NW
65N12 SW		SEA
65O09 NW	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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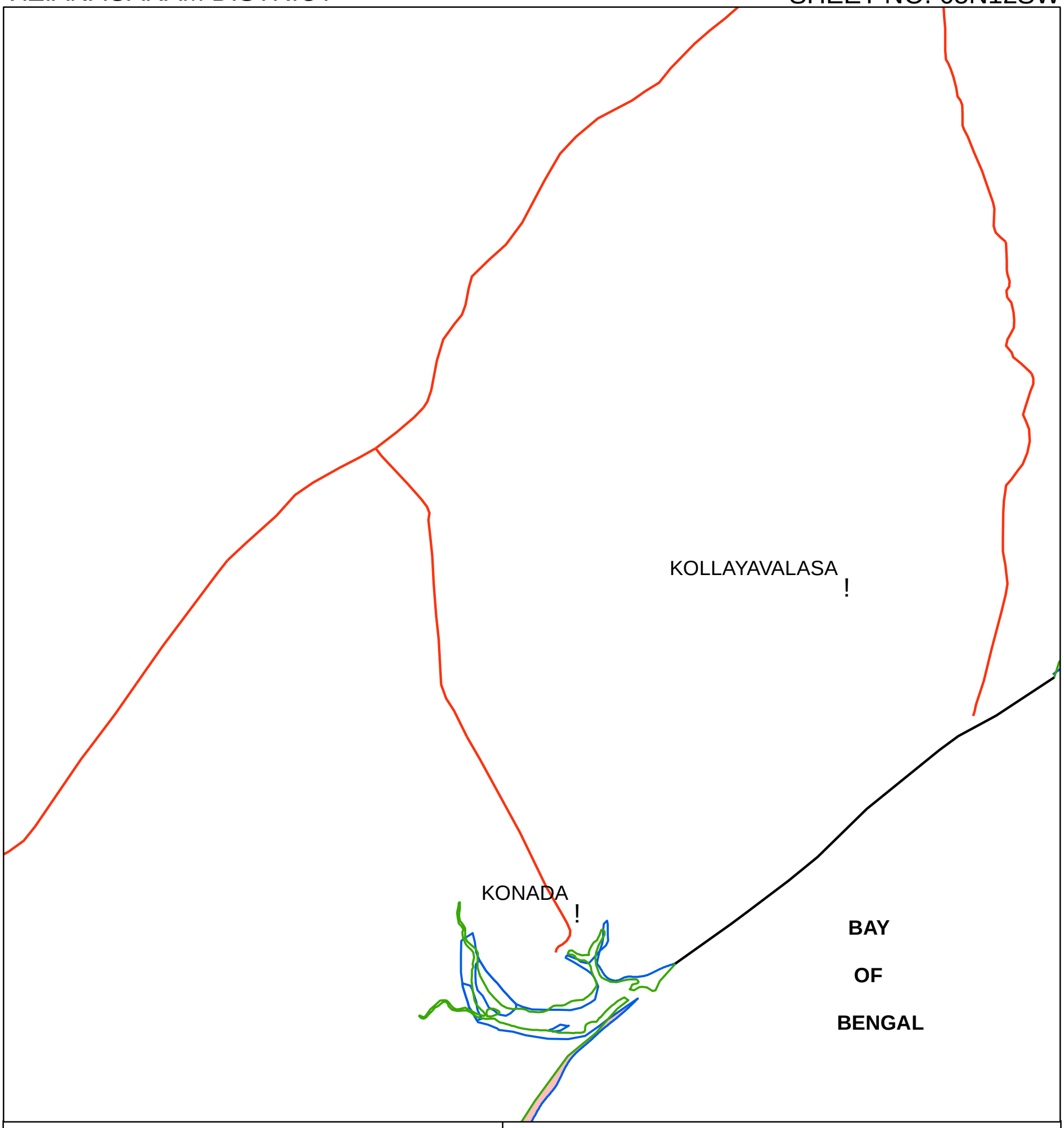
VIZIANAGARAM DISTRICT

SHEET NO. 65N12SW



Legend

- EROSION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65N08 NE	65N12 NW	65N12 NE
65N08 SE		65N12 SE
65O05 NE	65O09 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
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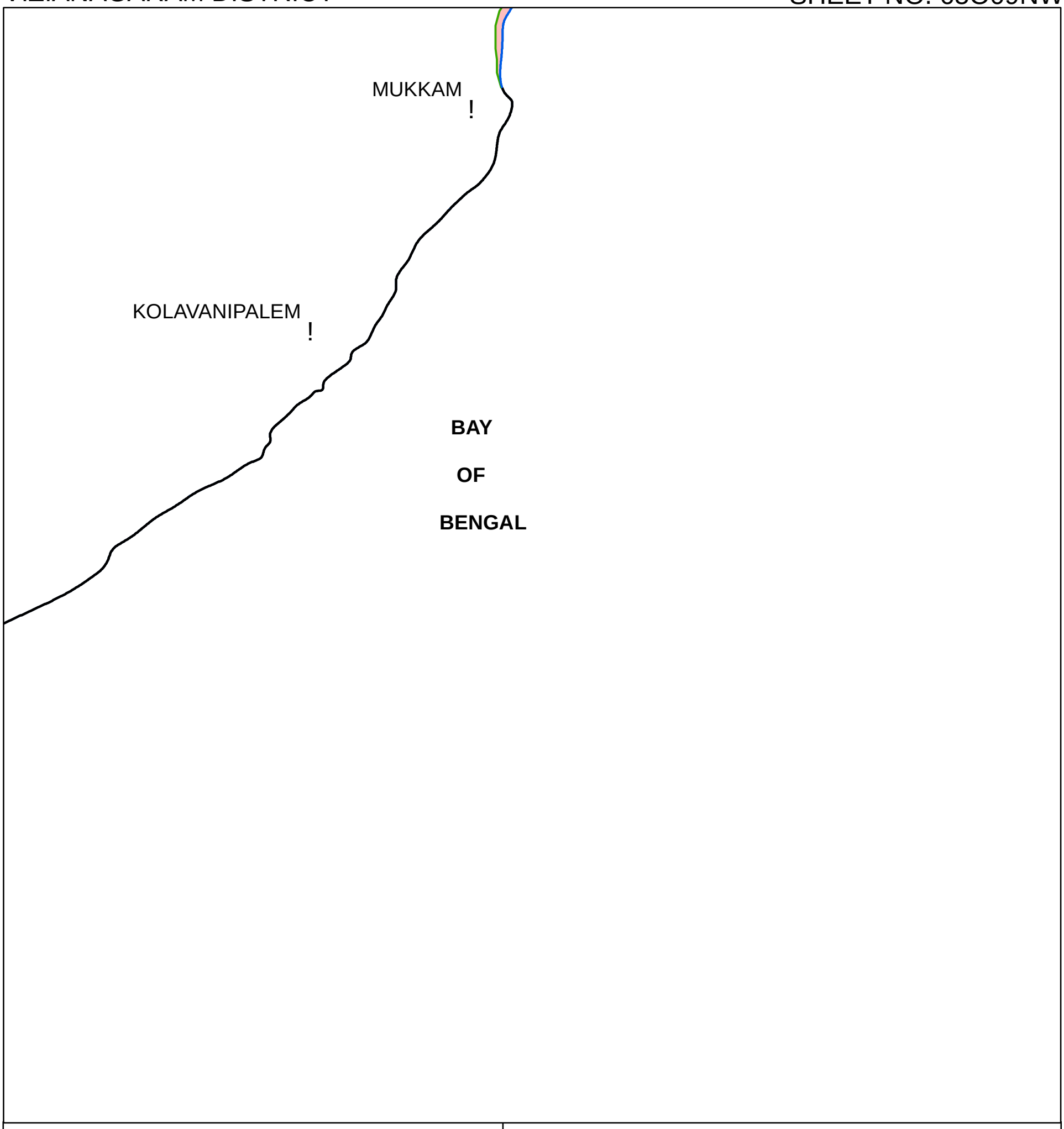
SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

VIZIANAGARAM DISTRICT

SHEET NO. 65O09NW



Legend

EROSION

STABLE

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

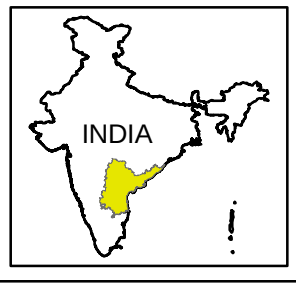
HABITATION

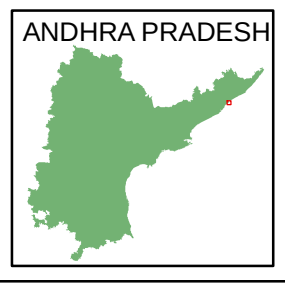
0 2

Scale in Km

INDEX TO SHEETS

65N08 SE	65N12 SW	65N12 SE
65O05 NE		SEA
65O05 SE	SEA	SEA





DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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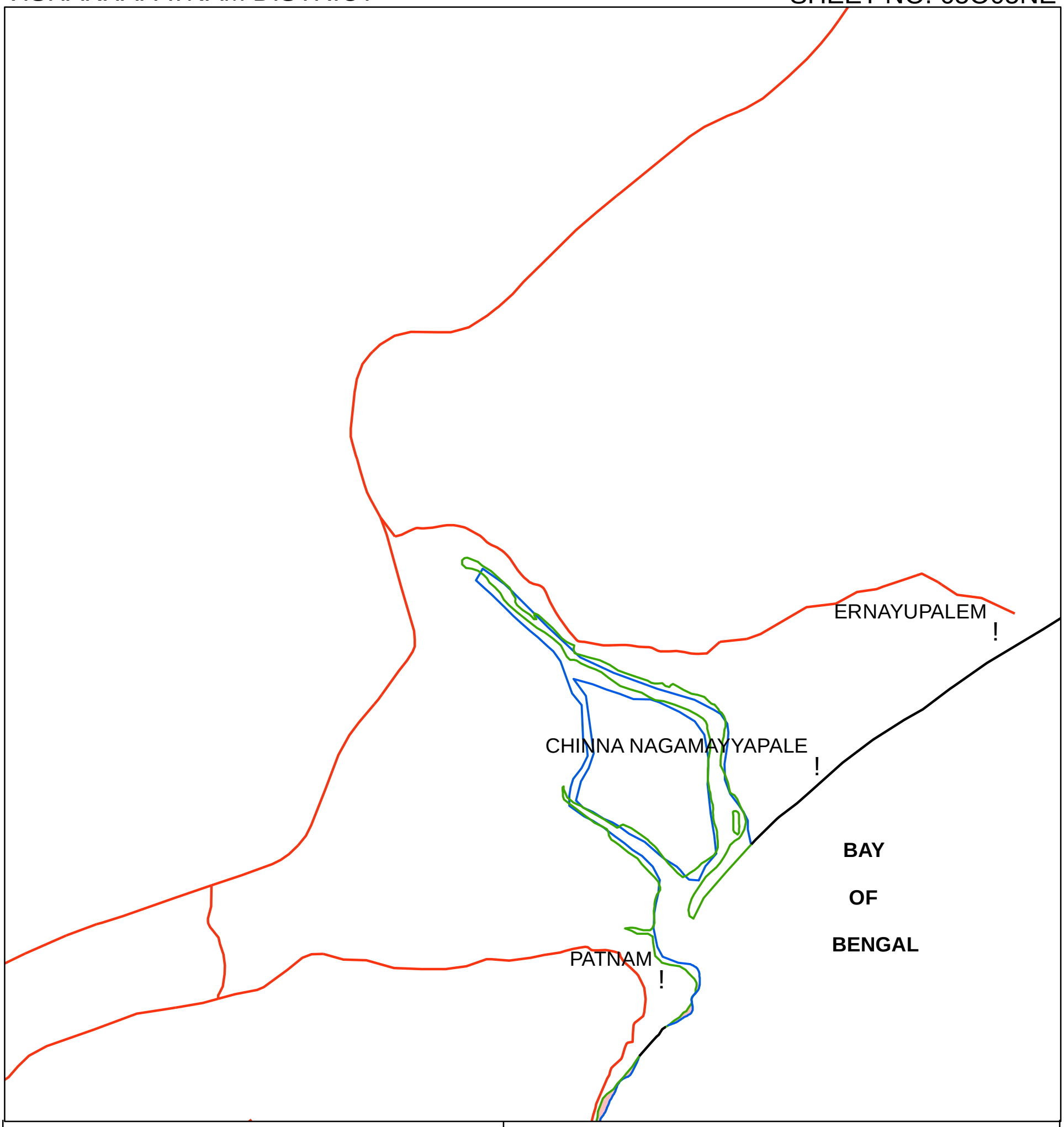
VISHAKHAPATNAM DISTRICT

SHEET NO. 65O05NE



Legend

- EROSION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65N08 SW	65N08 SE	65N12 SW
65O05 NW		65O09 NW
65O05 SW	65O05 SE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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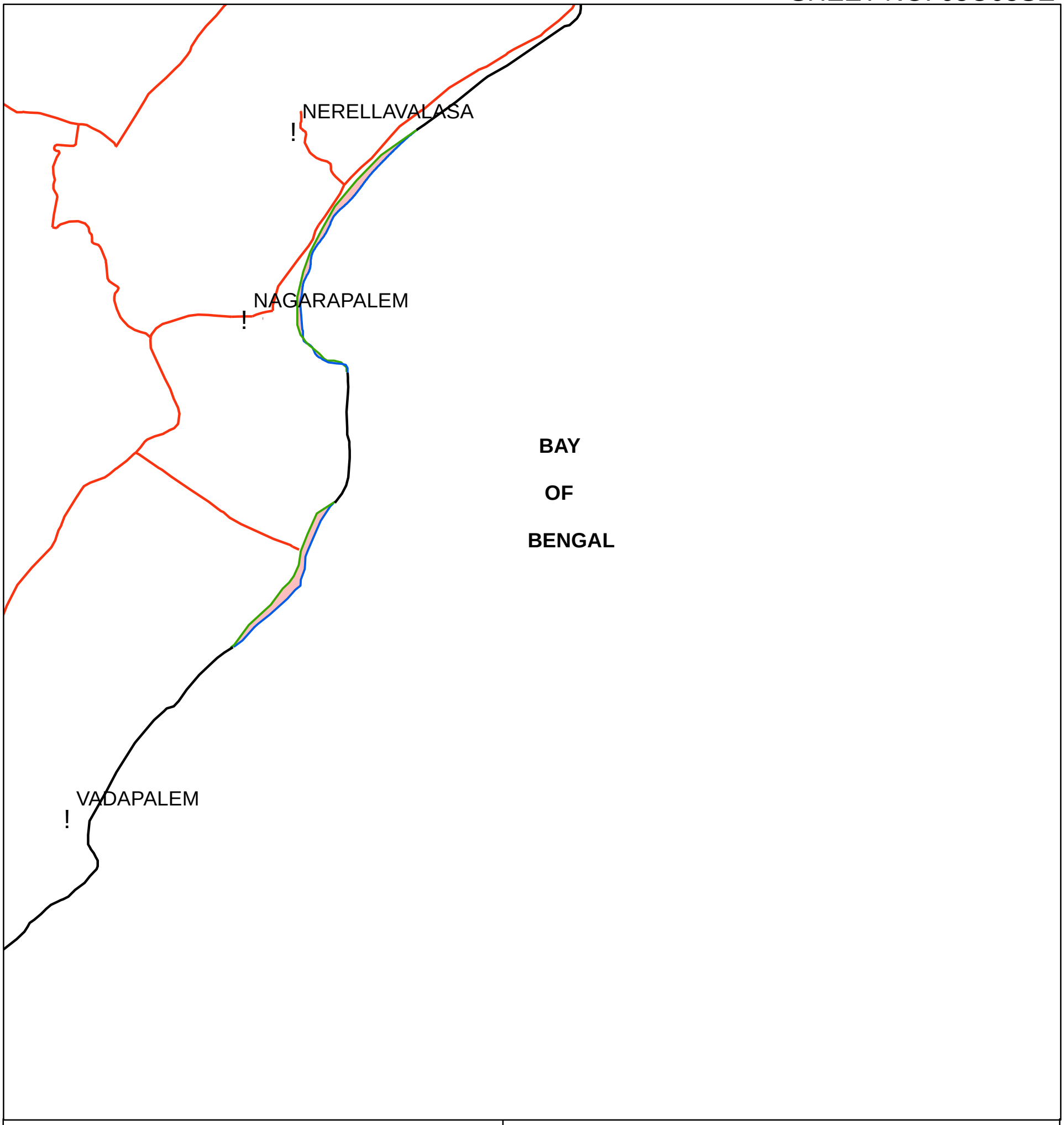
VISHAKHAPATNAM DISTRICT

SHEET NO. 65O05SE



Legend

- EROSION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65O05 NW	65O05 NE	65O09 NW
65O05 SW		SEA
65O06 NW	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

ANDHRA PRADESH

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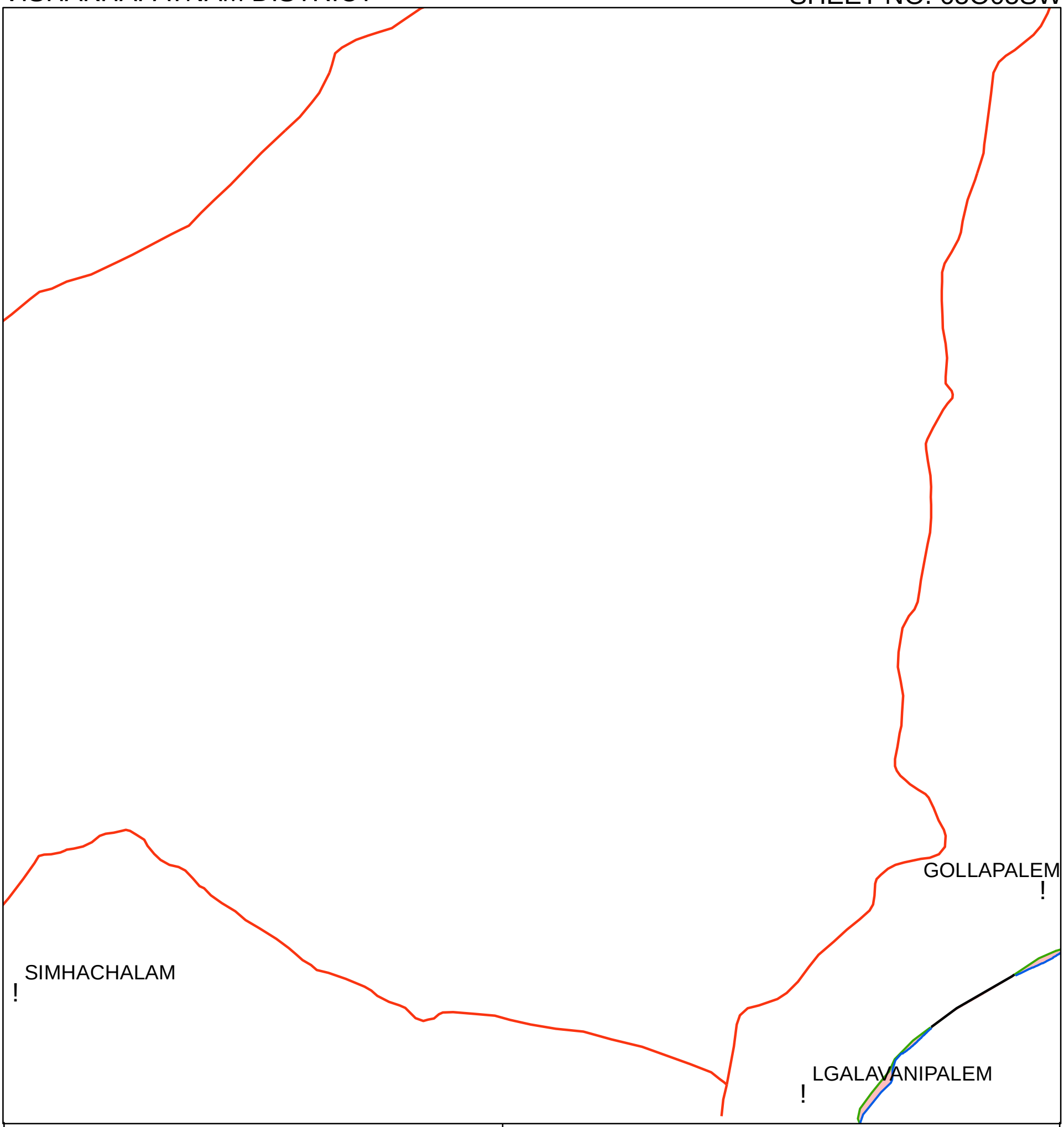
VISHAKHAPATNAM DISTRICT

SHEET NO. 65O05SW



Legend

- EROSION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65O01 NE	65O05 NW	65O05 NE
65O01 SE		65O05 SE
65O02 NE	65O06 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

ANDHRA PRADESH

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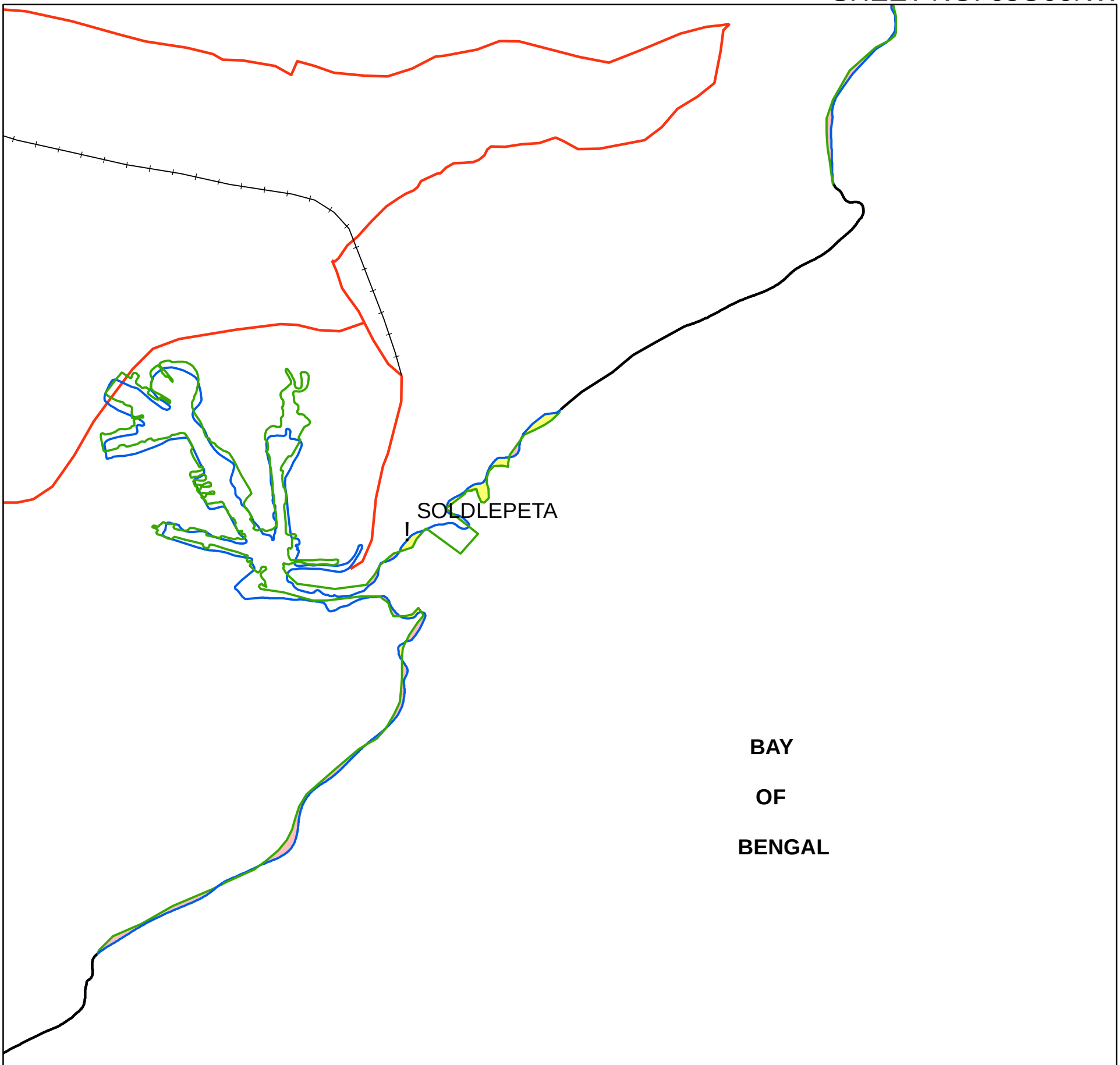
VISHAKHAPATNAM DISTRICT

SHEET NO. 65O06NW



Legend

- EROSION
- ACCRETION
- STABLE
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65O01 SE	65O05 SW	65O05 SE
65O02 NE		SEA
65O02 SE	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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VISHAKHAPATNAM DISTRICT

SHEET NO. 65O02NE

ELLAPUVANIPALEM

MINDI

RAMAKRISHNAPURAM

Legend

- EROSION
- STABLE
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65O01 SW	65O01 SE	65O05 SW
65O02 NW		SEA
65O02 SW	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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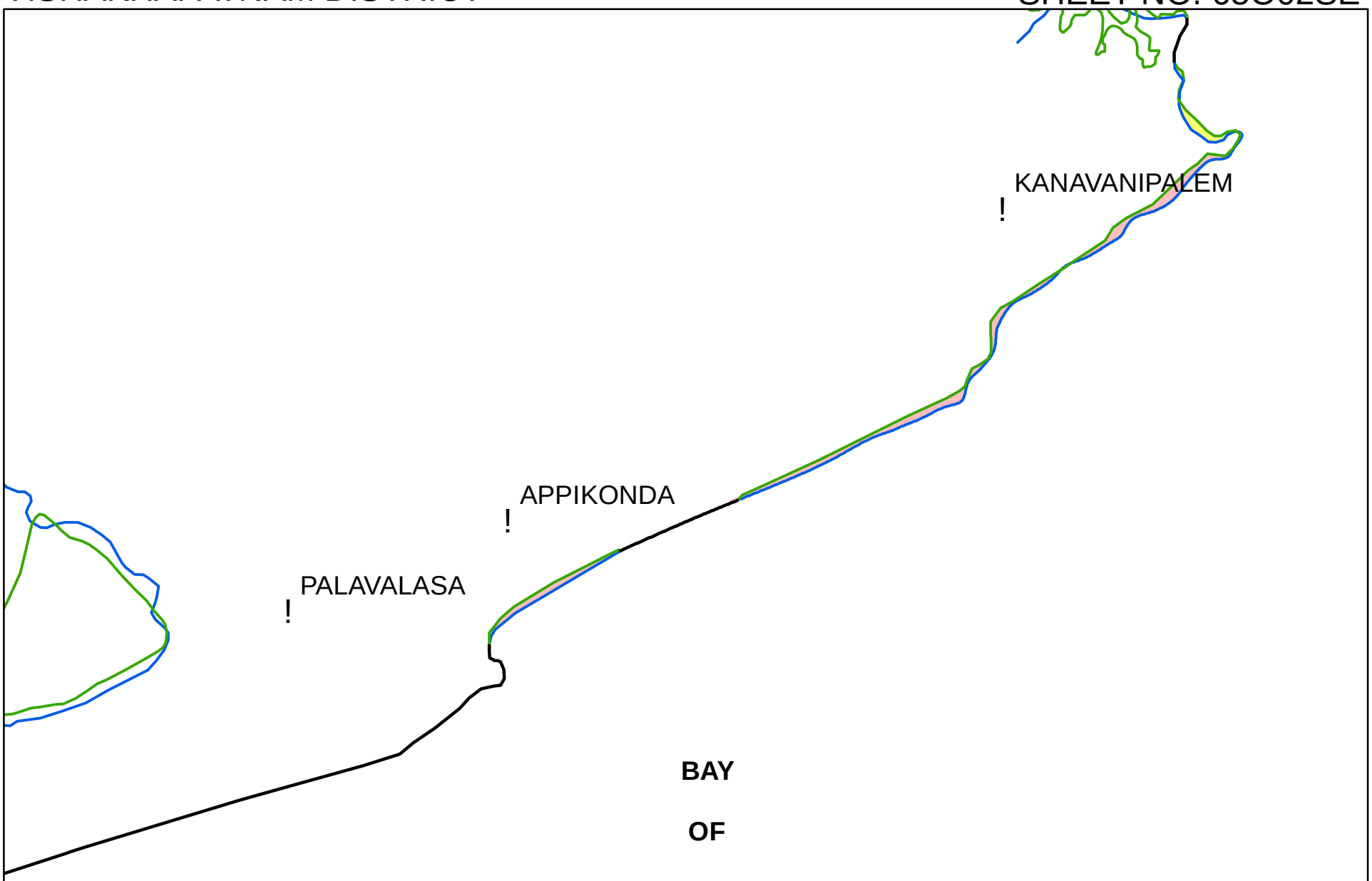
VISHAKHAPATNAM DISTRICT

SHEET NO. 65O02SE



Legend

- EROSION
- ACCRETION
- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65O02 NW	65O02 NE	65O06 NW
65O02 SW		SEA
65O03 NW	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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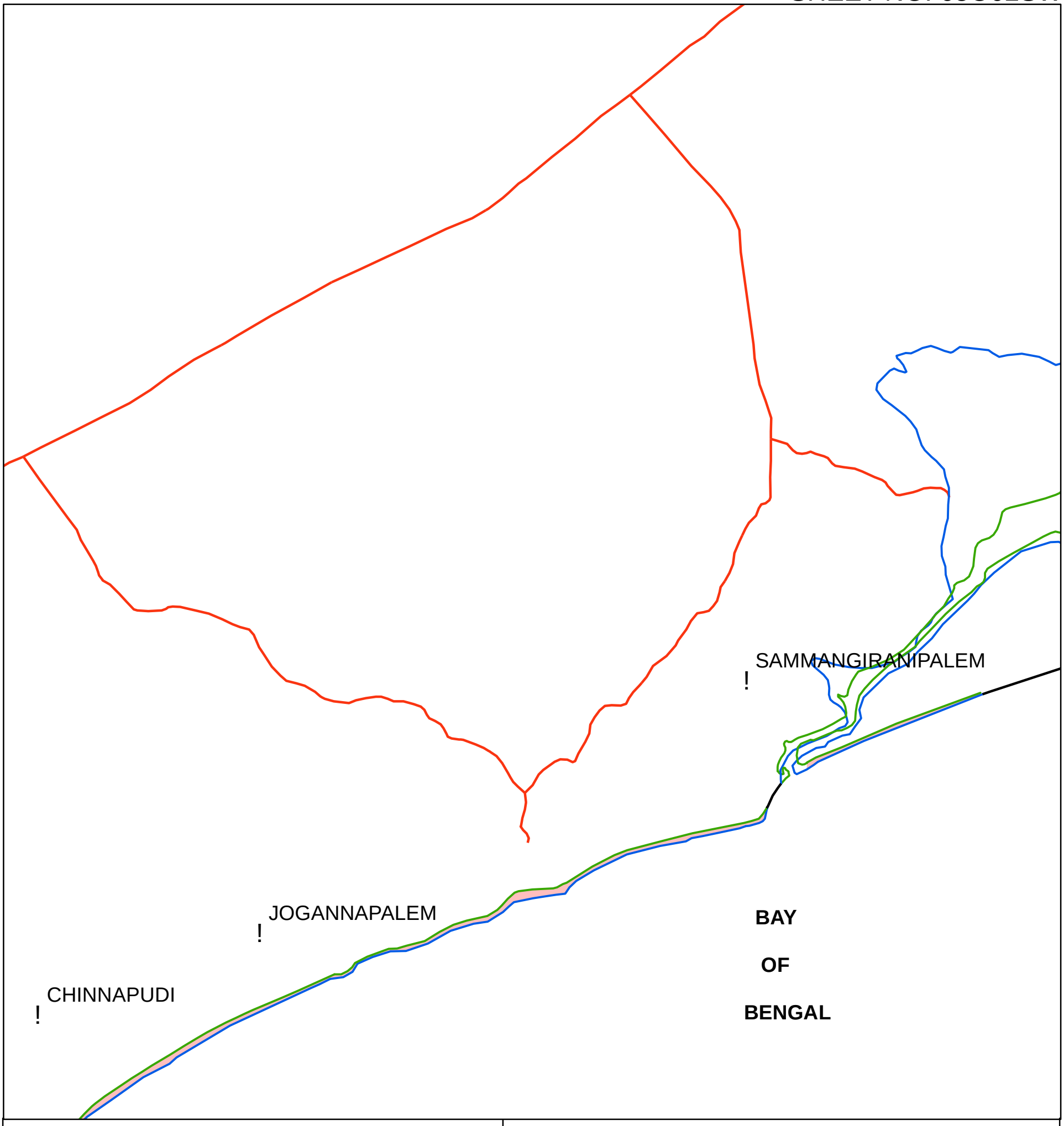
VISHAKHAPATNAM DISTRICT

SHEET NO. 65O02SW



Legend

- EROSION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65K14 NE	65O02 NW	65O02 NE
65K14 SE		65O02 SE
65K15 NE	65O03 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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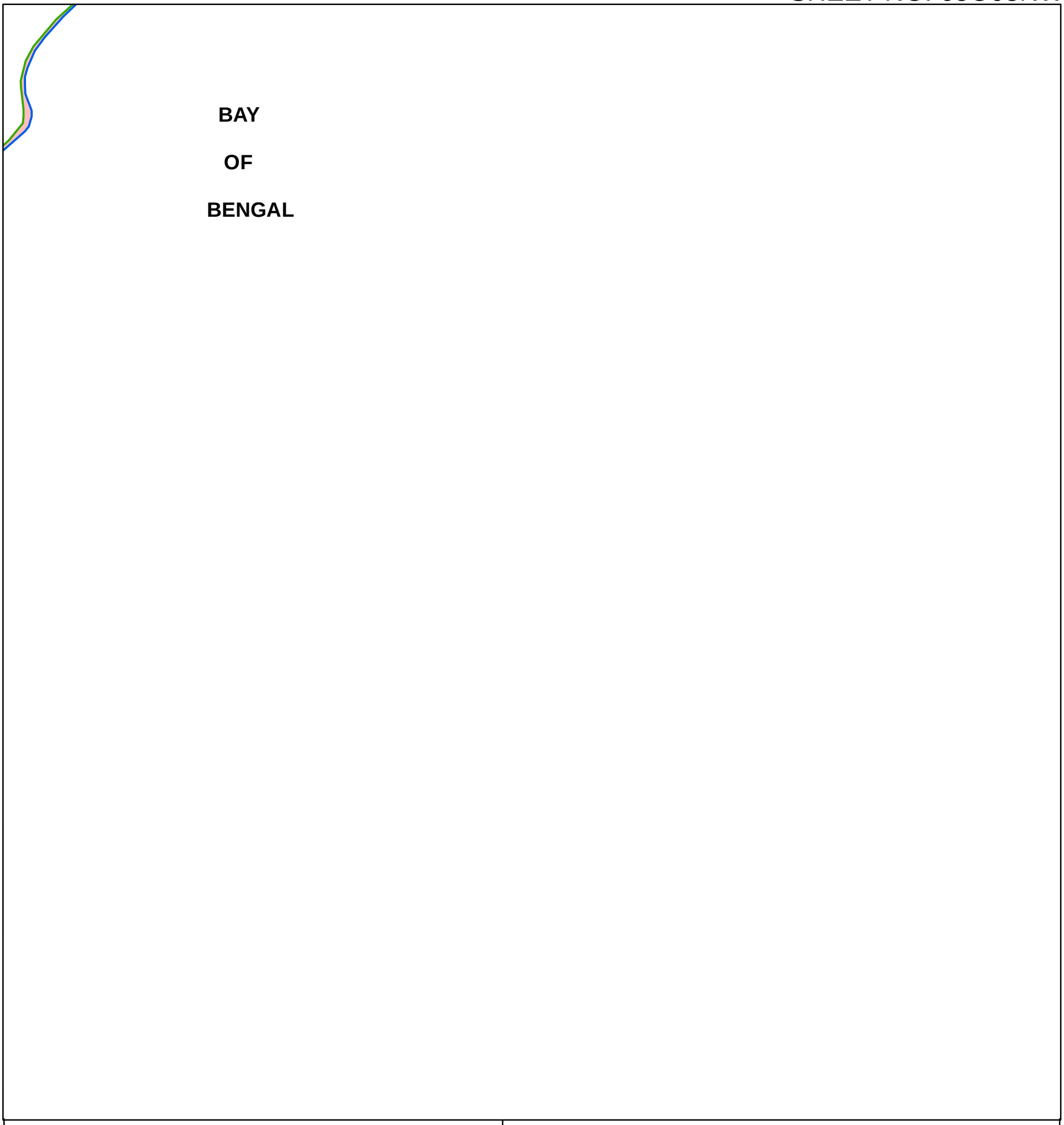
VISHAKHAPATNAM DISTRICT

SHEET NO. 65O03NW



Legend

- EROSION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

65K14 SE	65O02 SW	65O02 SE
65K15 NE		SEA
SEA	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

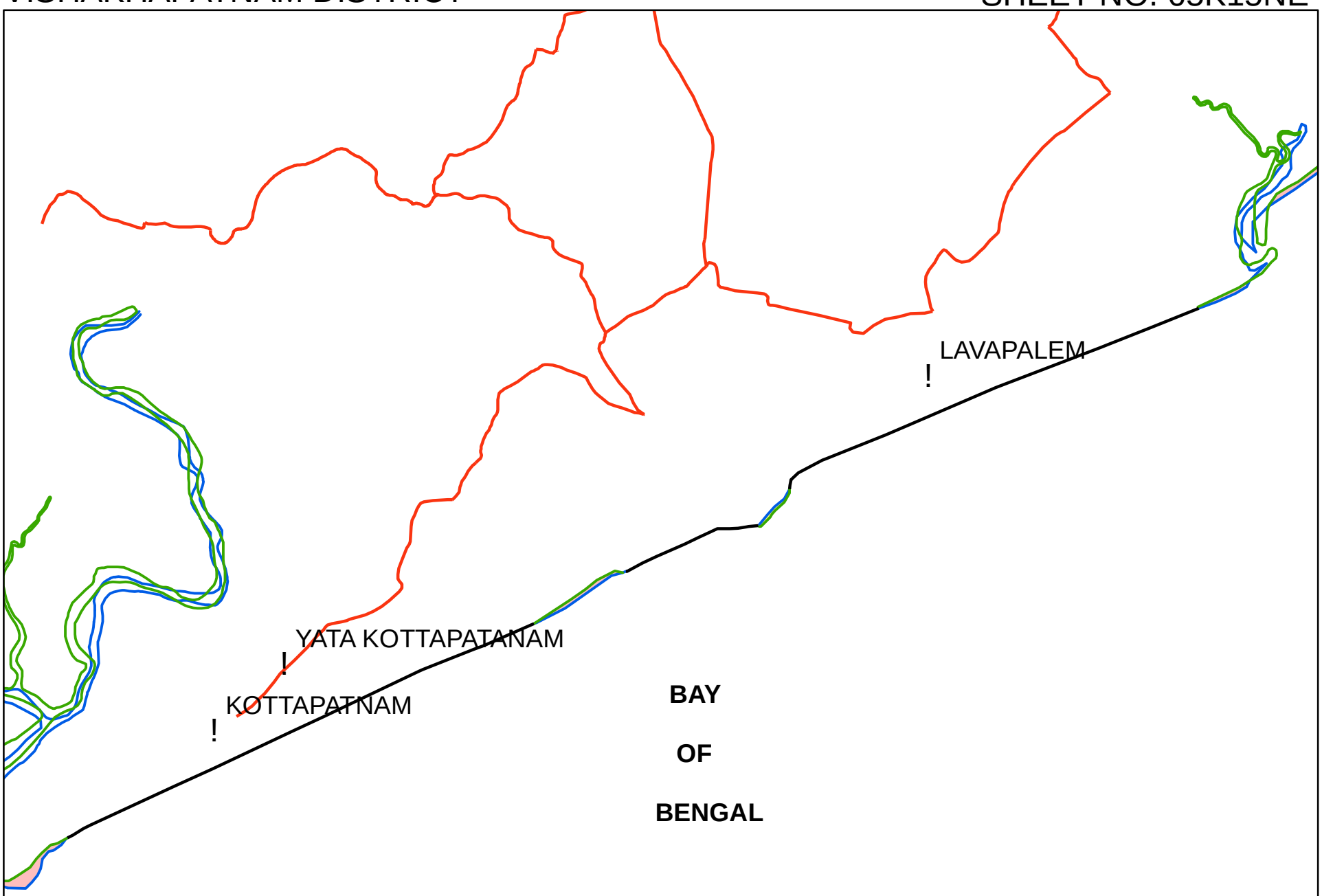
SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

VISHAKHAPATNAM DISTRICT

SHEET NO. 65K15NE



Legend

- EROSION
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65K14 SW	65K14 SE	65O02 SW
65K15 NW		65O03 NW
65K15 SW	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

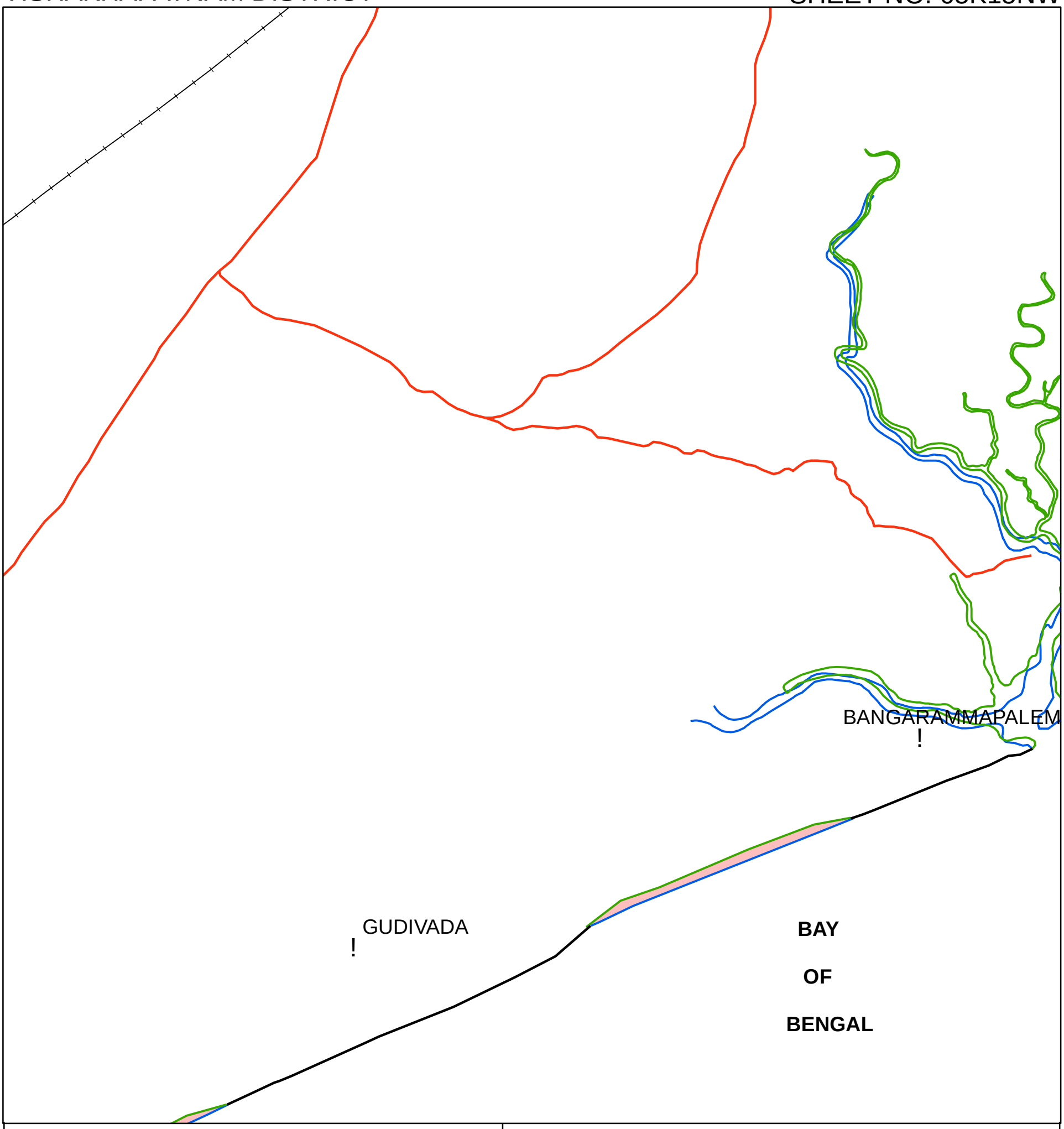
SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

VISHAKHAPATNAM DISTRICT

SHEET NO. 65K15NW



Legend

- EROSION
- STABLE
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65K10 SE	65K14 SW	65K14 SE
65K11 NE		65K15 NE
65K11 SE	65K15 SW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

VISHAKHAPATNAM DISTRICT

SHEET NO. 65K15SW

BAY

OF

BENGAL

Legend

EROSION

HIGH-TIDE LINE 2004-06

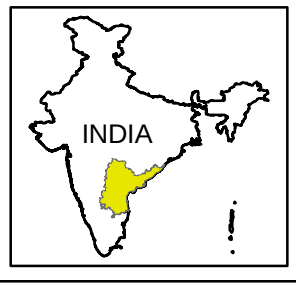
HIGH-TIDE LINE 1989-91

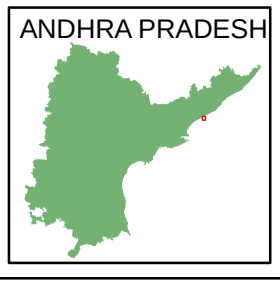
0 2

Scale in Km

INDEX TO SHEETS

65K11 NE	65K15 NW	65K15 NE
65K11 SE		SEA
SEA	SEA	SEA





DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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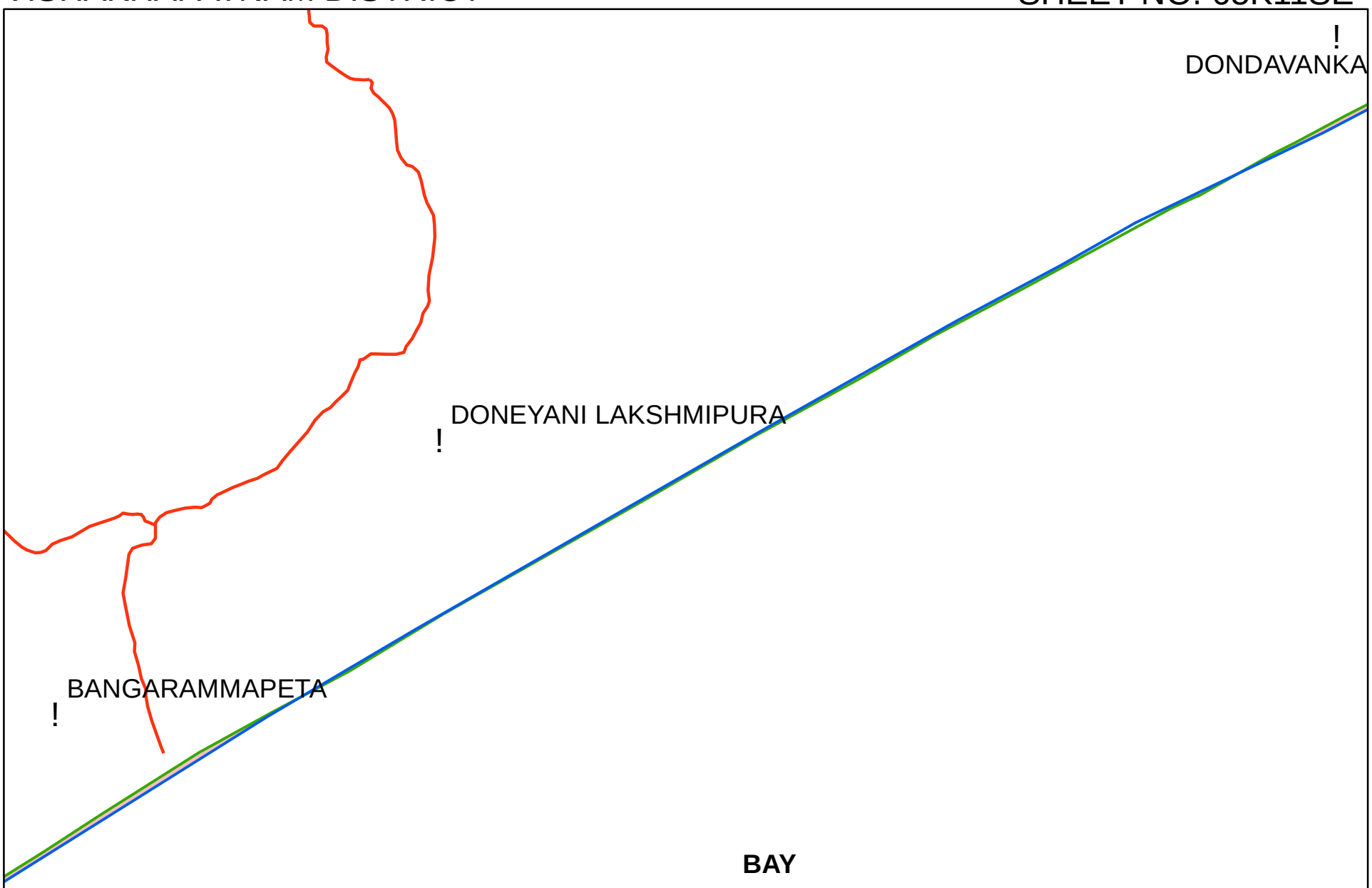
SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

VISHAKHAPATNAM DISTRICT

SHEET NO. 65K11SE



Legend

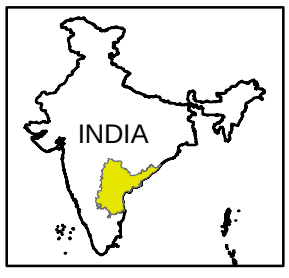
- EROSION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65K11 NW	65K11 NE	65K15 NW
65K11 SW		65K15 SW
65K12 NW	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

ANDHRA PRADESH

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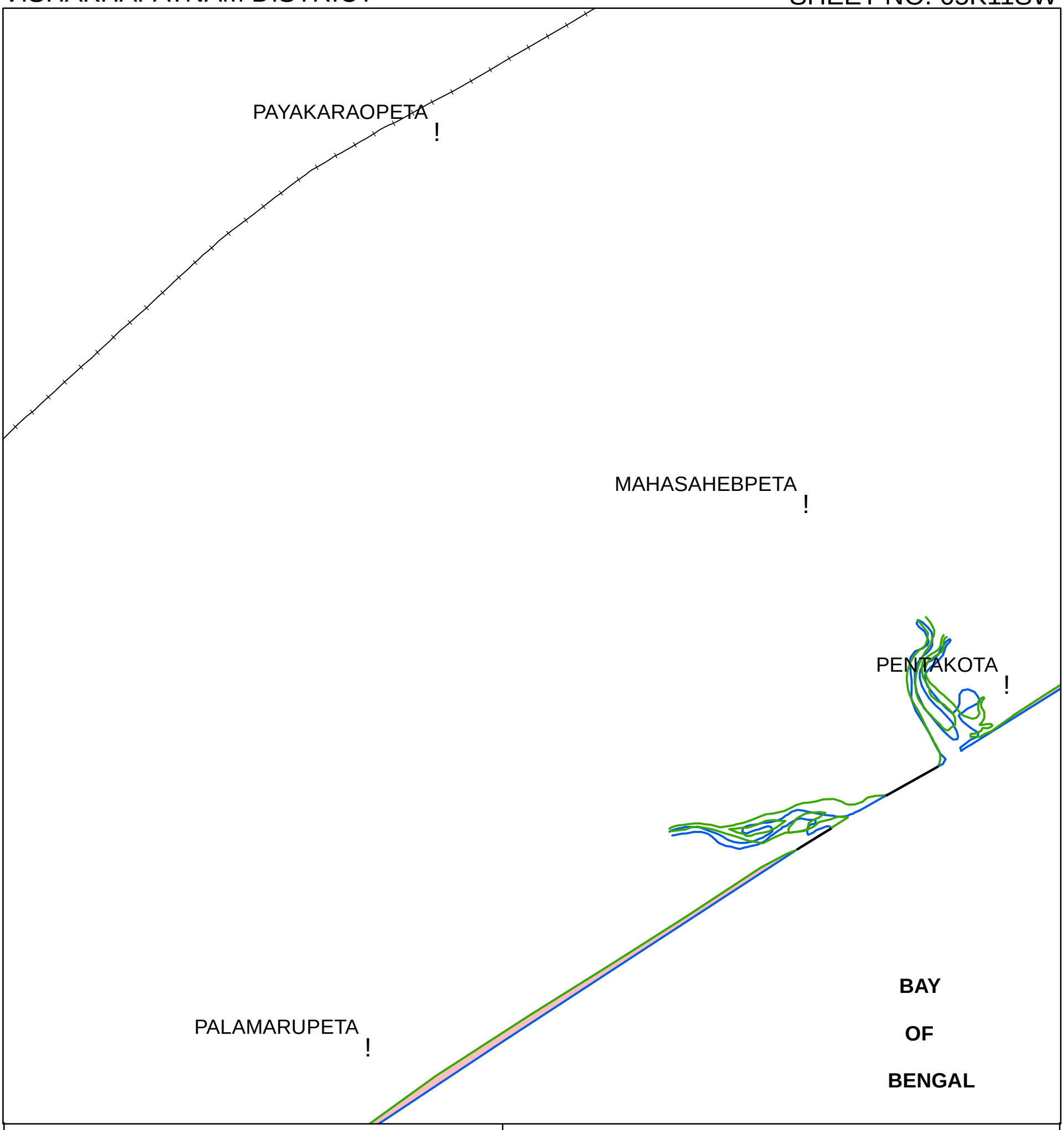
VISHAKHAPATNAM DISTRICT

SHEET NO. 65K11SW



Legend

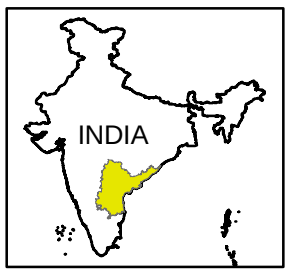
- EROSION
- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- RAIL

0 2

Scale in Km

INDEX TO SHEETS

65K07 NE	65K11 NW	65K11 NE
65K07 SE		65K11 SE
65K08 NE	65K12 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

ANDHRA PRADESH

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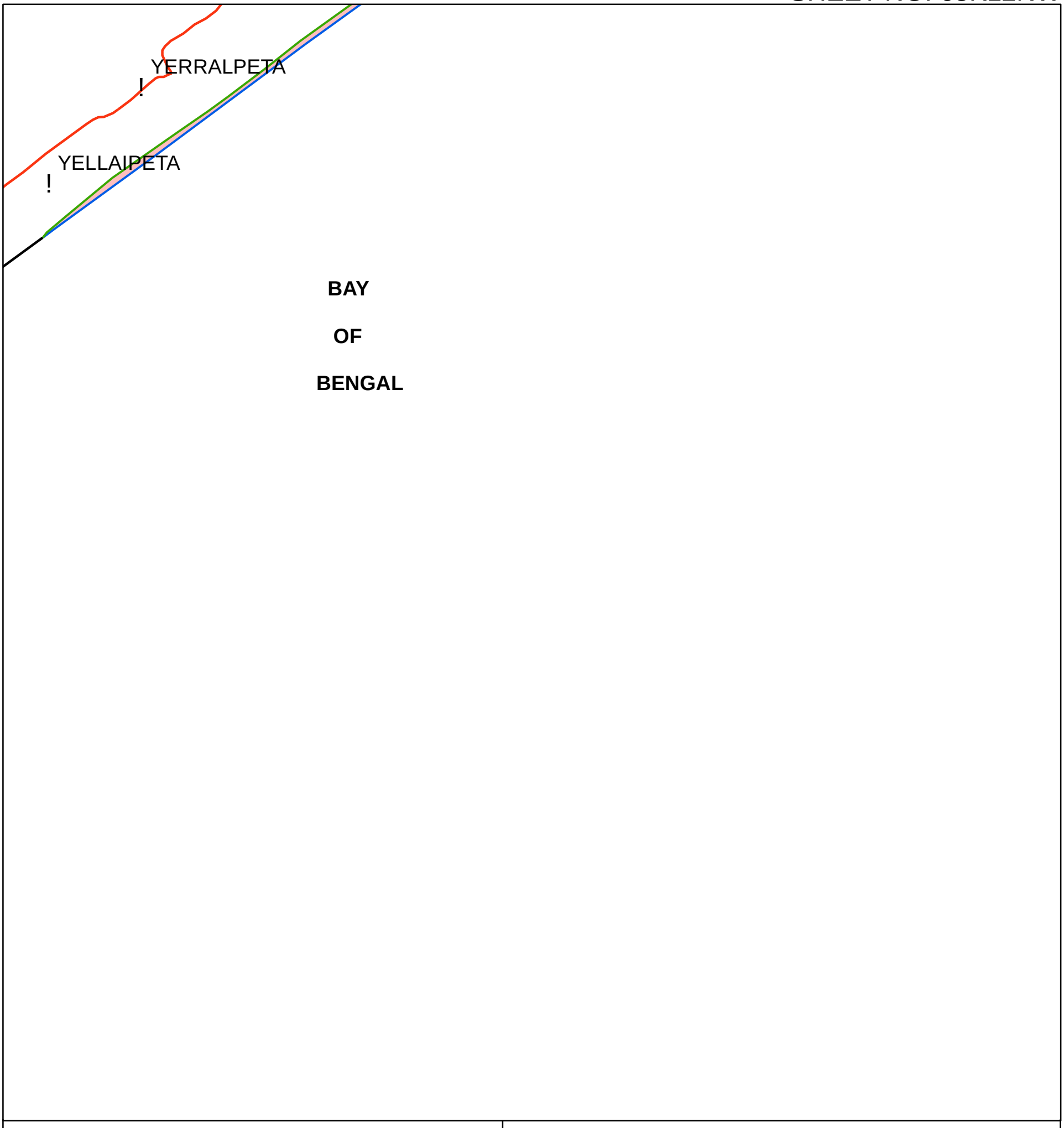
EAST GODAVARI DISTRICT

SHEET NO. 65K12NW



Legend

- EROSION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65K07 SE	65K11 SW	65K11 SE
65K08 NE		SEA
65K08 SE	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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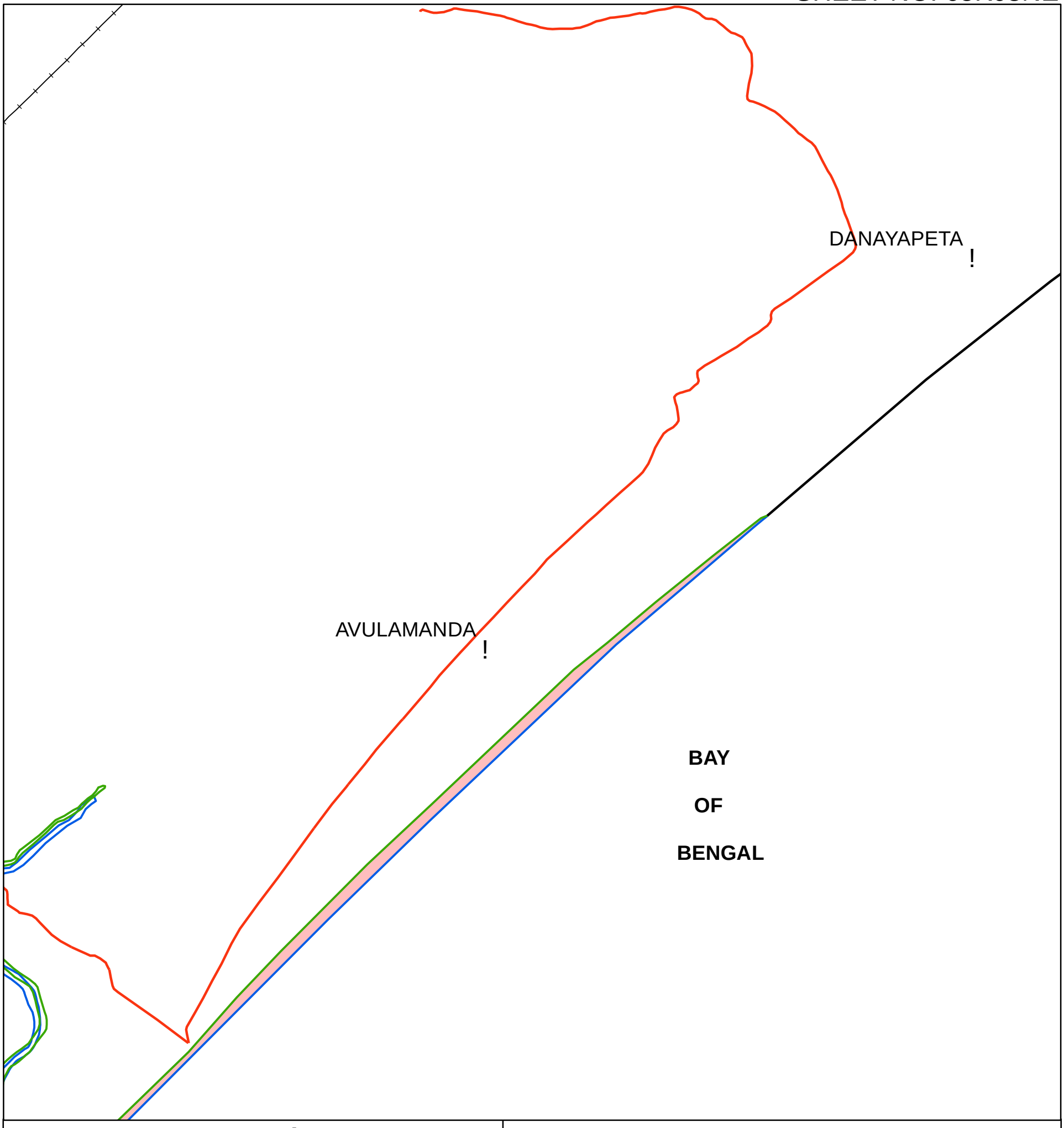
EAST GODAVARI DISTRICT

SHEET NO. 65K08NE



Legend

- EROSION
- STABLE
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65K07 SW	65K07 SE	65K11 SW
65K08 NW		65K12 NW
65K08 SW	65K08 SE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

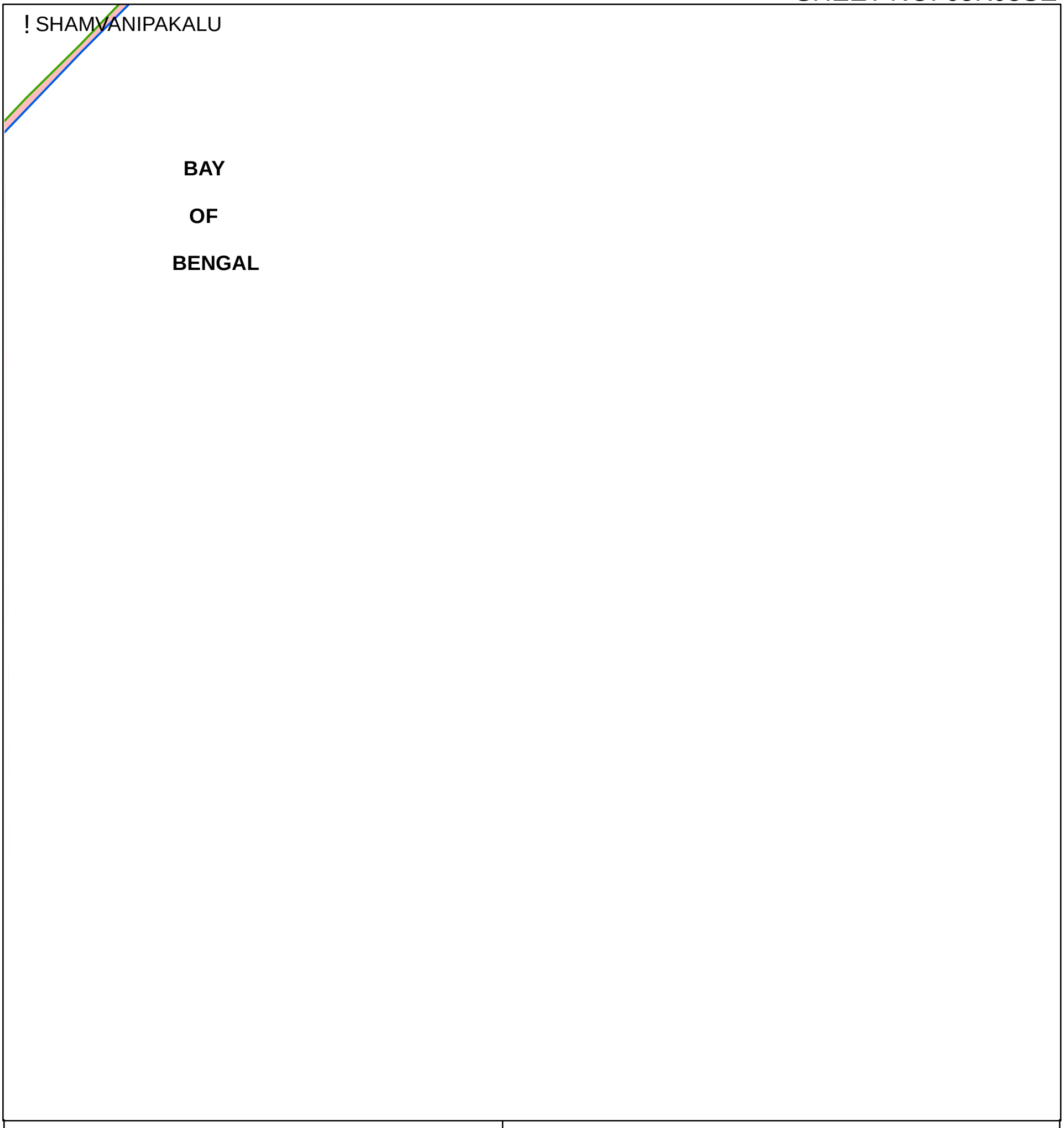
SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

EAST GODAVARI DISTRICT

SHEET NO. 65K08SE



Legend

EROSION

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65K08 NW	65K08 NE	SEA
65K08 SW		SEA
65L05 NW	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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EAST GODAVARI DISTRICT

SHEET NO. 65K08SW

PANNADA

UPPADA

PALAVARAM

VAKALAPUDI

BAY OF BENGAL

Legend

- EROSION
- ACCRETION
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- HABITATION
- SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

65K04 NE	65K08 NW	65K08 NE
65K04 SE		65K08 SE
65L01 NE	65L05 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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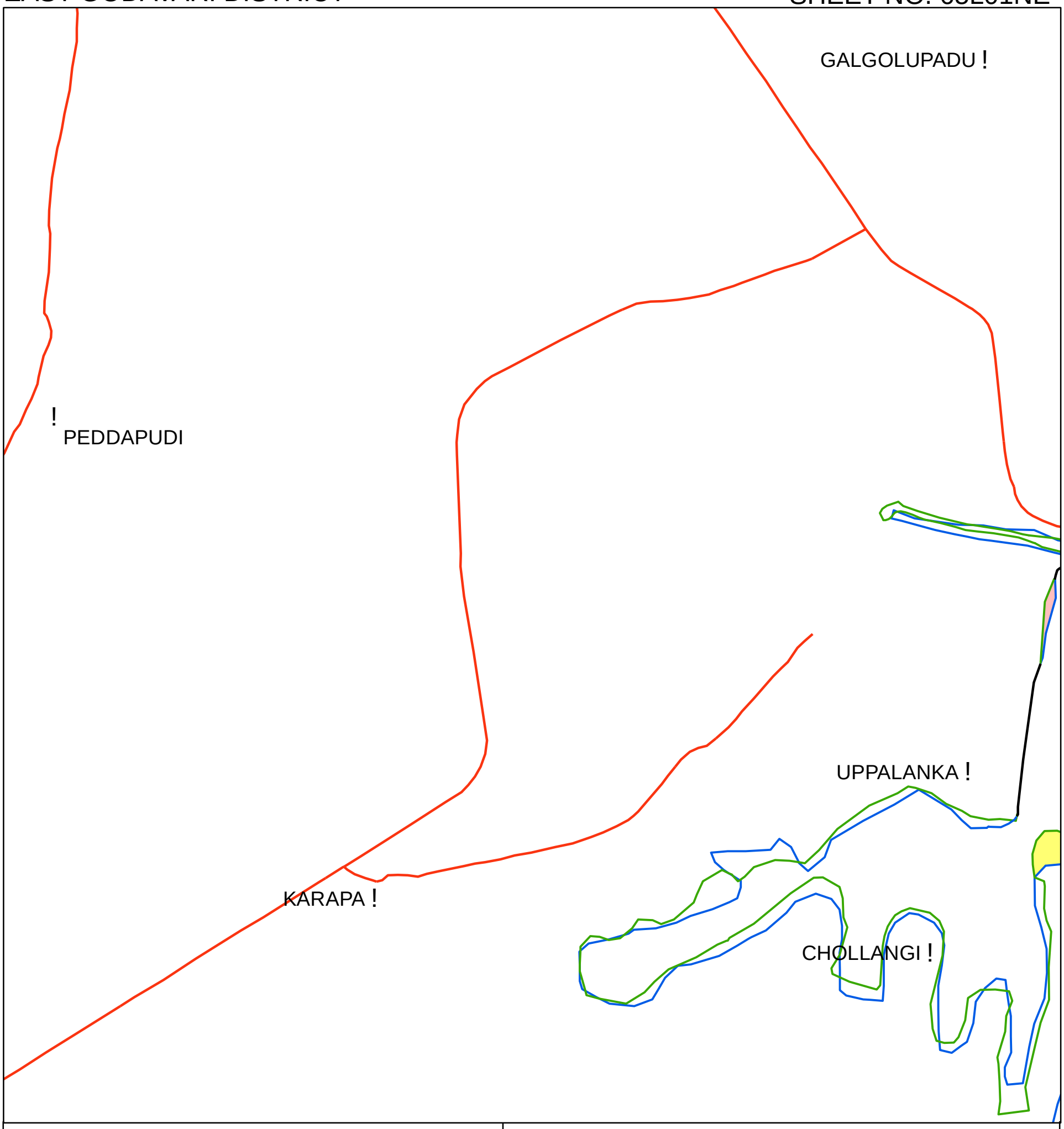
EAST GODAVARI DISTRICT

SHEET NO. 65L01NE



Legend

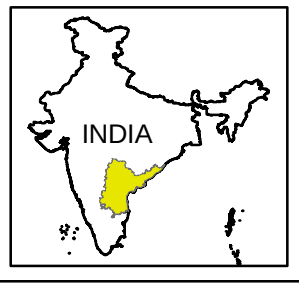
- EROSION
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

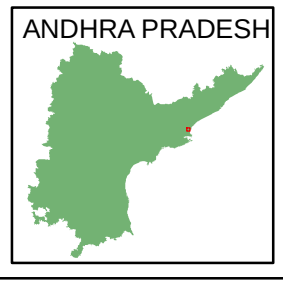
0 2

Scale in Km

INDEX TO SHEETS

65K04 SW	65K04 SE	65K08 SW
65L01 NW		65L05 NW
65L01 SW	65L01 SE	65L05 SW





DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

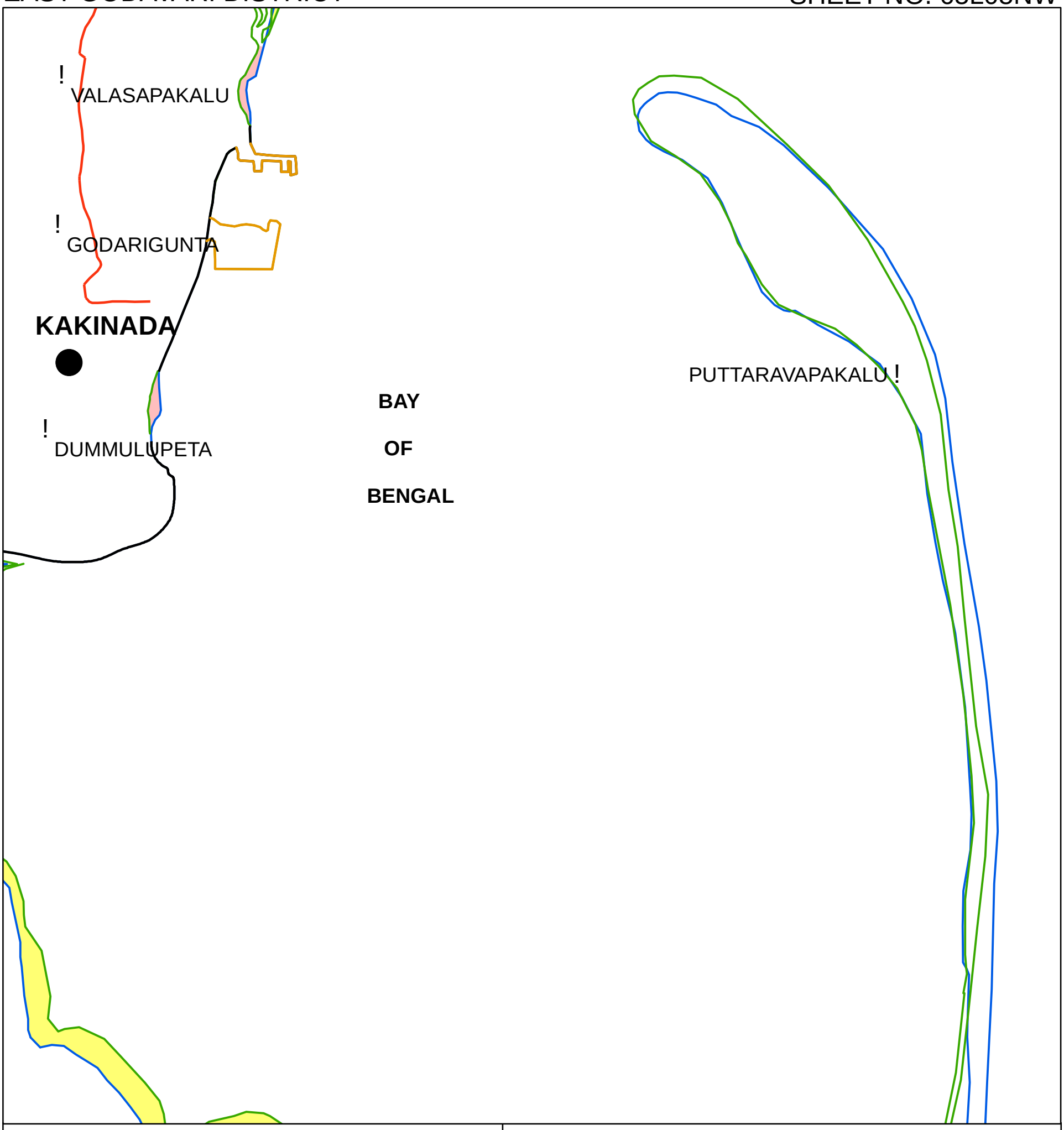
SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

EAST GODAVARI DISTRICT

SHEET NO. 65L05NW



Legend

- EROSION
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- JETTY/PORT

0 2

Scale in Km

INDEX TO SHEETS

65K04 SE	65K08 SW	SEA
65L01 NE		SEA
65L01 SE	65L05 SW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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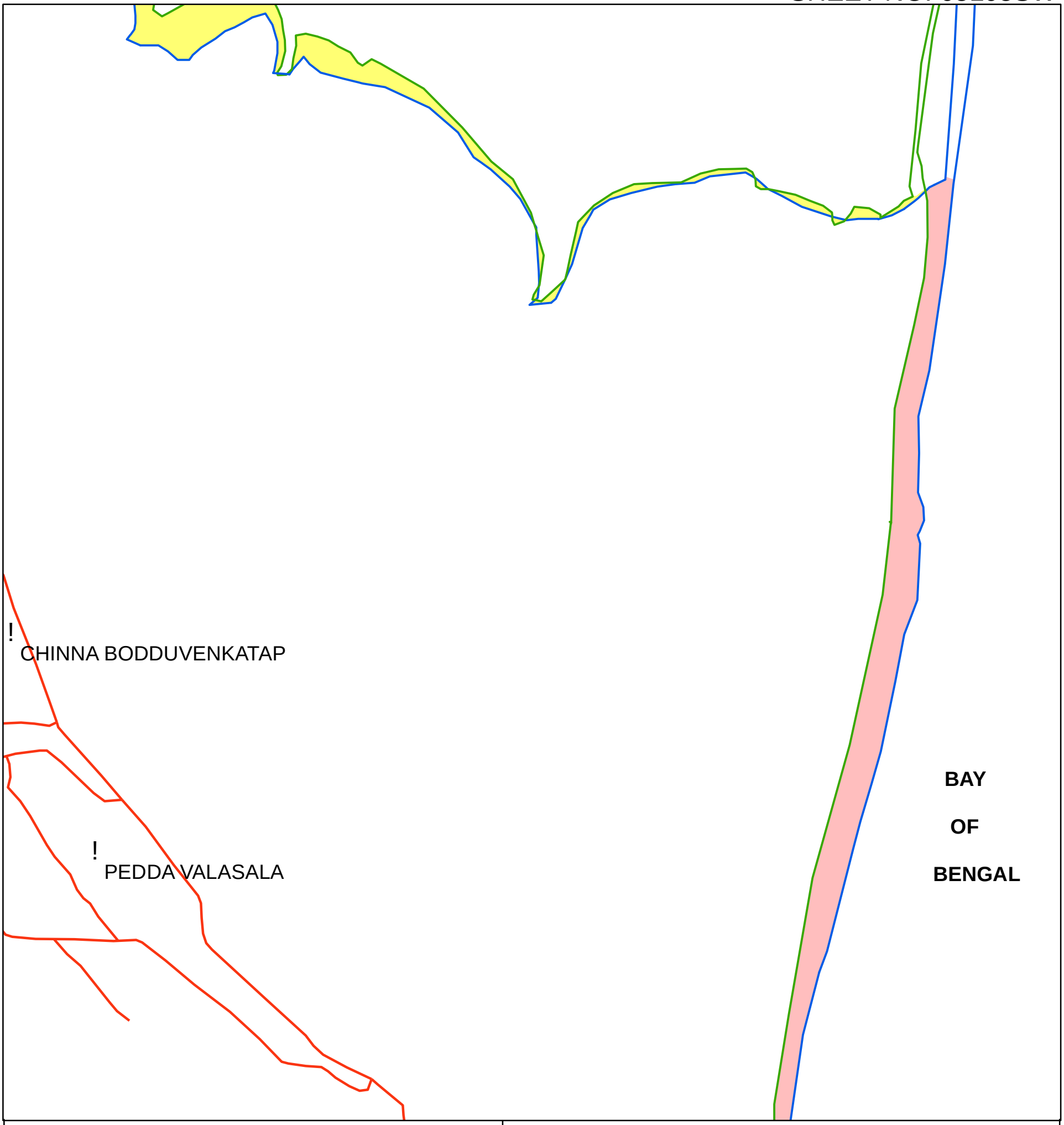
EAST GODAVARI DISTRICT

SHEET NO. 65L05SW



Legend

- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65L01 NE	65L05 NW	SEA
65L01 SE		SEA
65L02 NE	65L06 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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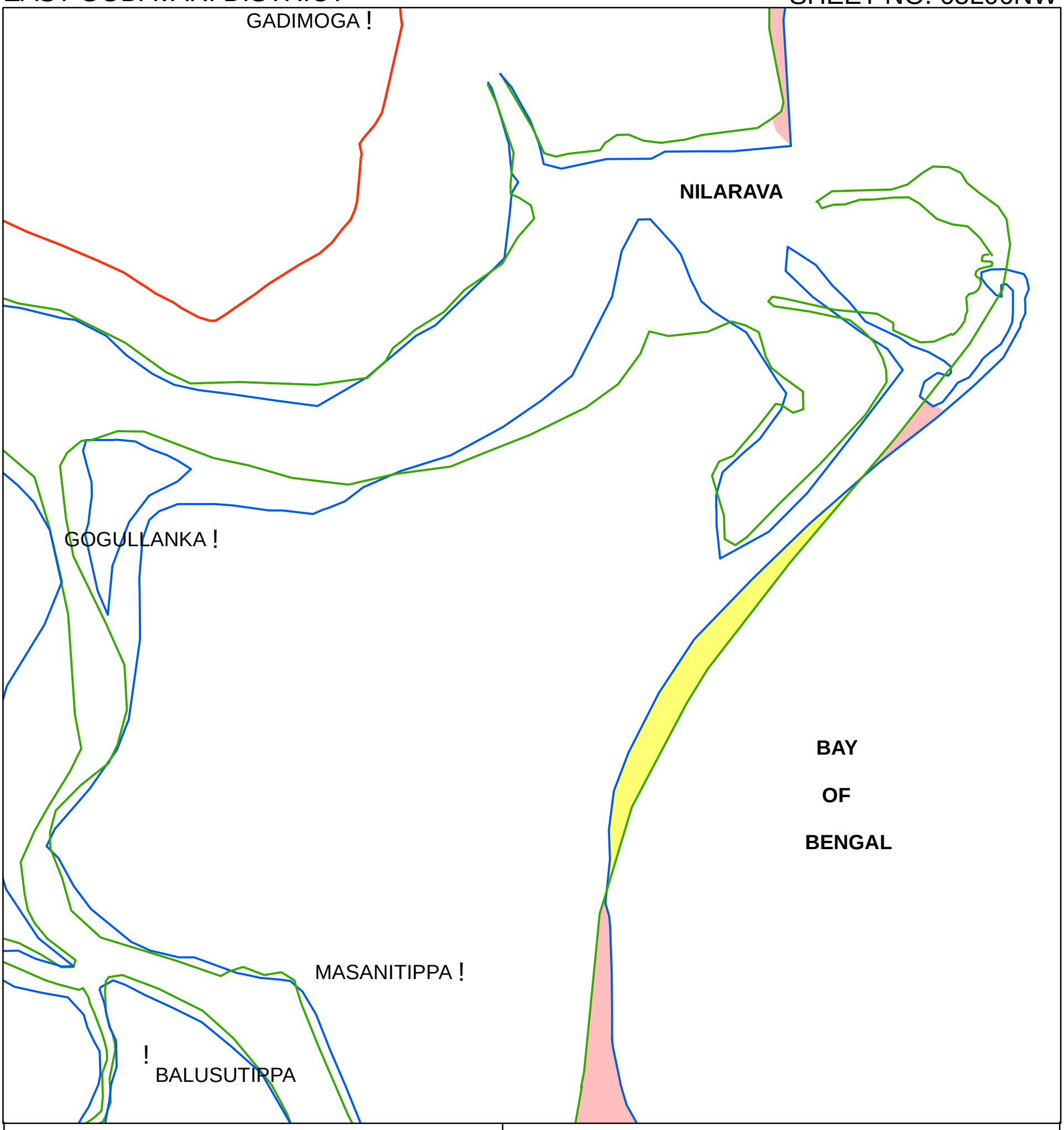
EAST GODAVARI DISTRICT

SHEET NO. 65L06NW



Legend

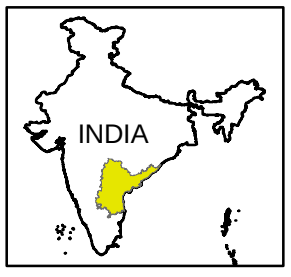
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65L01 SE	65L05 SW	SEA
65L02 NE		SEA
65L02 SE	65L06 SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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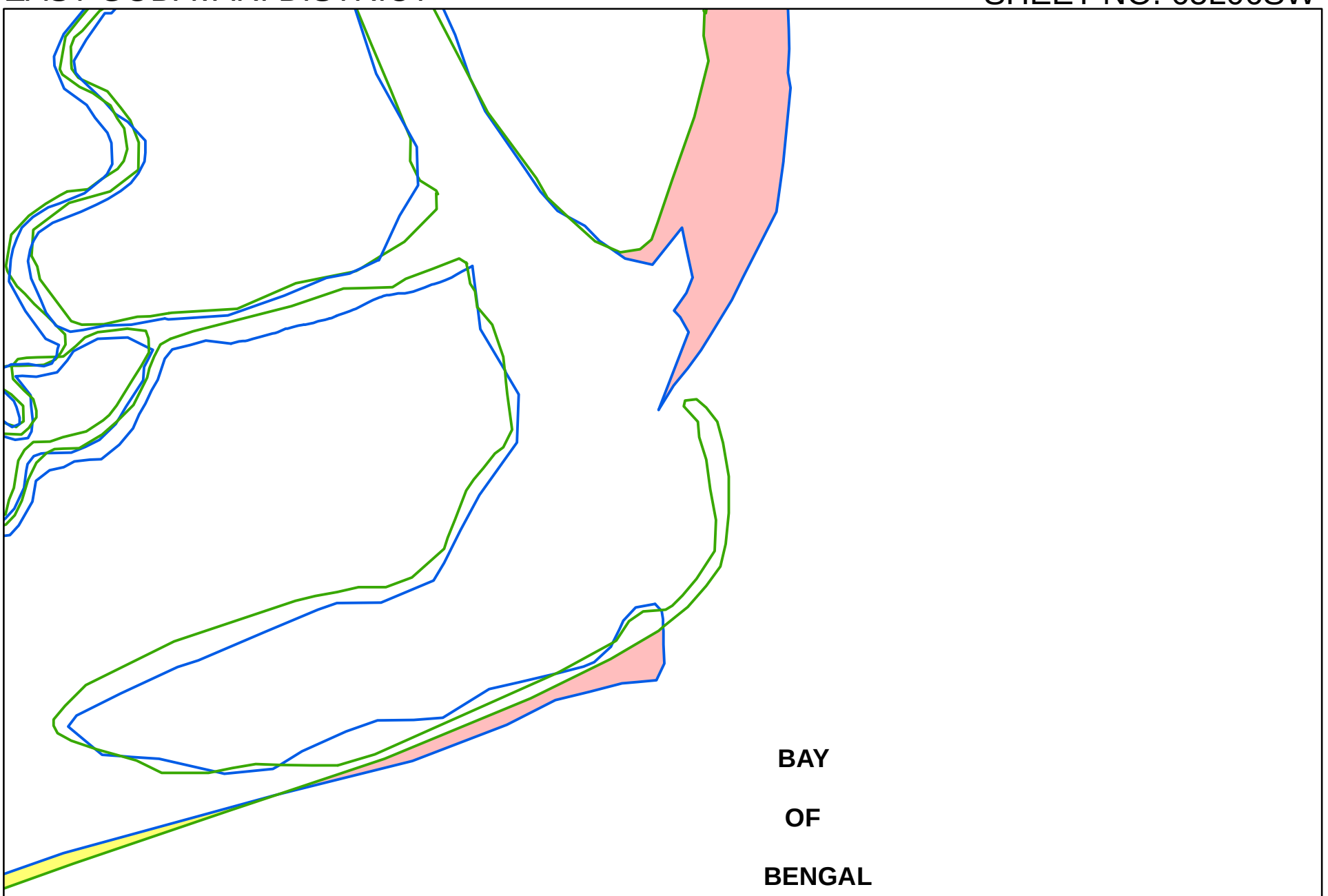
SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

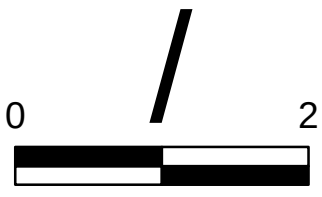
EAST GODAVARI DISTRICT

SHEET NO. 65L06SW



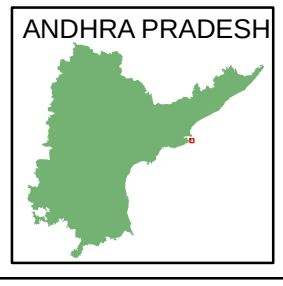
Legend

- EROSION
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91



INDEX TO SHEETS

65L02 NE	65L06 NW	SEA
65L02 SE		SEA
65L03 NE	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

EAST GODAVARI DISTRICT

SHEET NO. 65L02SE

PORA

PANDI

CHIRRAYANAM

BAY OF BENGAL

Legend

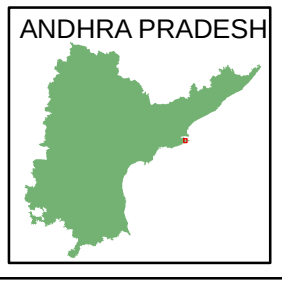
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65L02 NW	65L02 NE	65L06 NW
65L02 SW		65L06 SW
65L03 NW	65L03 NE	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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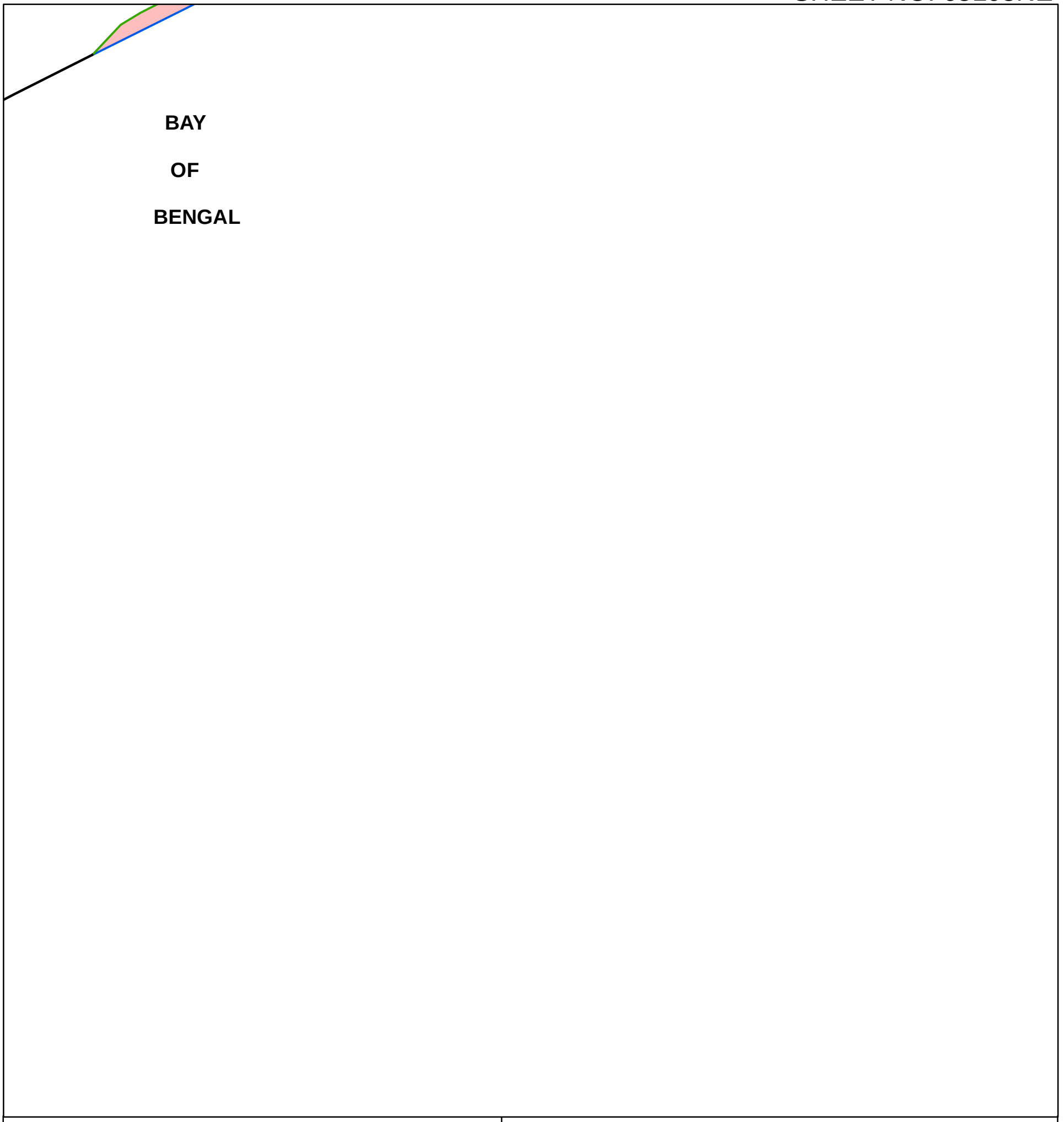
SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

EAST GODAVARI DISTRICT

SHEET NO. 65L03NE



Legend

EROSION

STABLE

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

65L02 SW	65L02 SE	65L06 SW
65L03 NW		SEA
SEA	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

ANDHRA PRADESH

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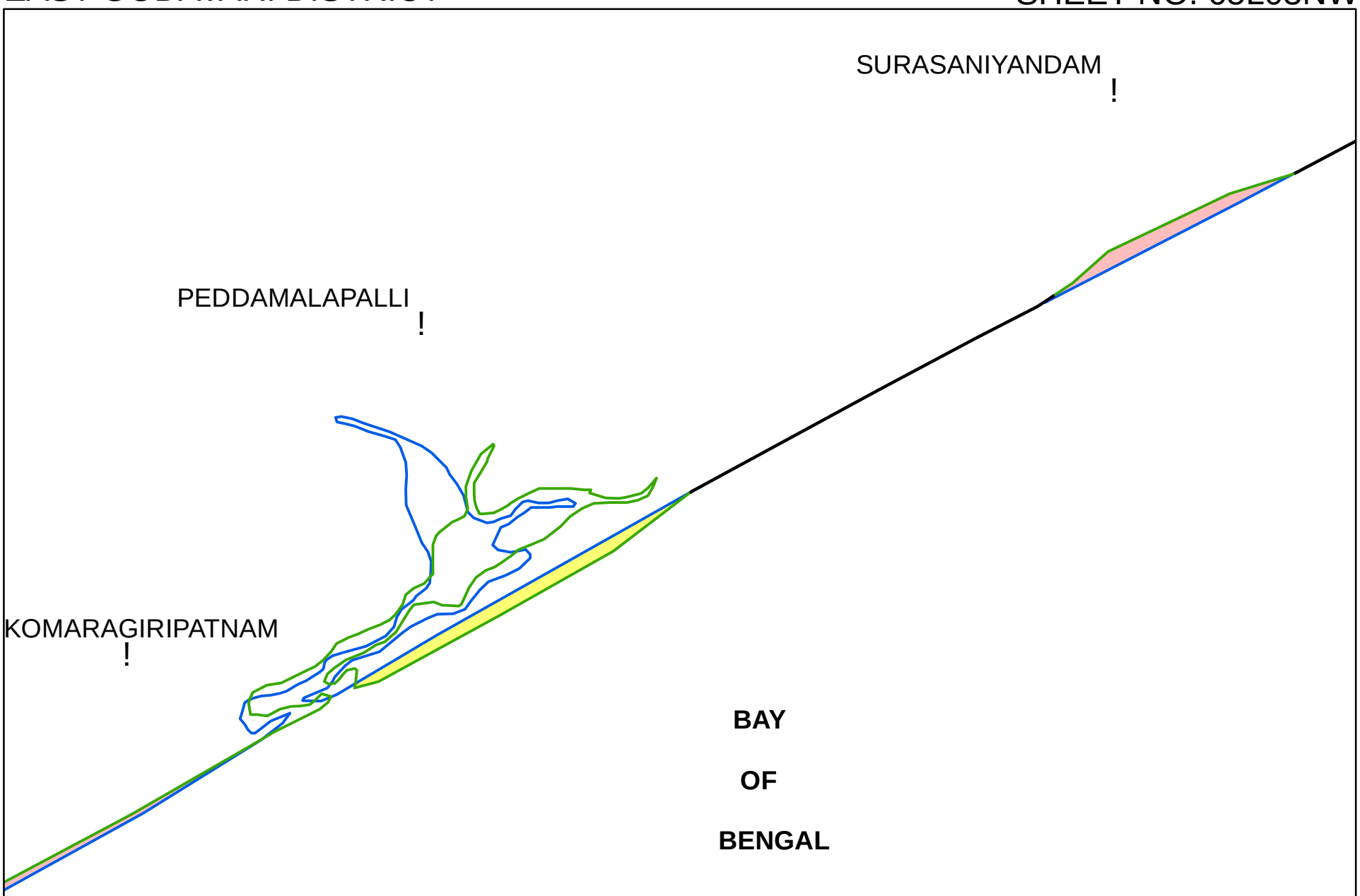
EAST GODAVARI DISTRICT

SHEET NO. 65L03NW



Legend

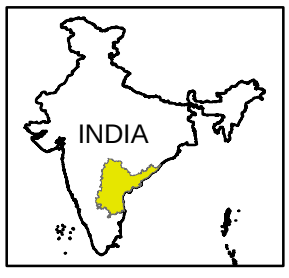
- EROSION
- ACCRETION
- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65H14 SE	65L02 SW	65L02 SE
65H15 NE		65L03 NE
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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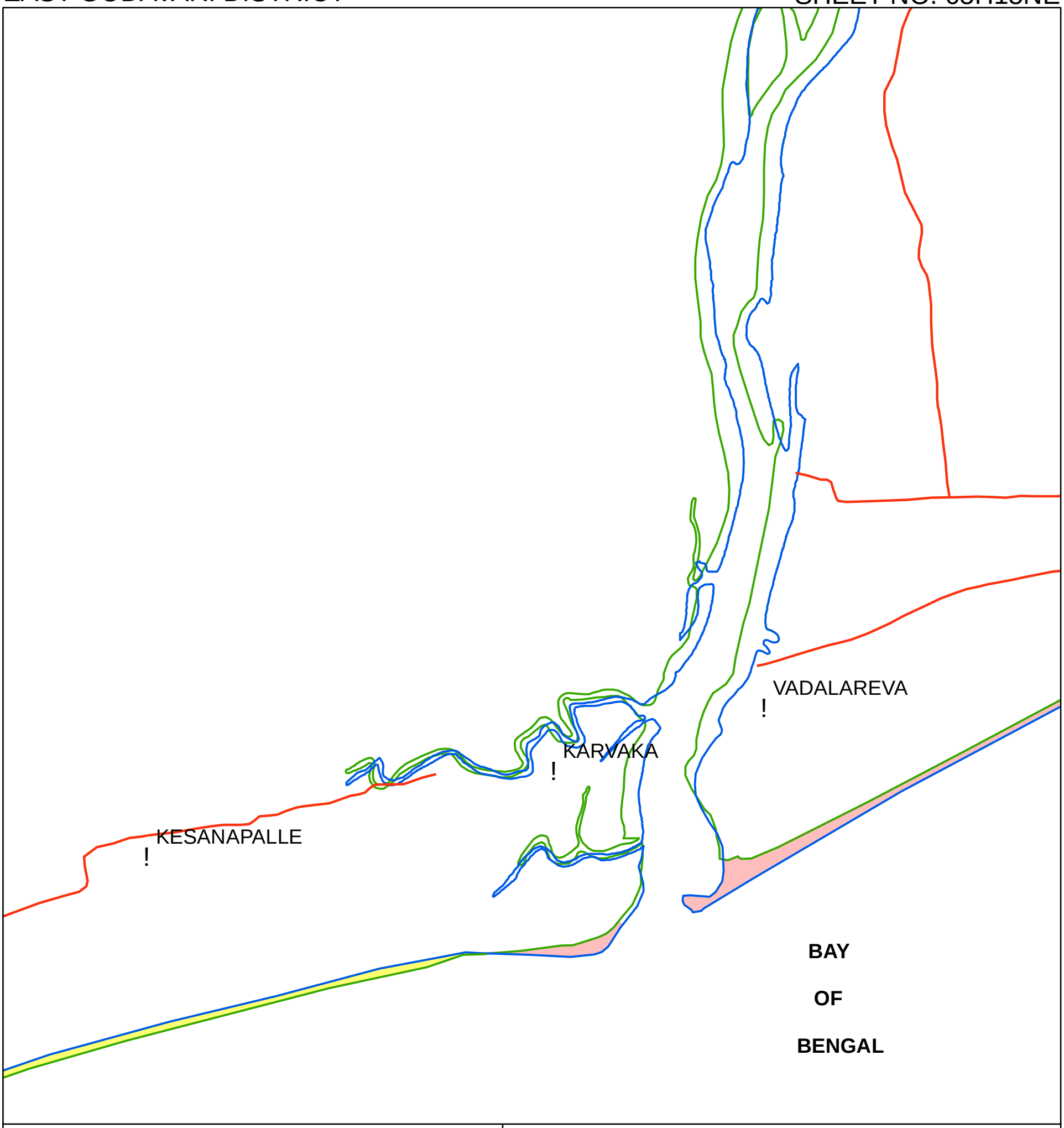
SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

EAST GODAVARI DISTRICT

SHEET NO. 65H15NE



Legend

- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65H14 SW	65H14 SE	65L02 SW
65H15 NW		65L03 NW
65H15 SW	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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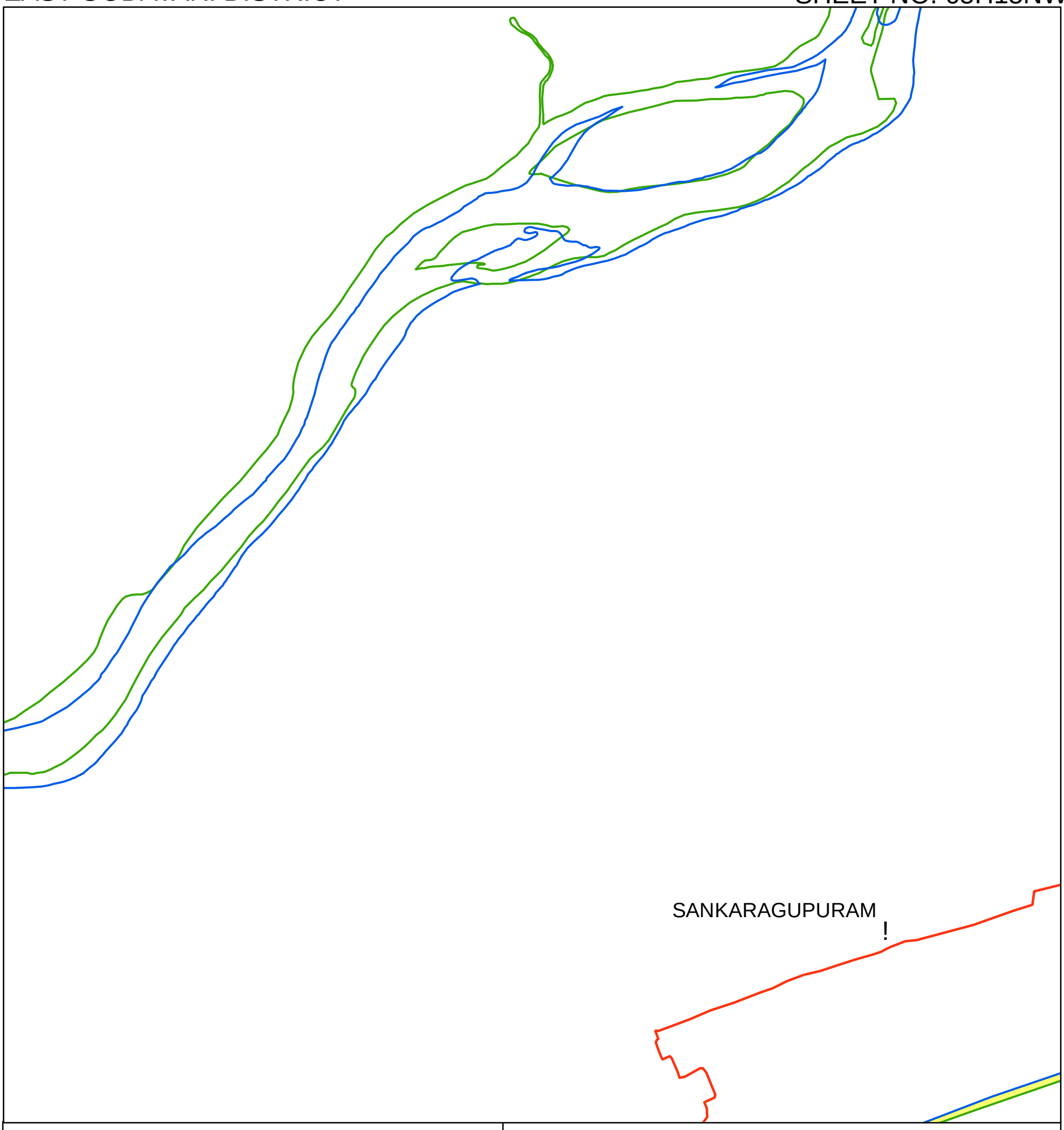
SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

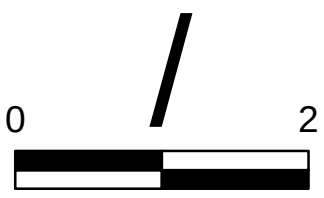
EAST GODAVARI DISTRICT

SHEET NO. 65H15NW



Legend

- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION



INDEX TO SHEETS

65H10 SE	65H14 SW	65H14 SE
65H11 NE		65H15 NE
65H11 SE	65H15 SW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

EAST GODAVARI DISTRICT

SHEET NO. 65H15SW

KESAVADASUPALEM !

BAY

OF

BENGAL

Legend

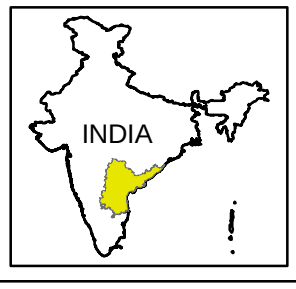
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

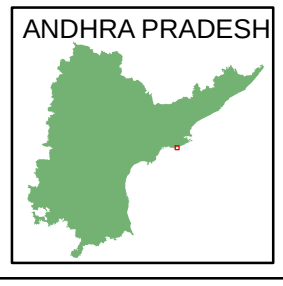
0 2

Scale in Km

INDEX TO SHEETS

65H11 NE	65H15 NW	65H15 NE
65H11 SE		SEA
SEA	SEA	SEA





DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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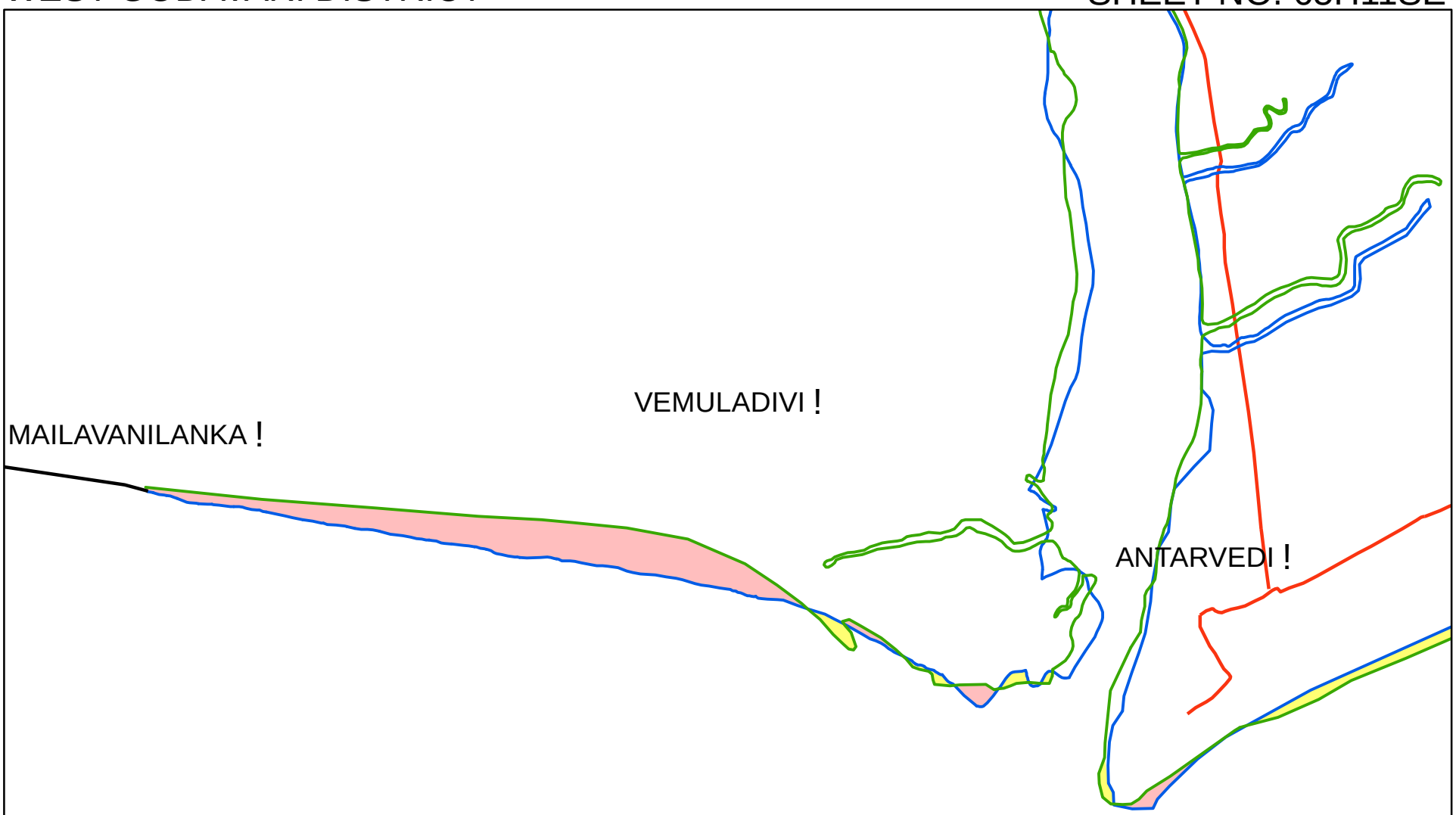
WEST GODAVARI DISTRICT

SHEET NO. 65H11SE



Legend

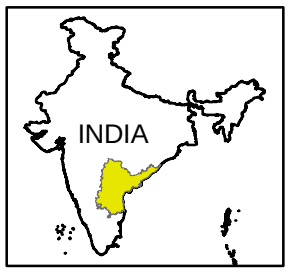
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65H11 NW	65H11 NE	65H15 NW
65H11 SW		65H15 SW
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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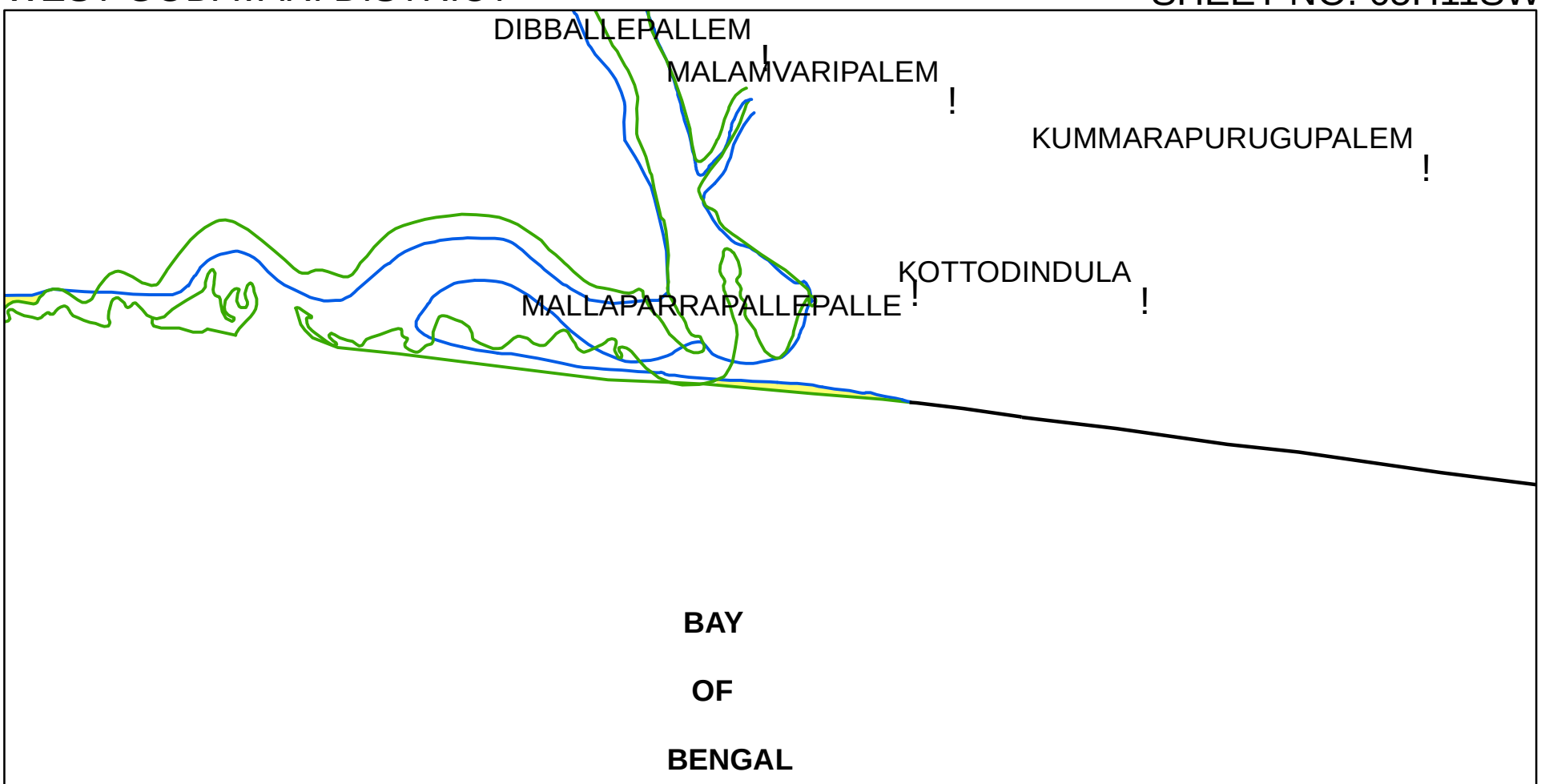
WEST GODAVARI DISTRICT

SHEET NO. 65H11SW



BAY

OF

BENGAL

Legend

ACCRETION

STABLE

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

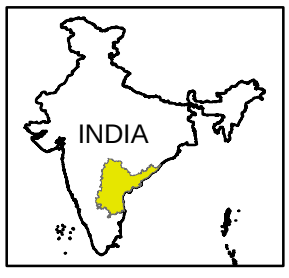
! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65H07 NE	65H11 NW	65H11 NE
65H07 SE		65H11 SE
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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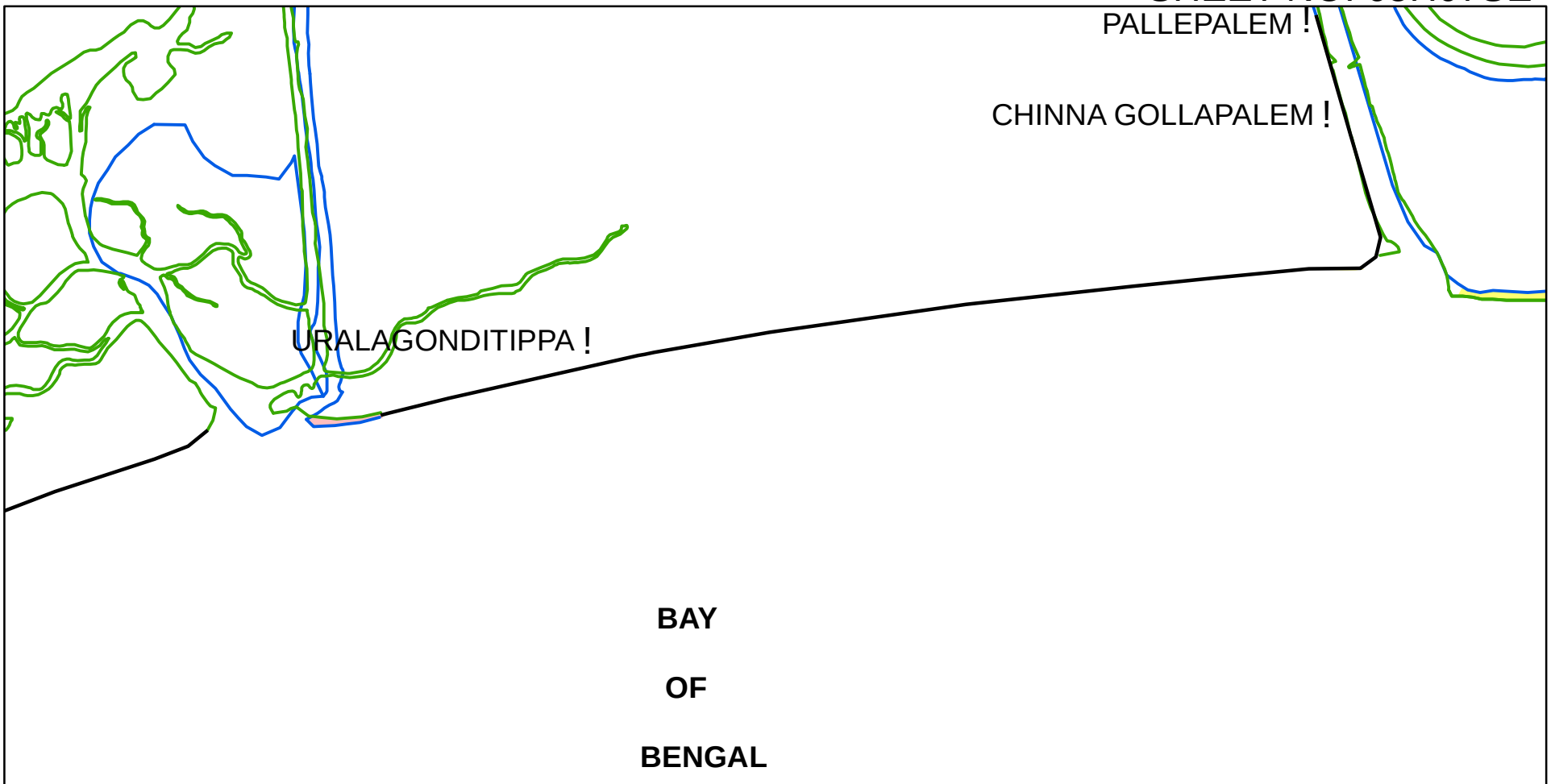
KRISHNA DISTRICT

SHEET NO. 65H07SE



BAY

OF

BENGAL

Legend

- EROSION
- ACCRETION
- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65H07 NW	65H07 NE	65H11 NW
65H07 SW		65H11 SW
SEA	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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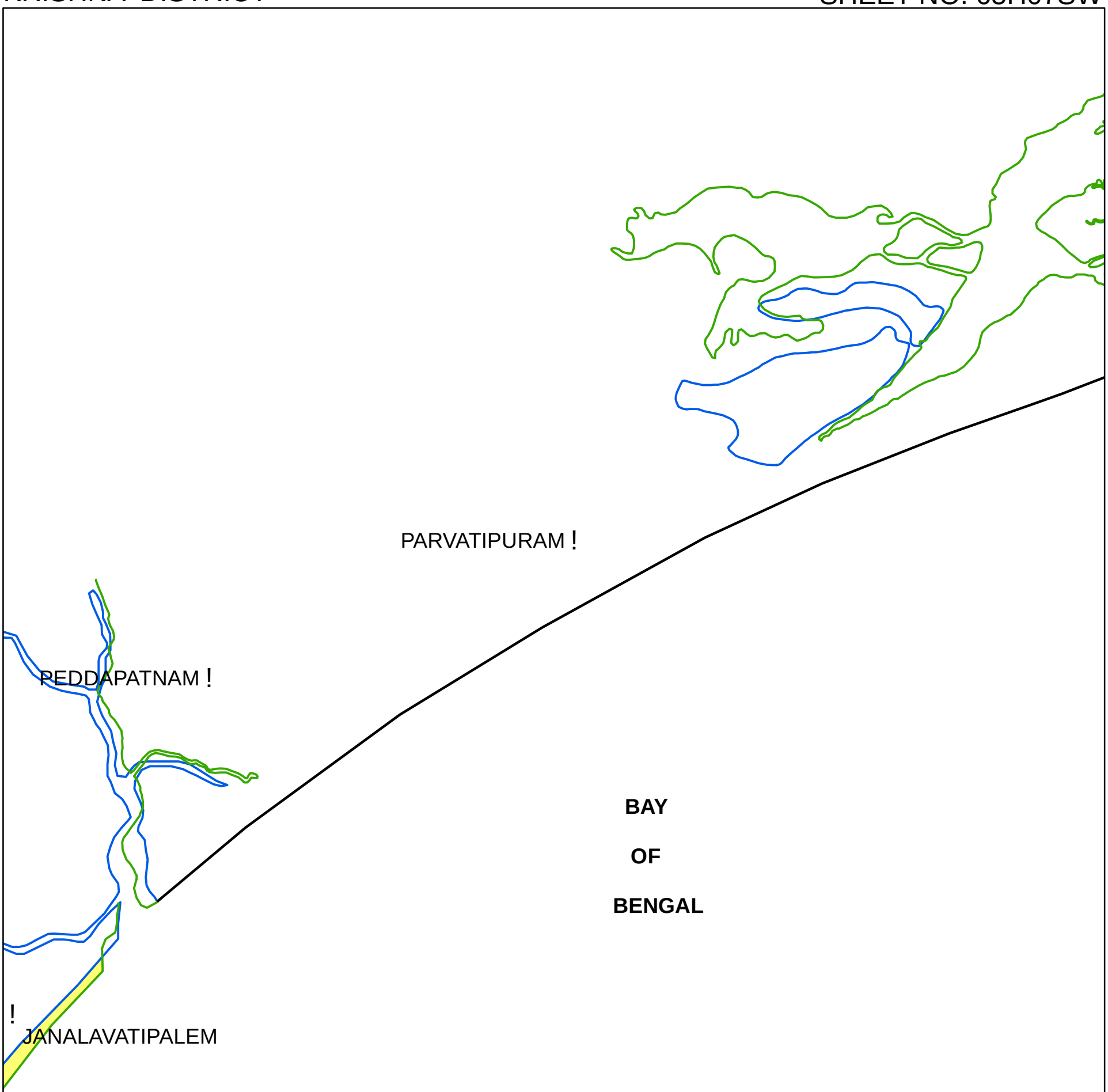
KRISHNA DISTRICT

SHEET NO. 65H07SW



Legend

- ACCRETION
- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65H03 NE	65H07 NW	65H07 NE
65H03 SE		65H07 SE
65H04 NE	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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KRISHNA DISTRICT

SHEET NO. 65H03SE

PALLEPALEM !

TULIAPALEM !

Legend

- ACCRETION
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65H03 NW	65H03 NE	65H07 NW
65H03 SW		65H07 SW
65H04 NW	65H04 NE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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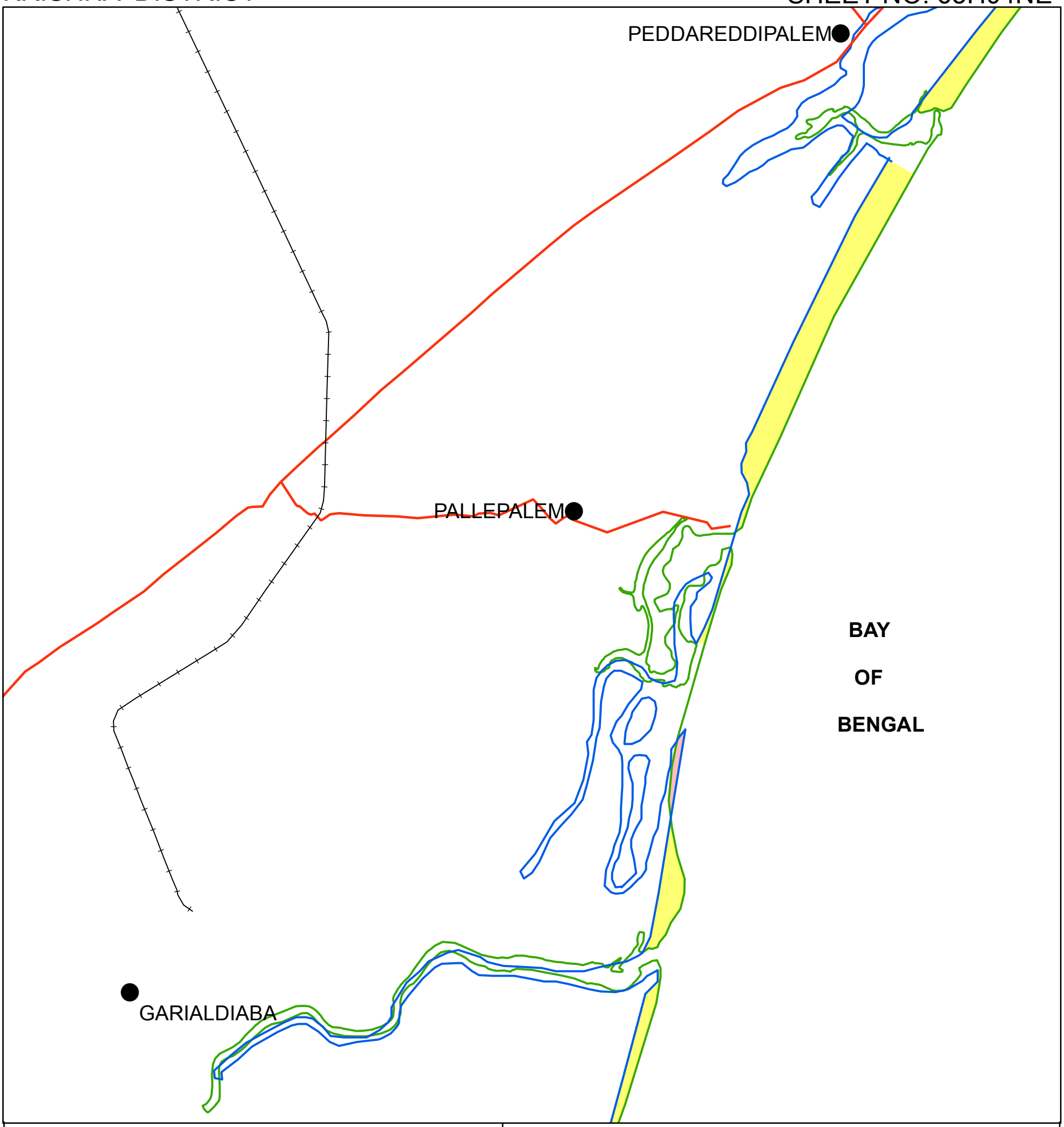
KRISHNA DISTRICT

SHEET NO. 65H04NE



Legend

- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- HABITATION
- RAIL

N
W E
S

0 2

Scale in Km

INDEX TO SHEETS

65H03 SW	65H03 SE	65H07 SW
65H04 NW		SEA
65H04 SW	65H04 SE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

FOR OFFICIAL USE ONLY

KRISHNA DISTRICT

SHEET NO. 65H04SE

POLATIRIPPA !

! PALLETUMMALAPALEM

BAY

OF

BENGAL

Legend

- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65H04 NW	65H04 NE	SEA
65H04 SW		SEA
66E01 NW	66E01 NE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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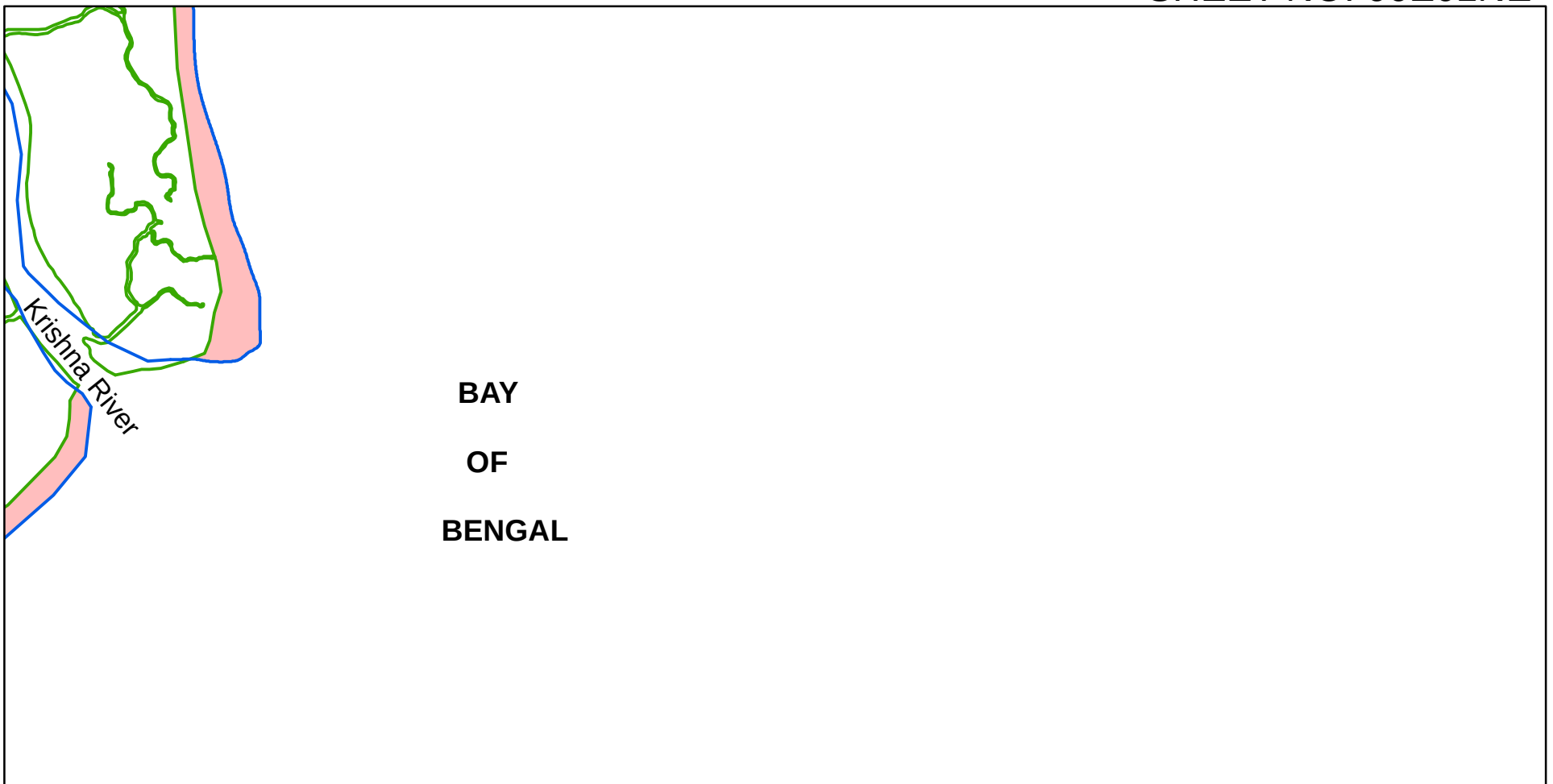
KRISHNA DISTRICT

SHEET NO. 66E01NE



Legend

- EROSION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

65H04 SW	65H04 SE	SEA
66E01 NW		SEA
66E01 SW	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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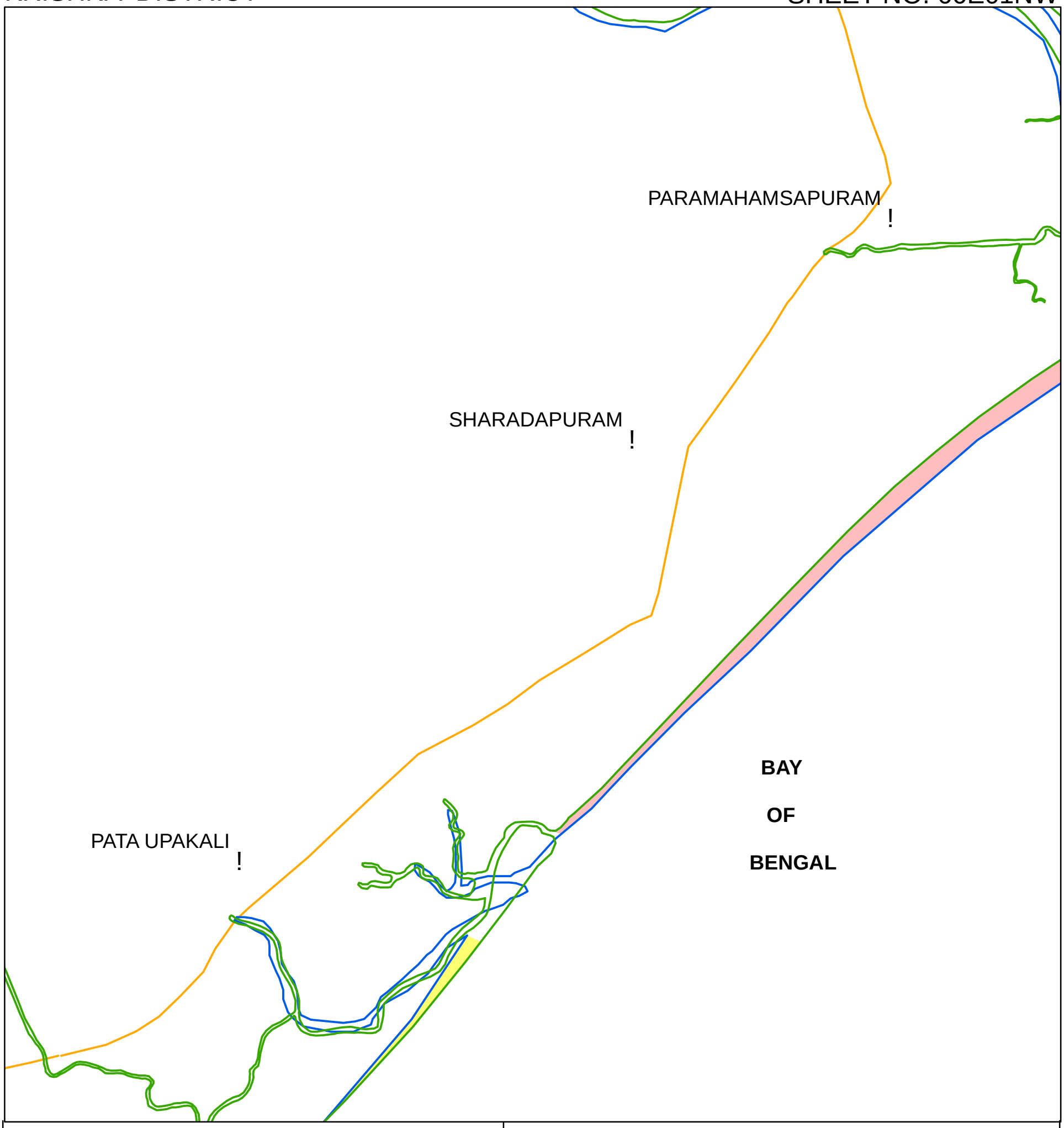
KRISHNA DISTRICT

SHEET NO. 66E01NW



Legend

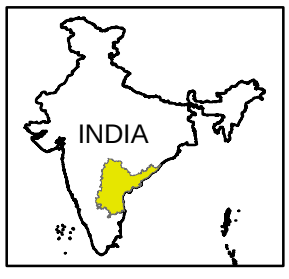
- EROSION
- ACCRETION
- EMBANKMENT
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65D16 SE	65H04 SW	65H04 SE
66A13 NE		66E01 NE
66A13 SE	66E01 SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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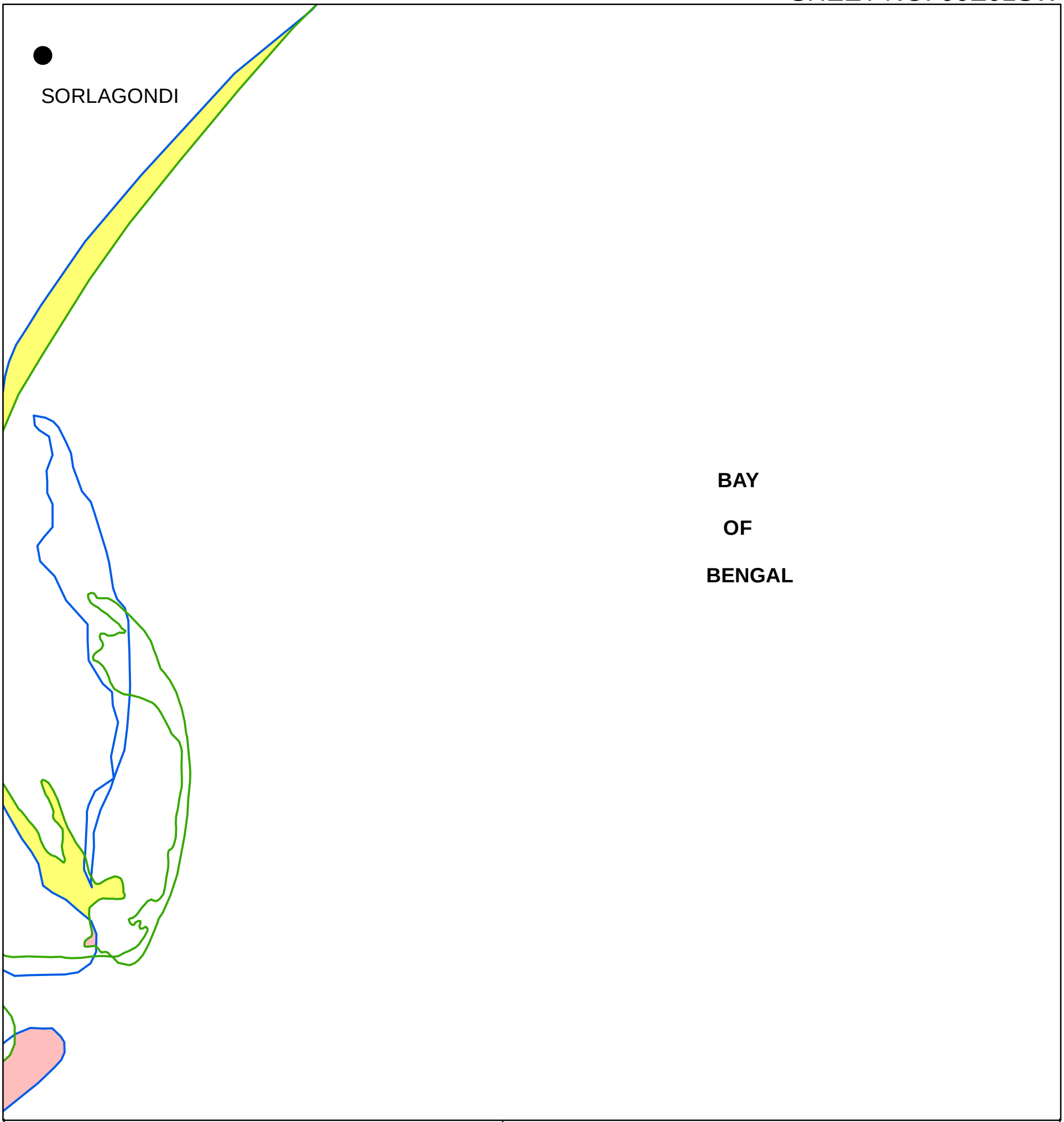
KRISHNA DISTRICT

SHEET NO. 66E01SW



Legend

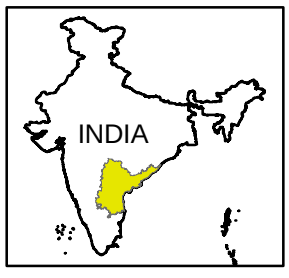
- EROSION
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66A13 NE	66E01 NW	66E01 NE
66A13 SE		66E01 SE
66A14 NE	66E02 NW	66E02 NE



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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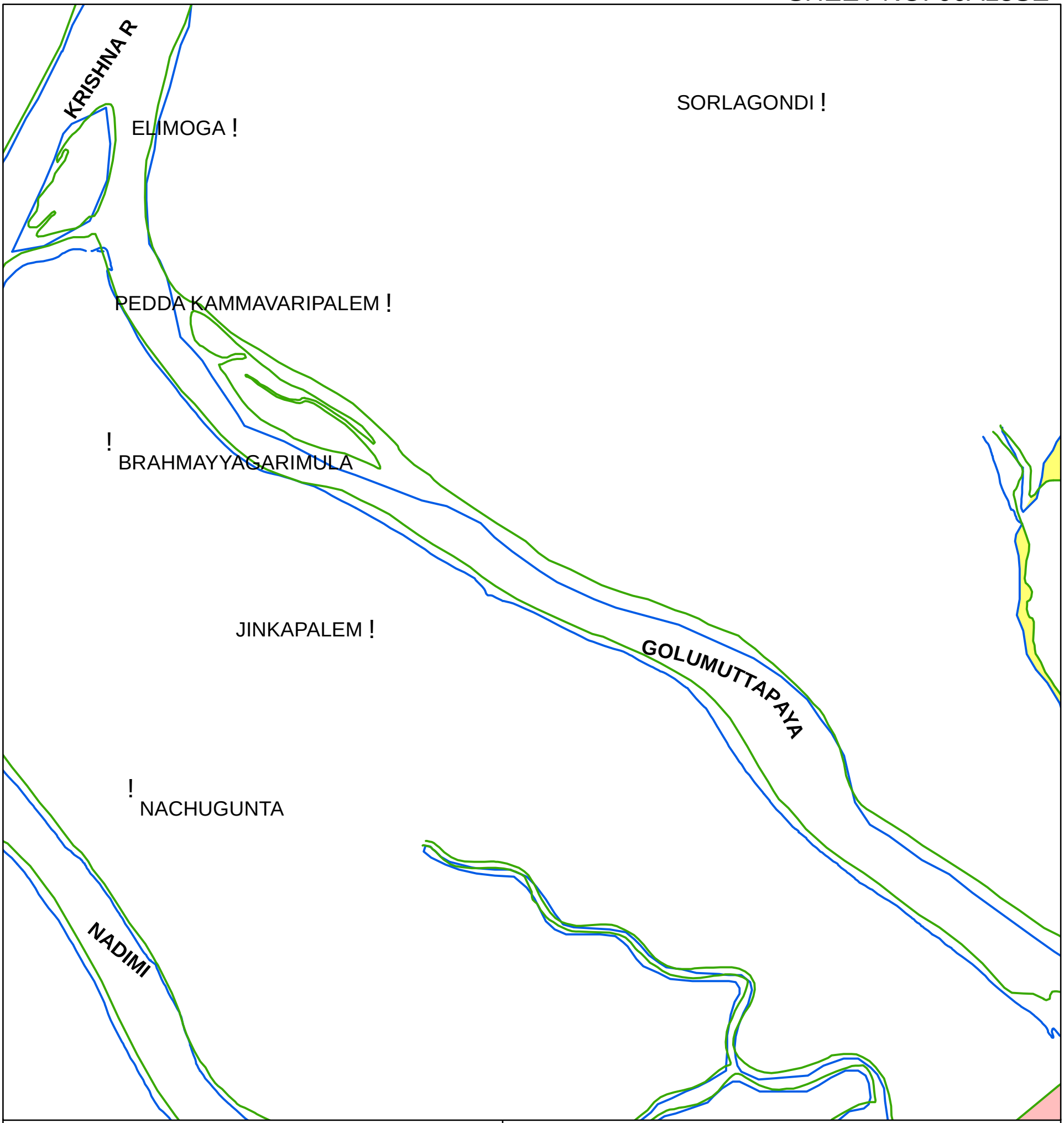
KRISHNA DISTRICT

SHEET NO. 66A13SE



Legend

- EROSION
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66A13 NW	66A13 NE	66E01 NW
66A13 SW		66E01 SW
66A14 NW	66A14 NE	66E02 NW

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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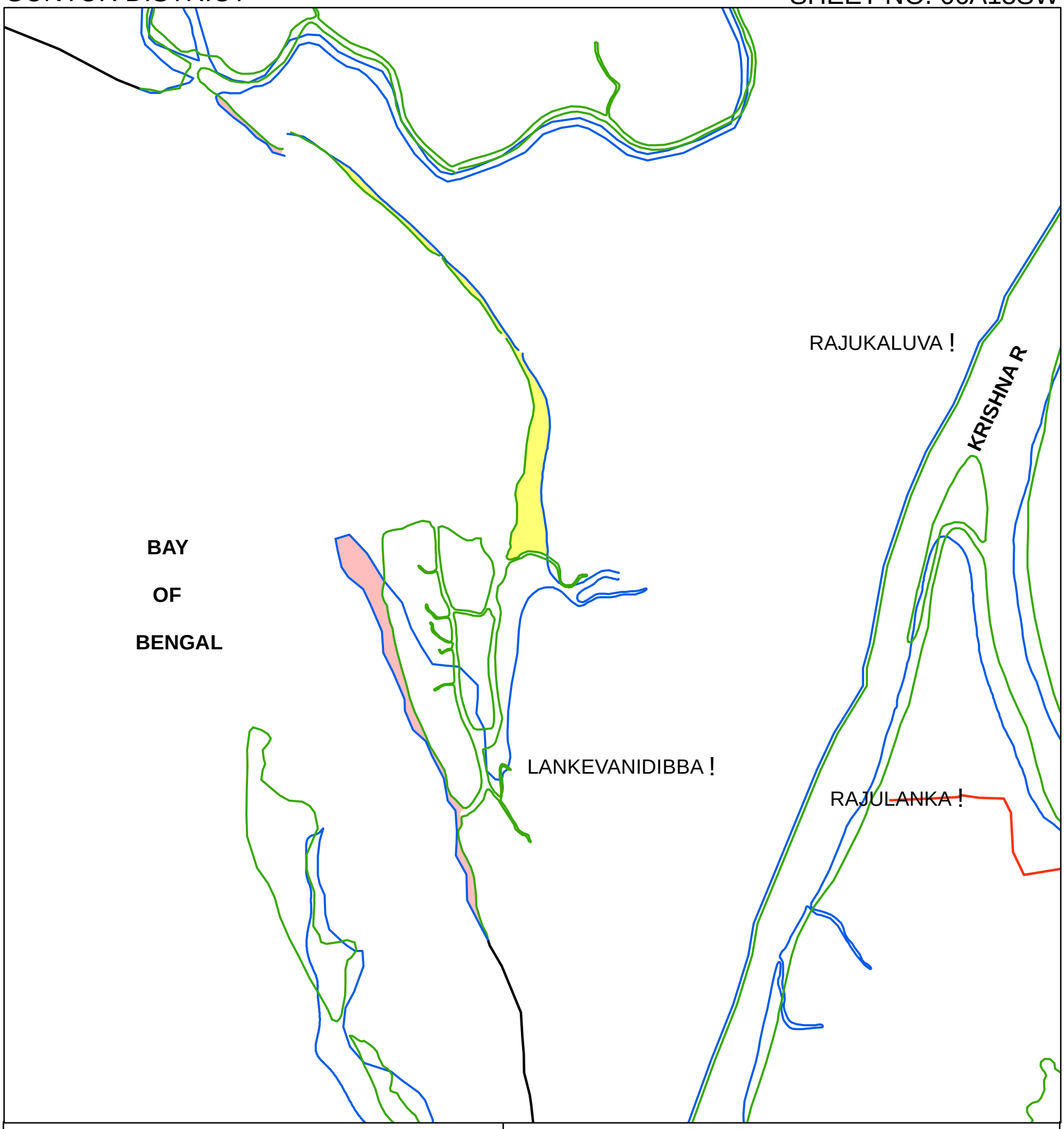
GUNTUR DISTRICT

SHEET NO. 66A13SW



Legend

- EROSION
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66A09 NE	66A13 NW	66A13 NE
66A09 SE		66A13 SE
SEA	66A14 NW	66A14 NE

ANDHRA PRADESH

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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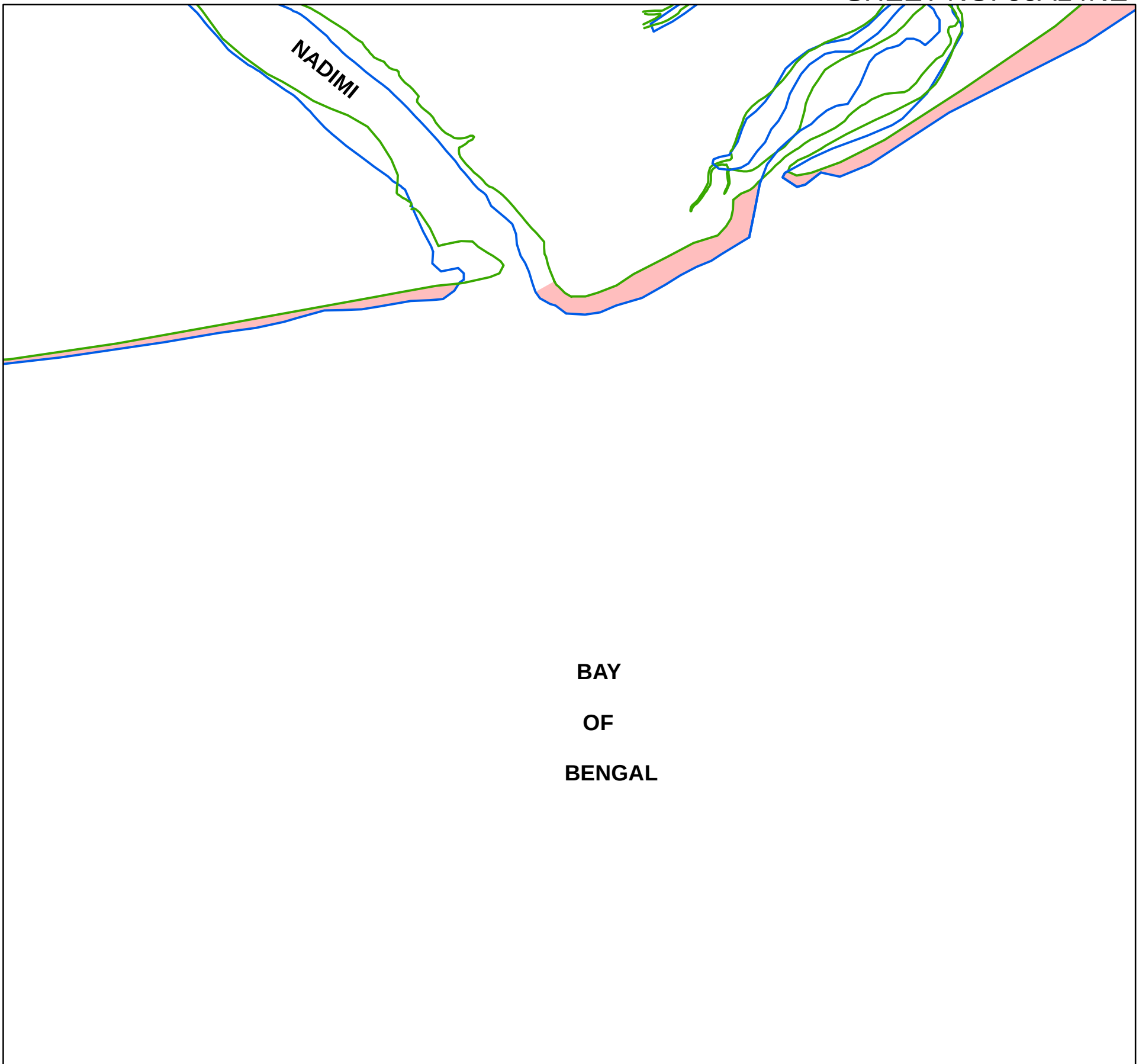
KRISHNA DISTRICT

SHEET NO. 66A14NE



Legend

EROSION

HIGH-TIDE LINE 2004-06

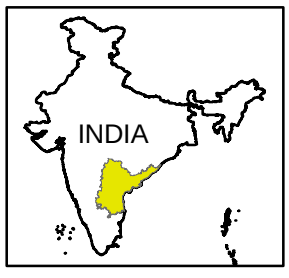
HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

66A13 SW	66A13 SE	66E01 SW
66A14 NW		66E02 NW
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

ANDHRA PRADESH

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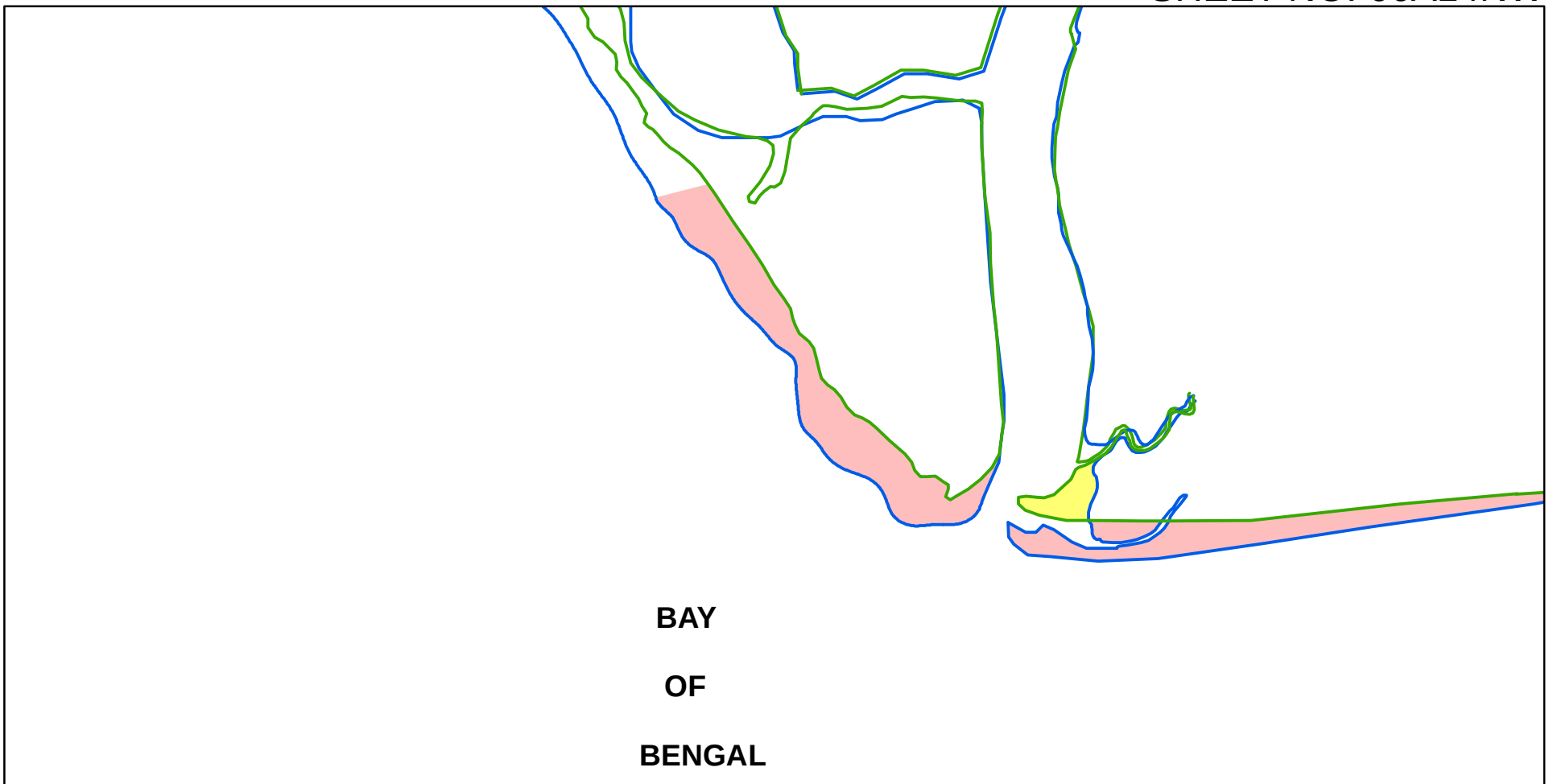
GUNTUR AND KRISHNA DISTRICT

SHEET NO. 66A14NW



BAY

OF

BENGAL

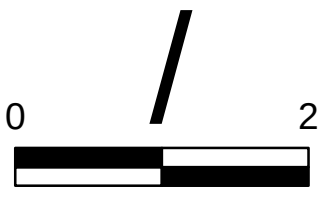
Legend

EROSION

ACCRETION

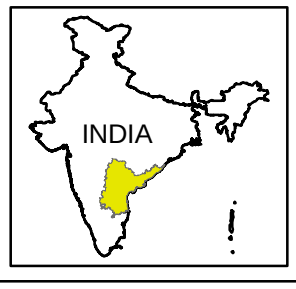
HIGH-TIDE LINE 2004-06

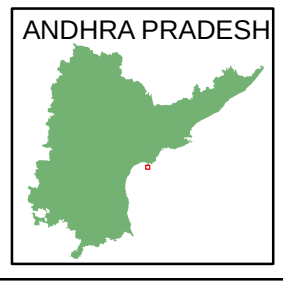
HIGH-TIDE LINE 1989-91



INDEX TO SHEETS

66A09 SE	66A13 SW	66A13 SE
66A10 NE		66A14 NE
SEA	SEA	SEA





DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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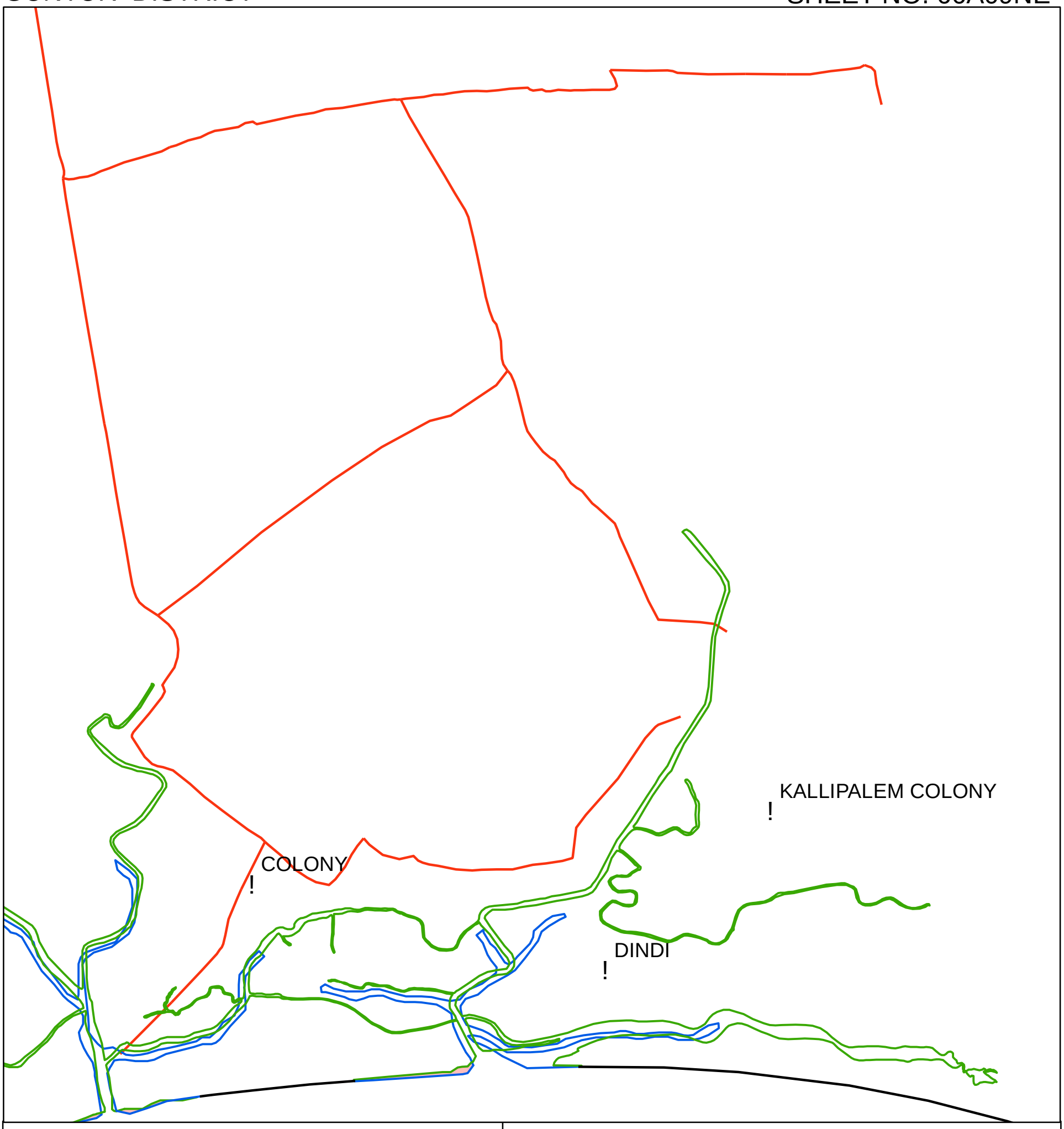
GUNTUR DISTRICT

SHEET NO. 66A09NE



Legend

- EROSION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

65D12 SW	65D12 SE	65D16 SW
66A09 NW		66A13 NW
66A09 SW	66A09 SE	66A13 SW

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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GUNTUR DISTRICT

SHEET NO. 66A09SE

BAY

OF

BENGAL

Legend

EROSION

HIGH-TIDE LINE 2004-06

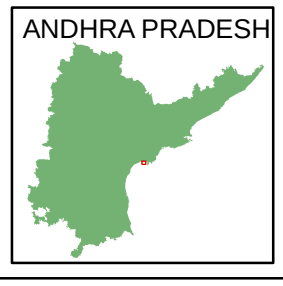
HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

66A09 NW	66A09 NE	66A13 NW
66A09 SW		66A13 SW
SEA	SEA	66A14 NW



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

ANDHRA PRADESH

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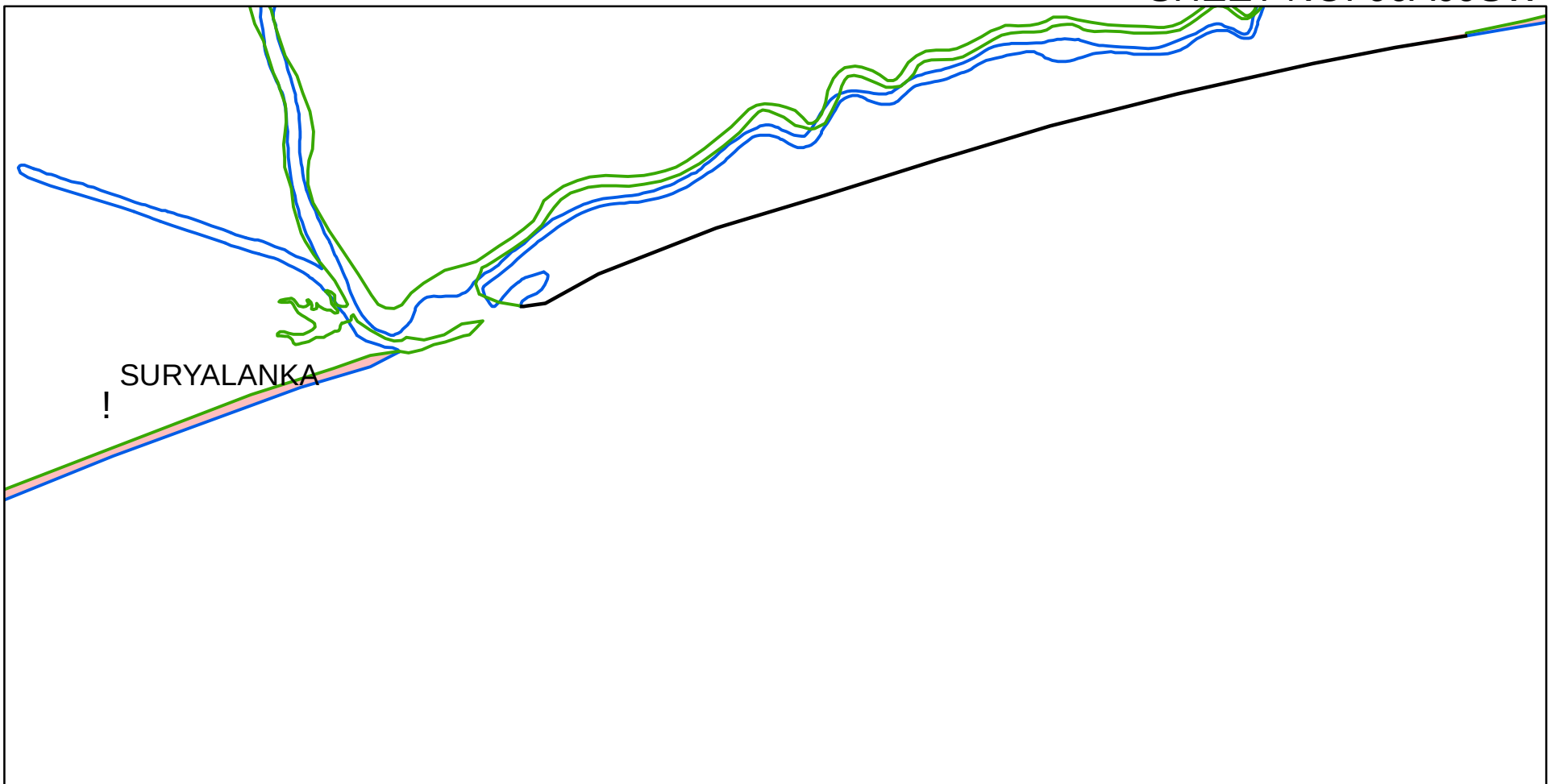
GUNTUR DISTRICT

SHEET NO. 66A09SW



Legend

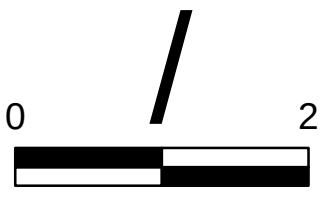
EROSION

STABLE

HIGH-TIDE LINE 2004-06

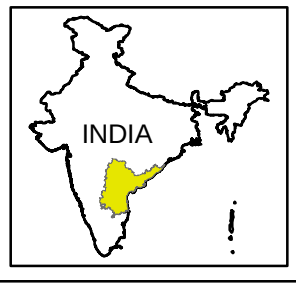
HIGH-TIDE LINE 1989-91

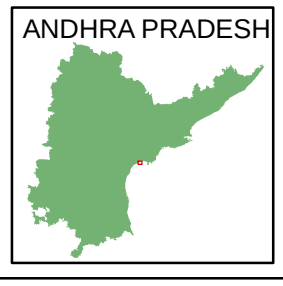
! HABITATION



INDEX TO SHEETS

66A05 NE	66A09 NW	66A09 NE
66A05 SE		66A09 SE
SEA	SEA	SEA





DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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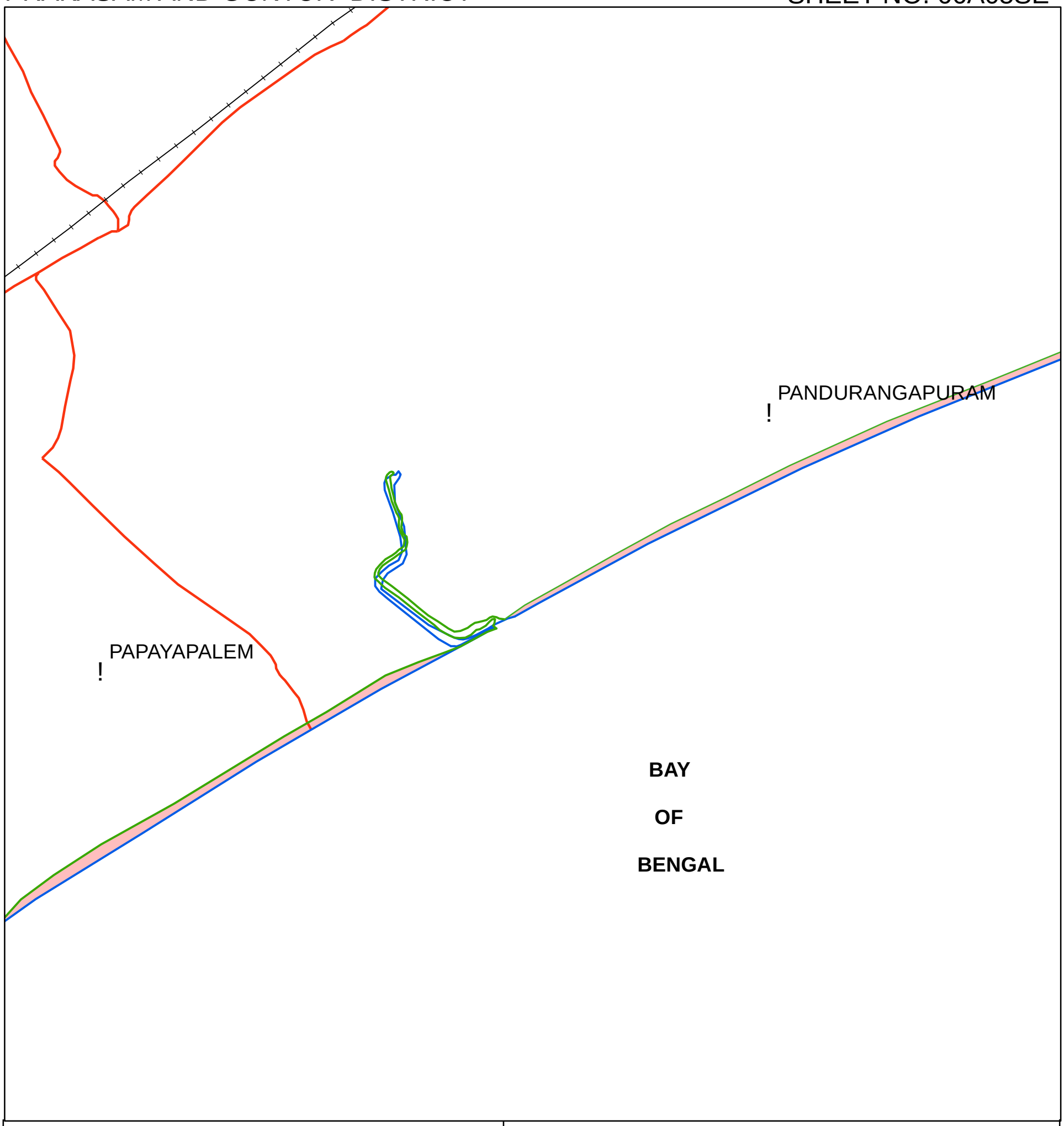
PRAKASAM AND GUNTUR DISTRICT

SHEET NO. 66A05SE



Legend

- EROSION
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66A05 NW	66A05 NE	66A09 NW
66A05 SW		66A09 SW
66A06 NW	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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PRAKASAM DISTRICT

SHEET NO. 66A05SW

KATTARALLAPALEM

KOTTAPALEM

POTTI SABBARAYUDUPAL

Legend

- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66A01 NE	66A05 NW	66A05 NE
66A01 SE		66A05 SE
66A02 NE	66A06 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

ANDHRA PRADESH

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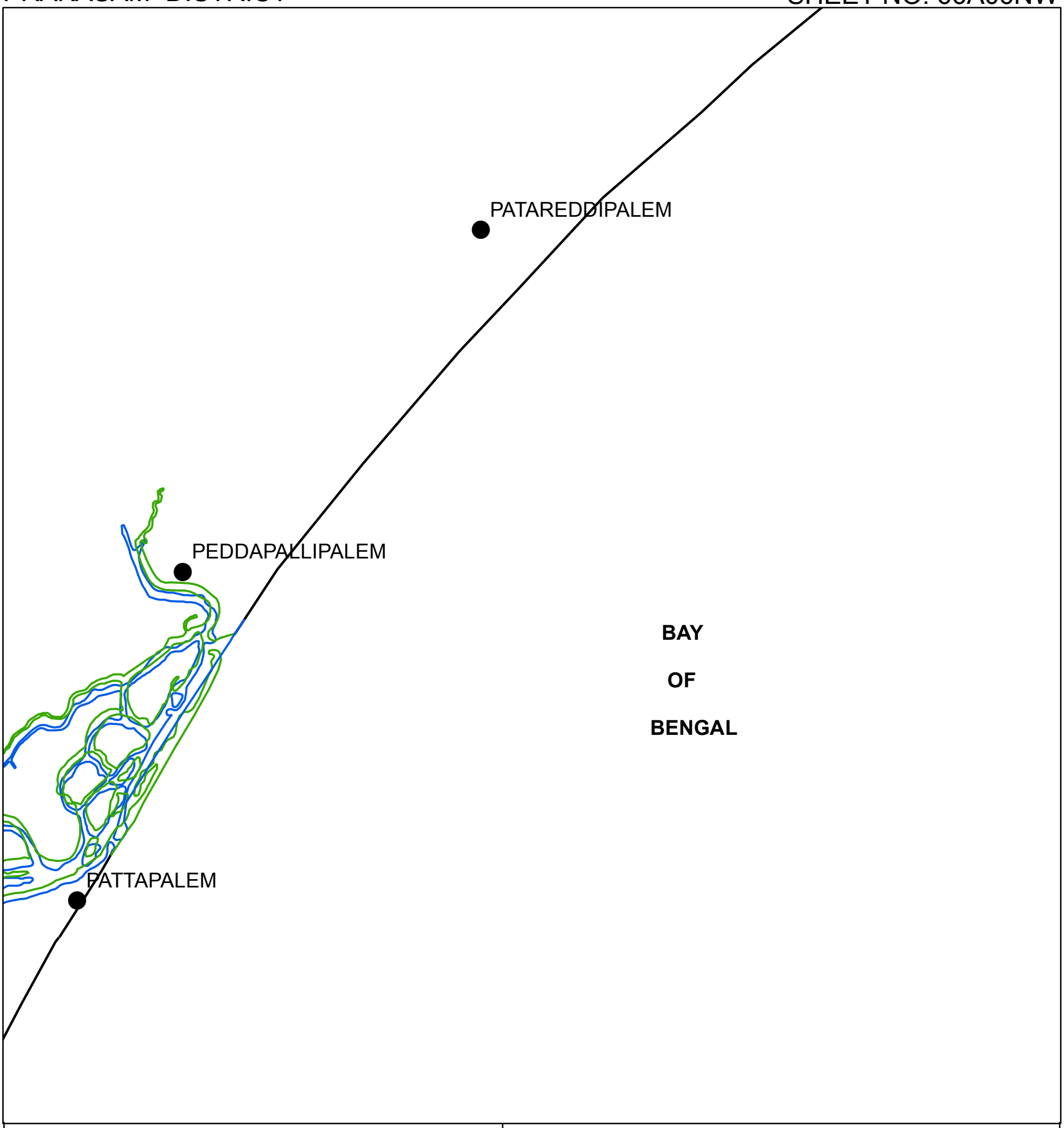
PRAKASAM DISTRICT

SHEET NO. 66A06NW



Legend

- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- HABITATION

N
W E
S
0 2
Scale in Km

INDEX TO SHEETS

66A01 SE	66A05 SW	66A05 SE
66A02 NE		SEA
66A02 SE	66A06 SW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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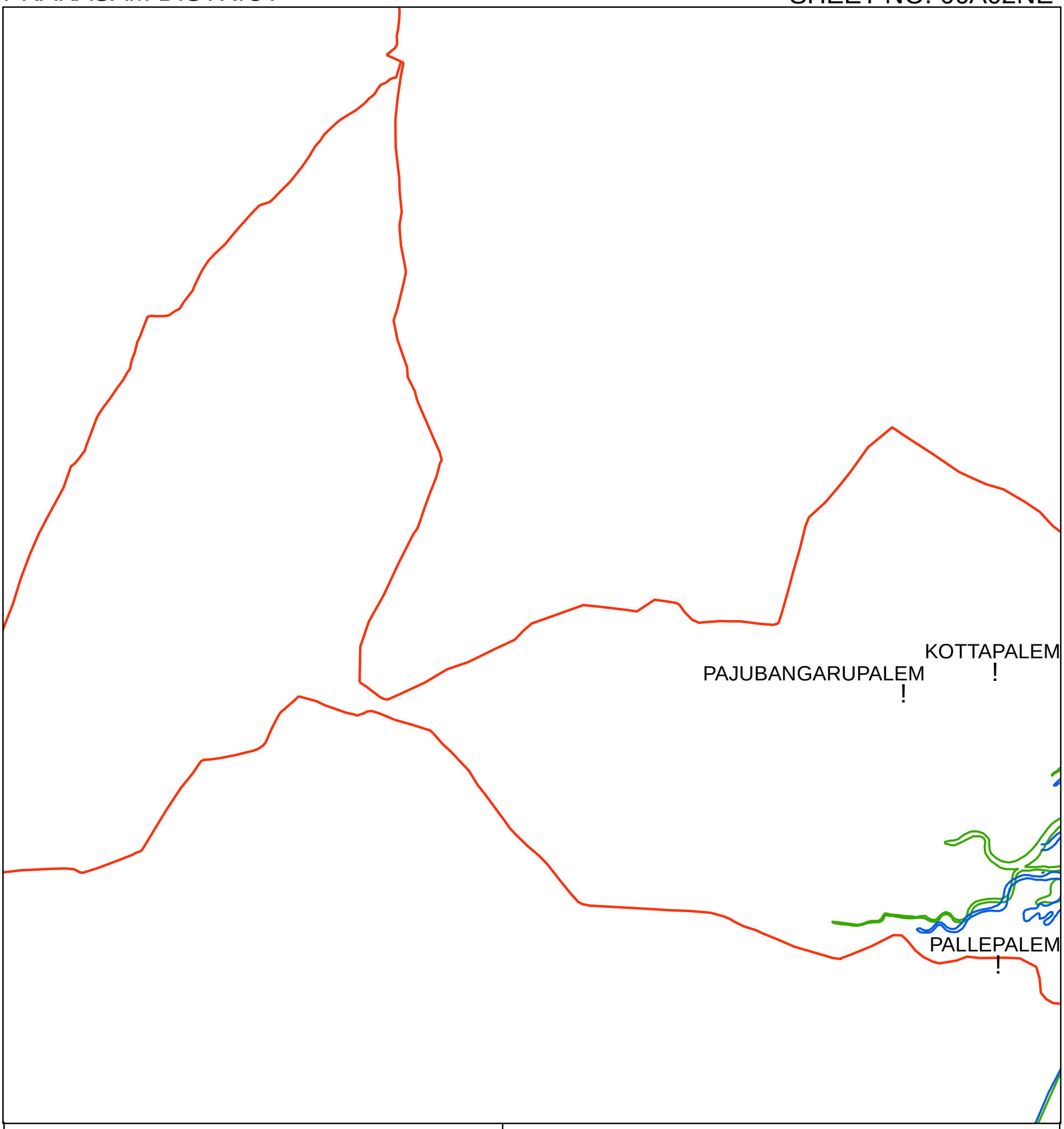
PRAKASAM DISTRICT

SHEET NO. 66A02NE



Legend

- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66A01 SW	66A01 SE	66A05 SW
66A02 NW		66A06 NW
66A02 SW	66A02 SE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

ANDHRA PRADESH

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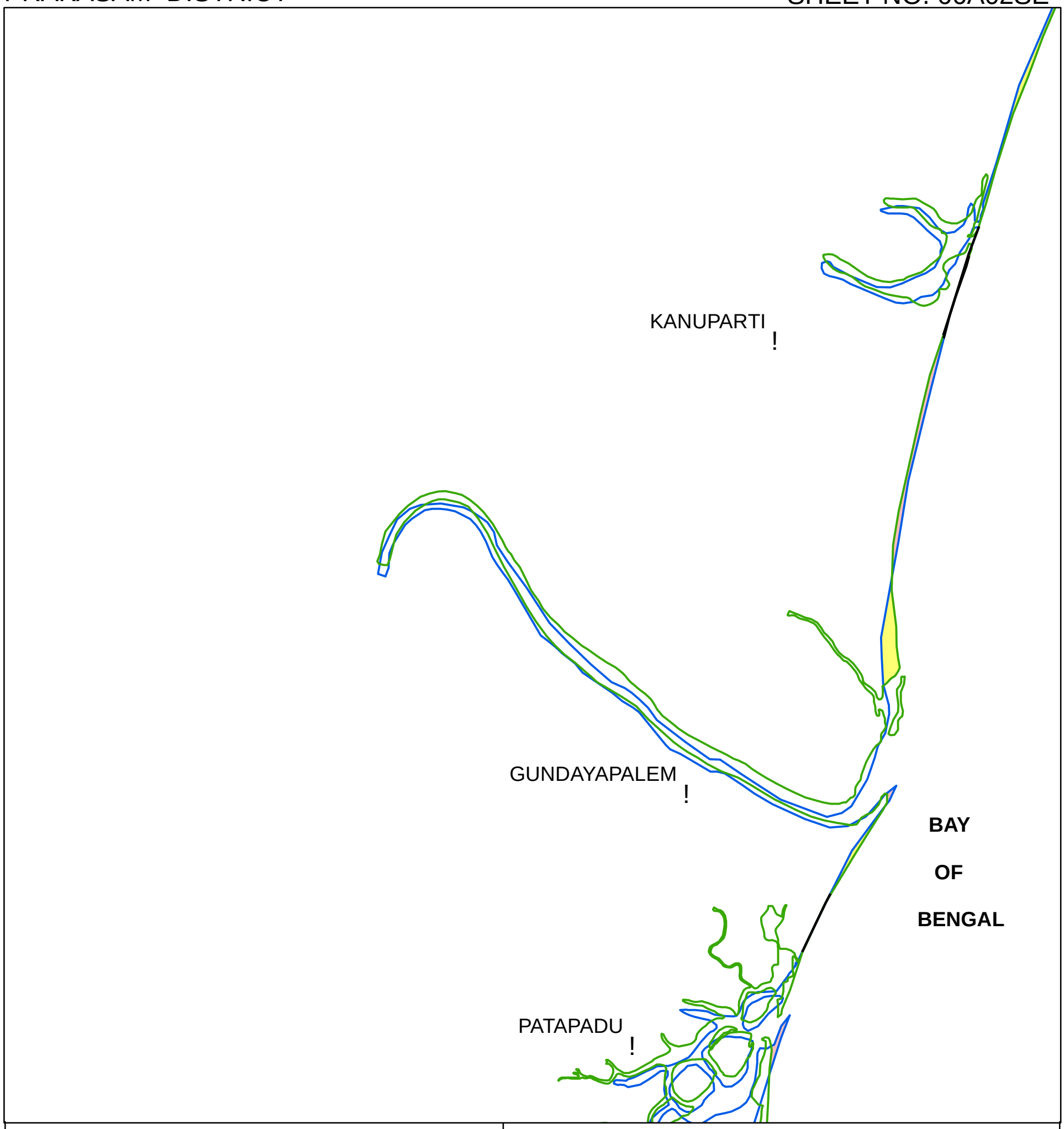
PRAKASAM DISTRICT

SHEET NO. 66A02SE



Legend

- EROSION
- ACCRETION
- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66A02 NW	66A02 NE	66A06 NW
66A02 SW		SEA
66A03 NW	66A03 NE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SPACE APPLICATIONS CENTRE, AHMEDABAD
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SHORELINE CHANGE MAP

ANDHRA PRADESH

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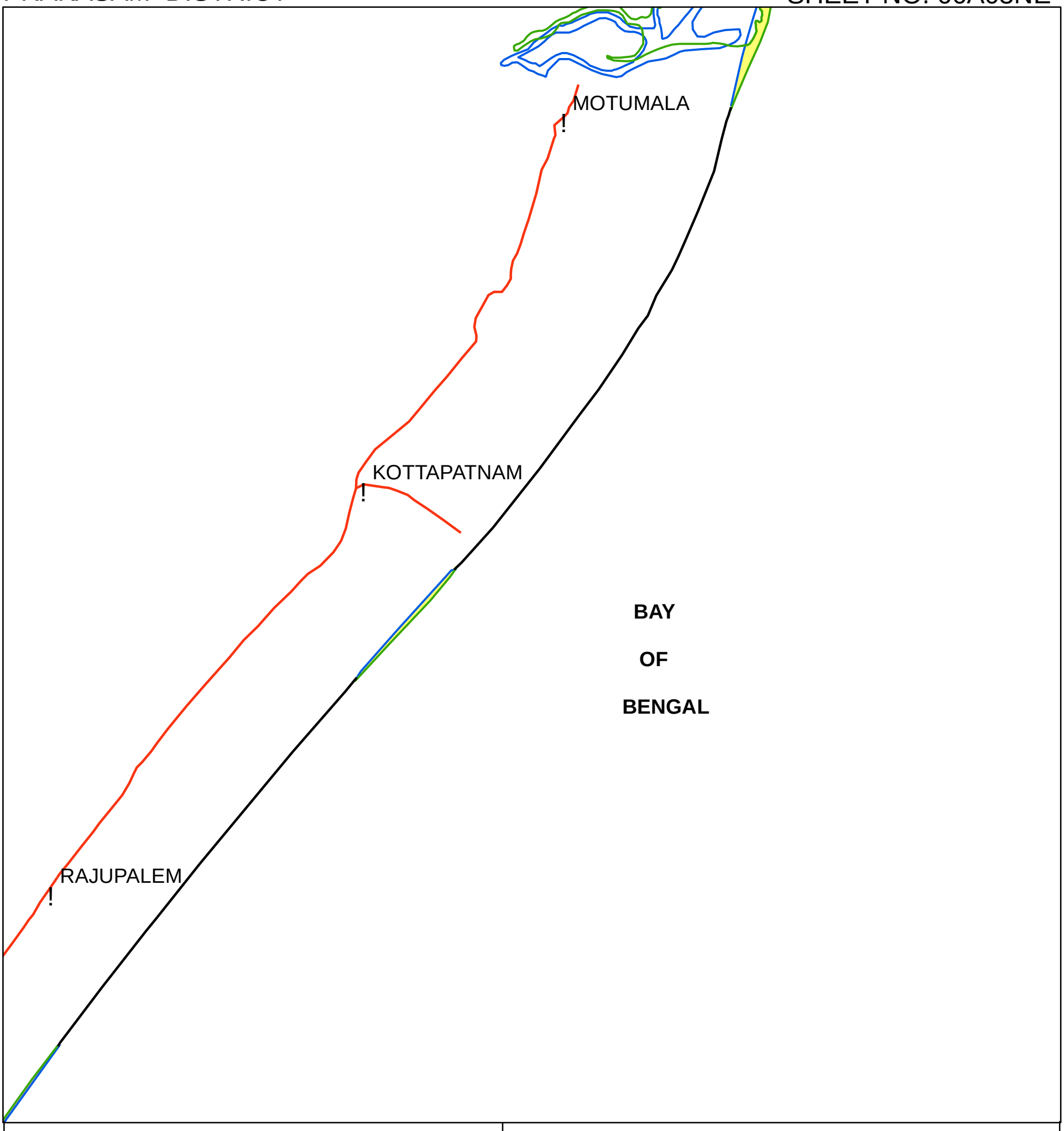
PRAKASAM DISTRICT

SHEET NO. 66A03NE



Legend

- EROSION
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66A02 SW	66A02 SE	SEA
66A03 NW		SEA
66A03 SW	66A03 SE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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PRAKASAM DISTRICT

SHEET NO. 66A03SE

BAY

OF

BENGAL

Legend

EROSION

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

66A03 NW	66A03 NE	SEA
66A03 SW		SEA
66A04 NW	SEA	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

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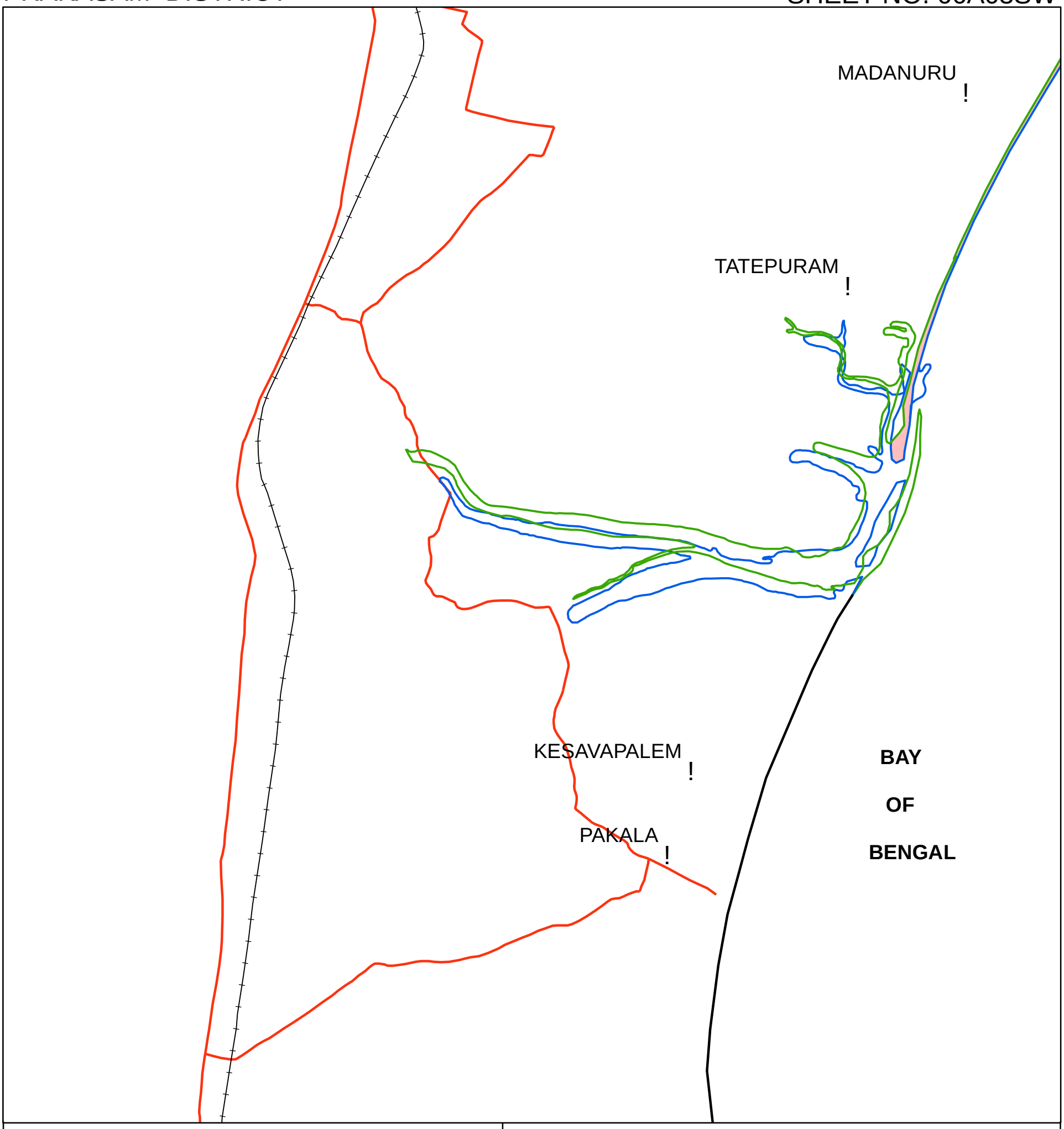
PRAKASAM DISTRICT

SHEET NO. 66A03SW



Legend

- EROSION
- STABLE
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

57M15 NE	66A03 NW	66A03 NE
57M15 SE		66A03 SE
57M16 NE	66A04 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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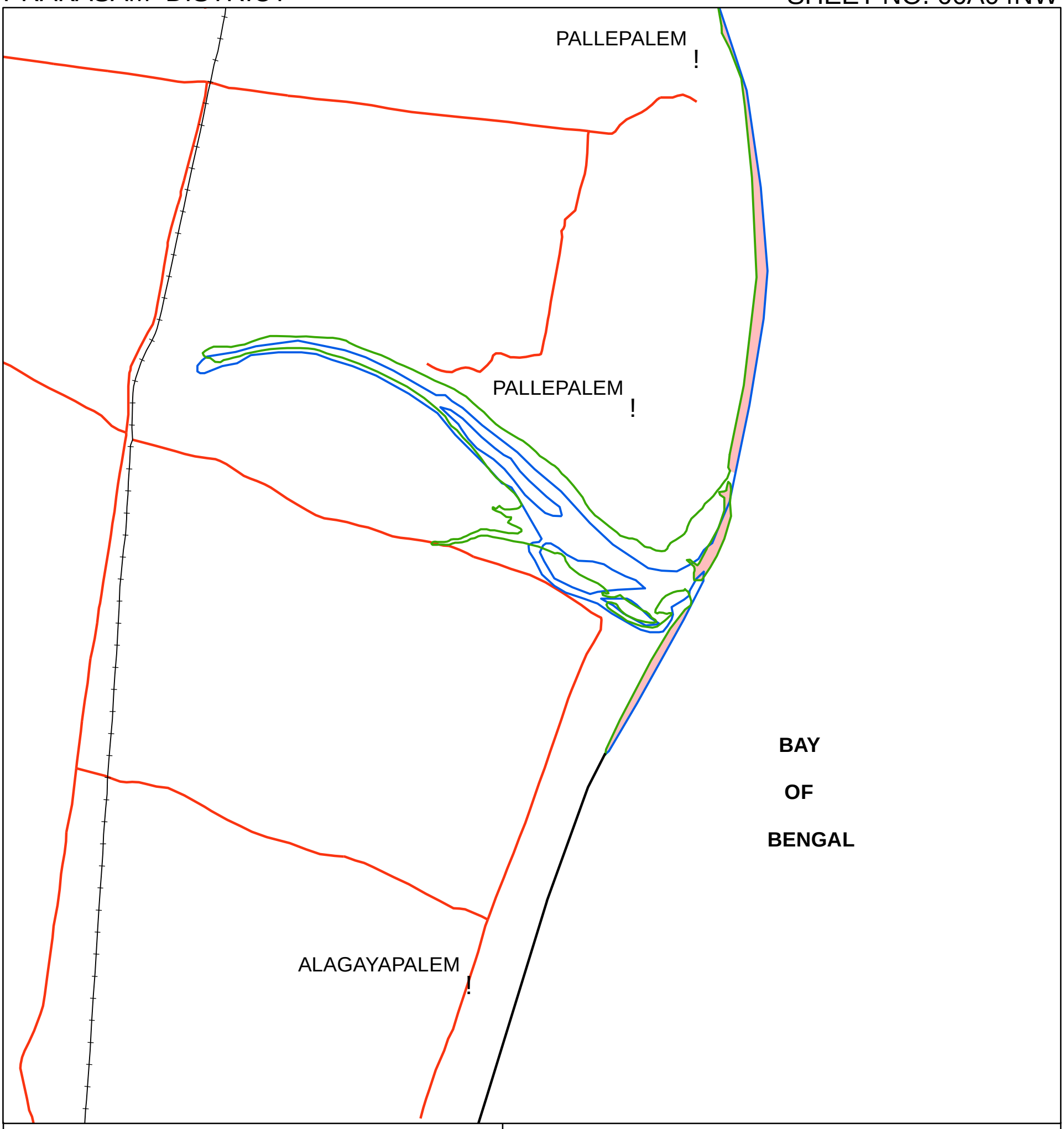
PRAKASAM DISTRICT

SHEET NO. 66A04NW



Legend

- EROSION
- STABLE
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

57M15 SE	66A03 SW	SEA
57M16 NE		SEA
57M16 SE	66A04 SW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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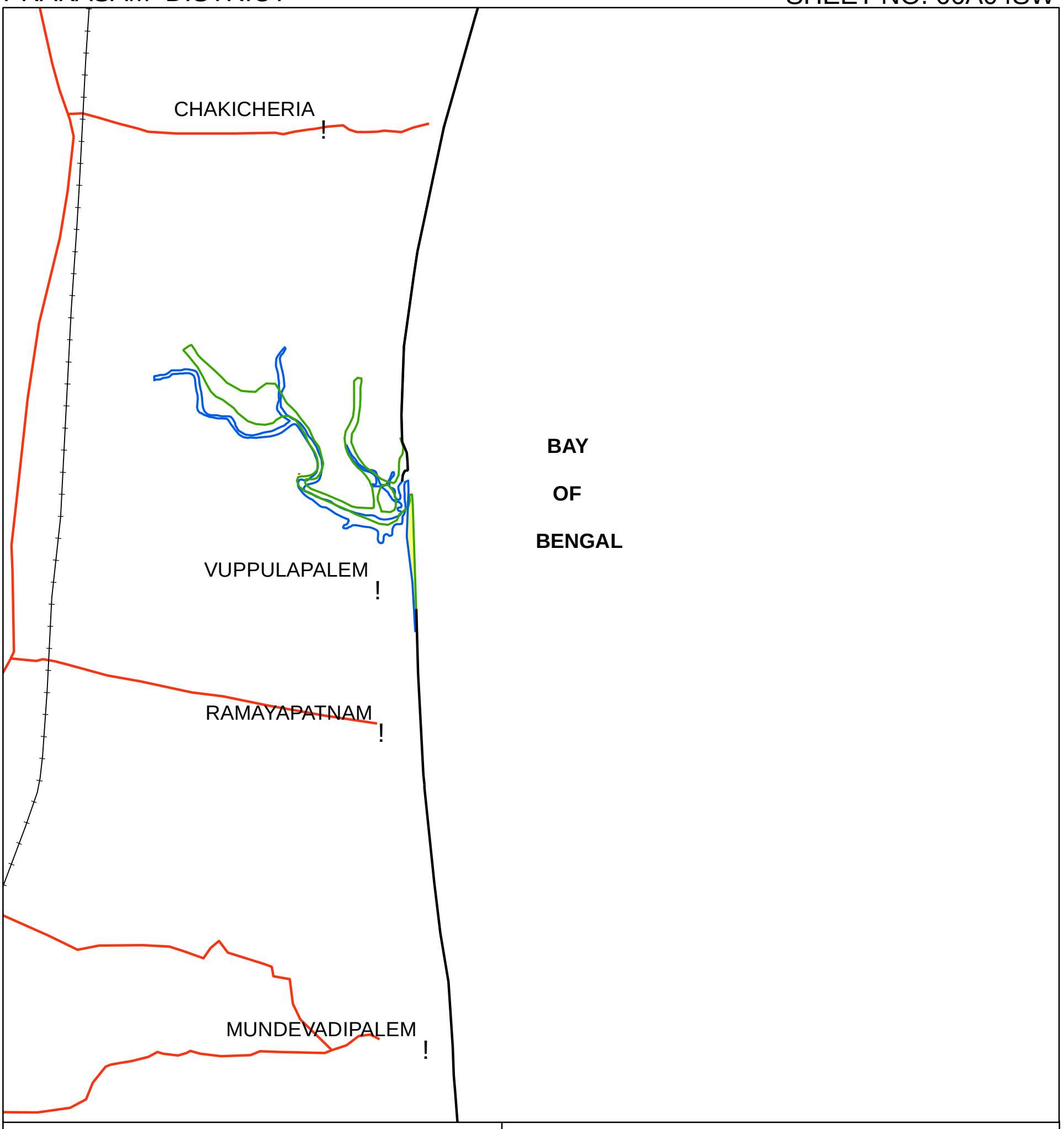
PRAKASAM DISTRICT

SHEET NO. 66A04SW



Legend

- ACCRETION
- STABLE
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

57M16 NE	66A04 NW	SEA
57M16 SE		SEA
57N13 NE	66B01 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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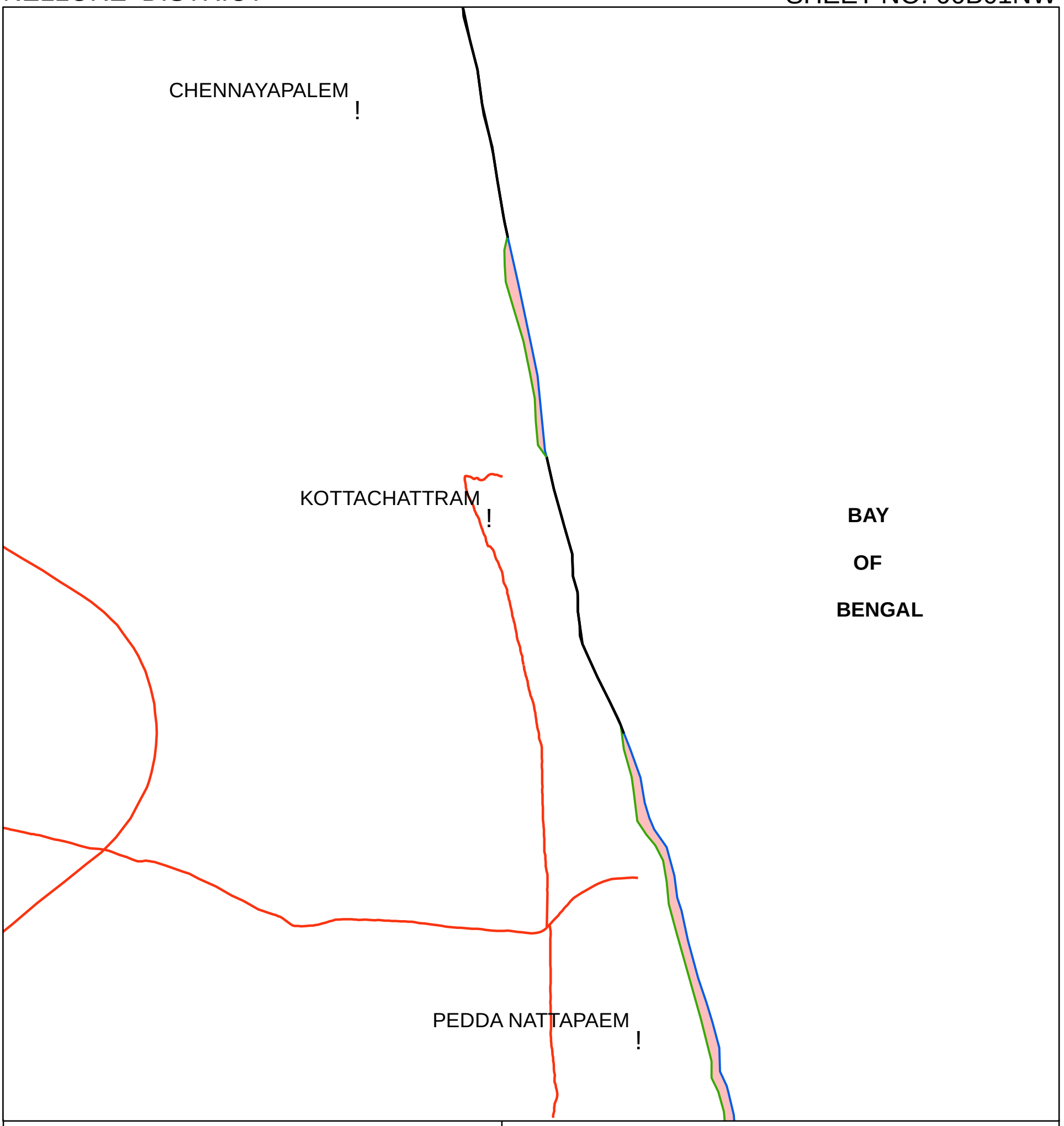
NELLORE DISTRICT

SHEET NO. 66B01NW



Legend

- EROSION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

57M16 SE	66A04 SW	SEA
57N13 NE		SEA
57N13 SE	66B01 SW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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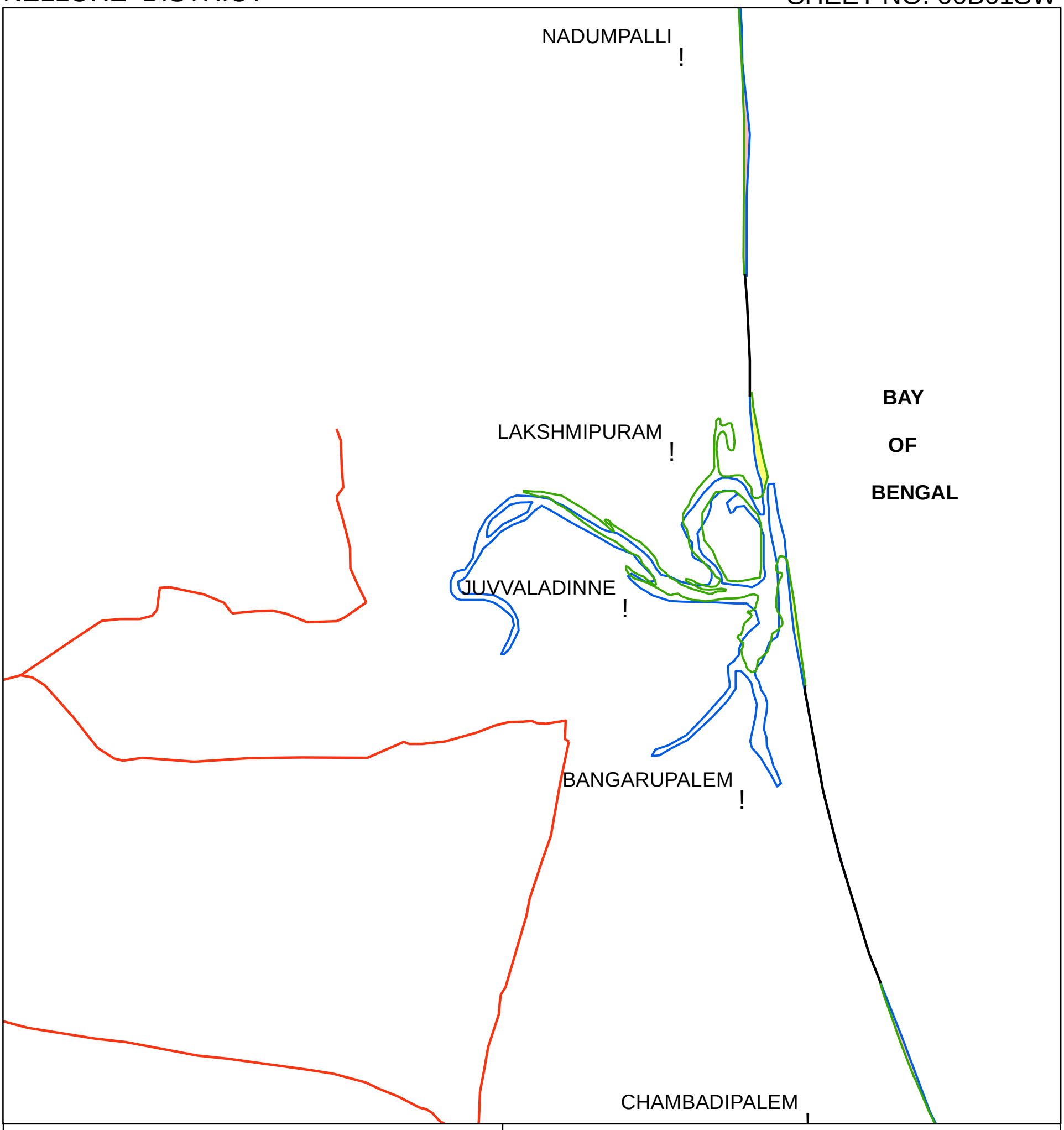
NELLORE DISTRICT

SHEET NO. 66B01SW



Legend

- EROSION
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

57N13 NE	66B01 NW	SEA
57N13 SE		SEA
57N14 NE	66B02 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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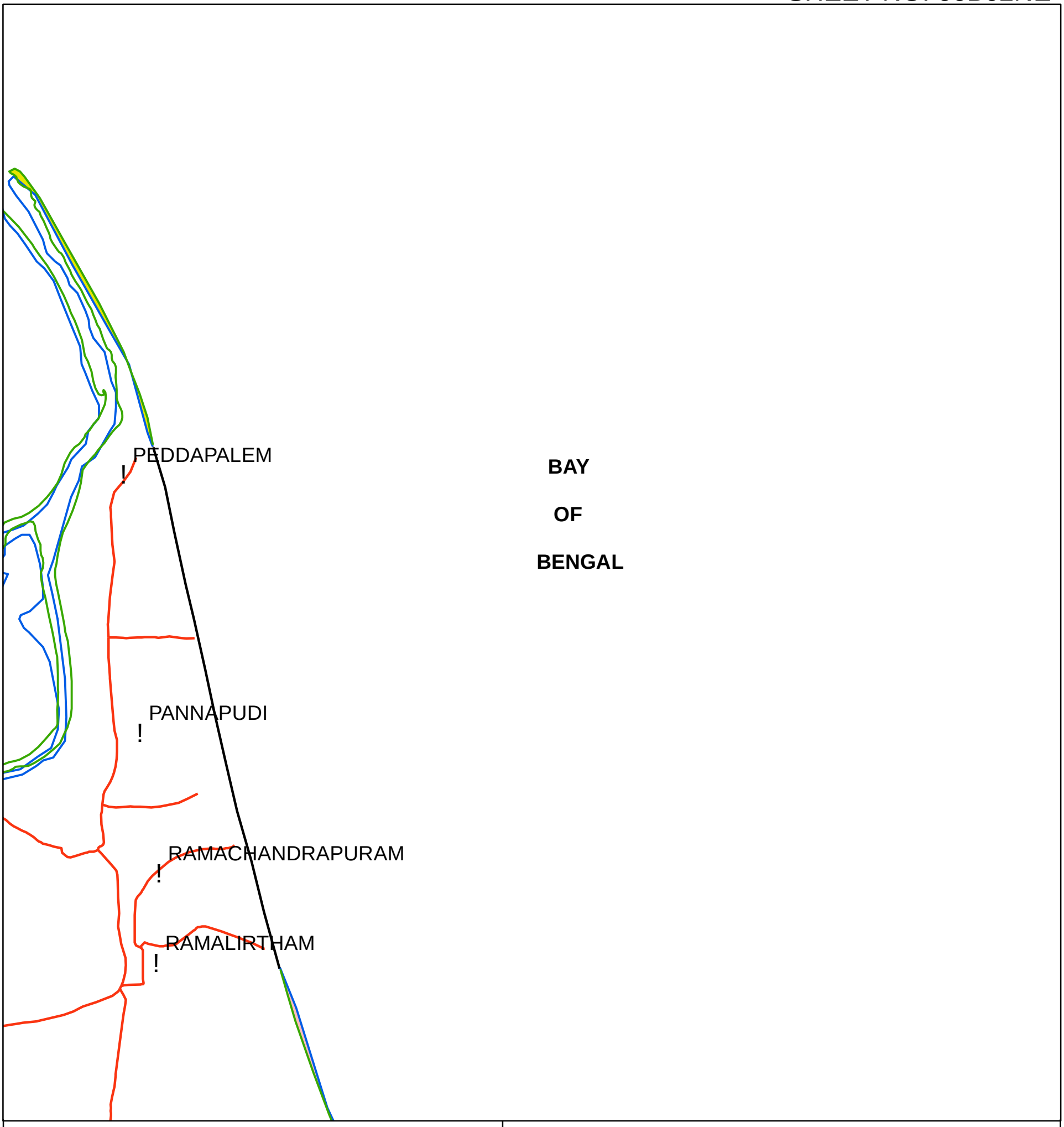
NELLORE DISTRICT

SHEET NO. 66B02NE



Legend

- EROSION
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66B01 SW	66B01 SE	SEA
66B02 NW		SEA
66B02 SW	66B02 SE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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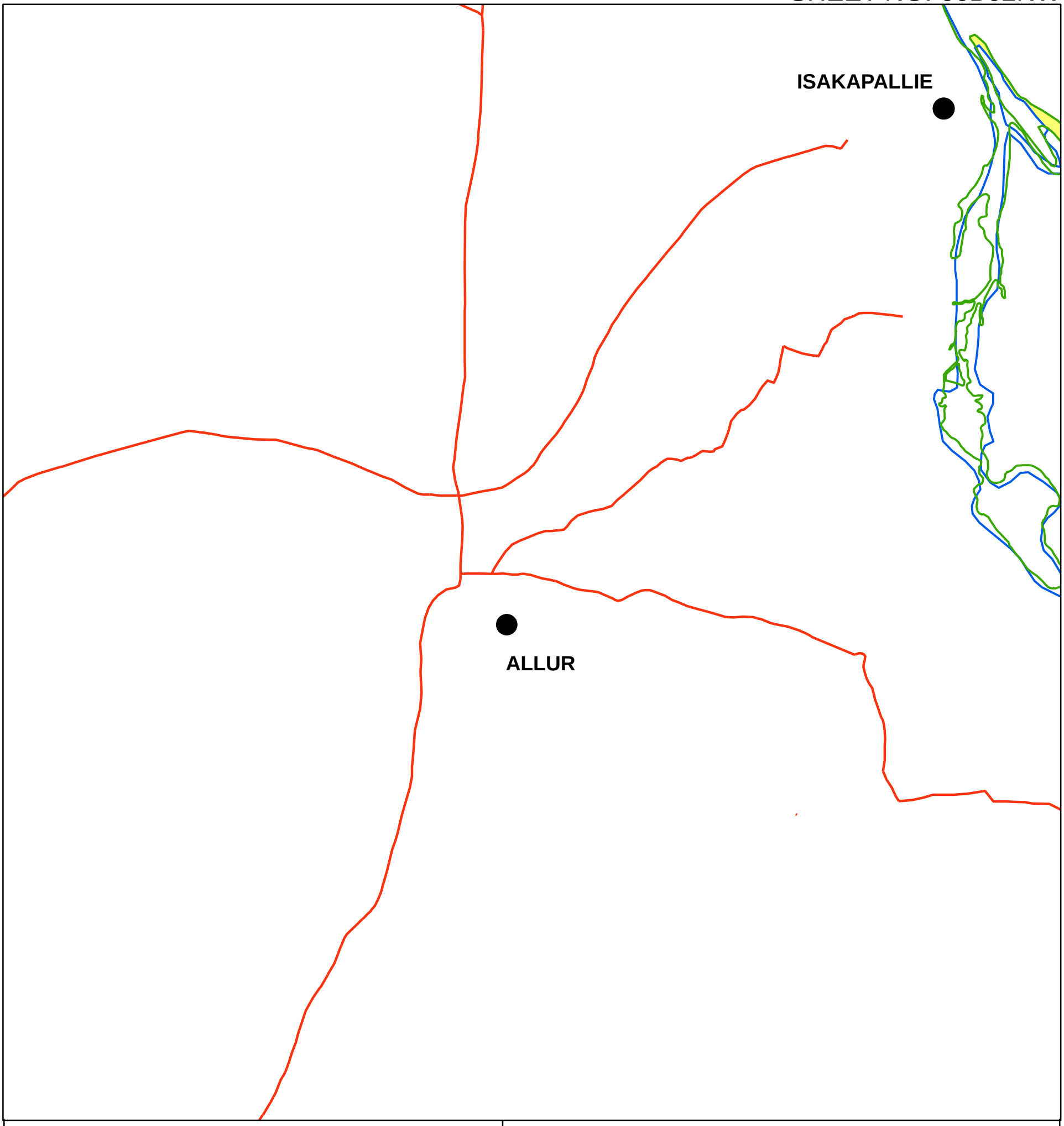
NELLORE DISTRICT

SHEET NO. 66B02NW



Legend

- EROSION
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ROAD
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

57N13 SE	66B01 SW	66B01 SE
57N14 NE		66B02 NE
57N14 SE	66B02 SW	66B02 SE

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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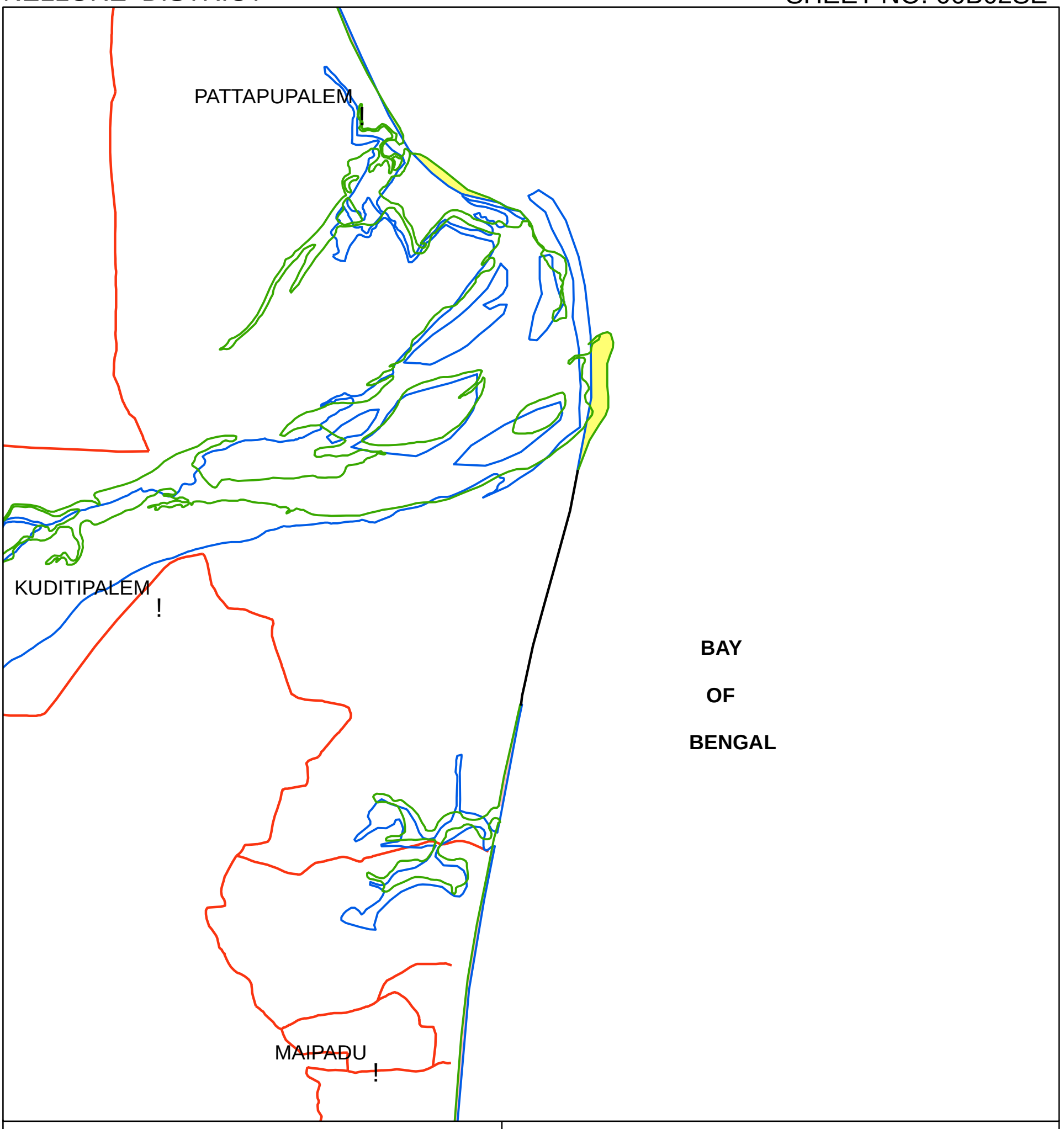
NELLORE DISTRICT

SHEET NO. 66B02SE



Legend

- EROSION
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66B02 NW	66B02 NE	SEA
66B02 SW		SEA
66B03 NW	66B03 NE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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NELLORE DISTRICT

SHEET NO. 66B03NE

VENKANNAPALEM

YENATIPALEM

PATAPATTAPALEM

BAY

OF

BENGAL

Legend

- EROSION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66B02 SW	66B02 SE	SEA
66B03 NW		SEA
66B03 SW	66B03 SE	SEA

INDIA

ANDHRA PRADESH

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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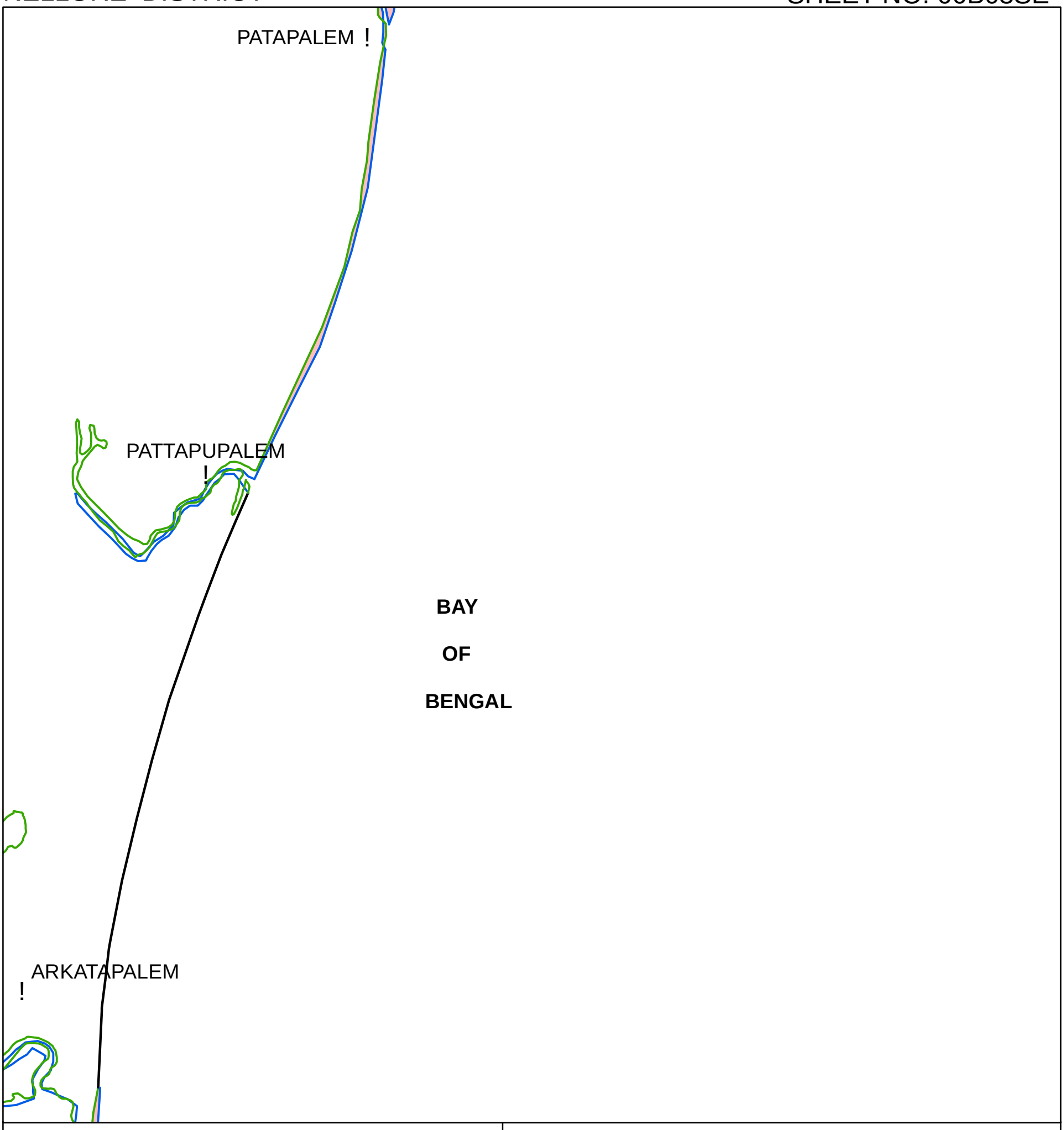
NELLORE DISTRICT

SHEET NO. 66B03SE



Legend

- EROSION
- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66B03 NW	66B03 NE	SEA
66B03 SW		SEA
66B04 NW	66B04 NE	SEA

DATA SOURCE:
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SHORELINE CHANGE MAP

ANDHRA PRADESH

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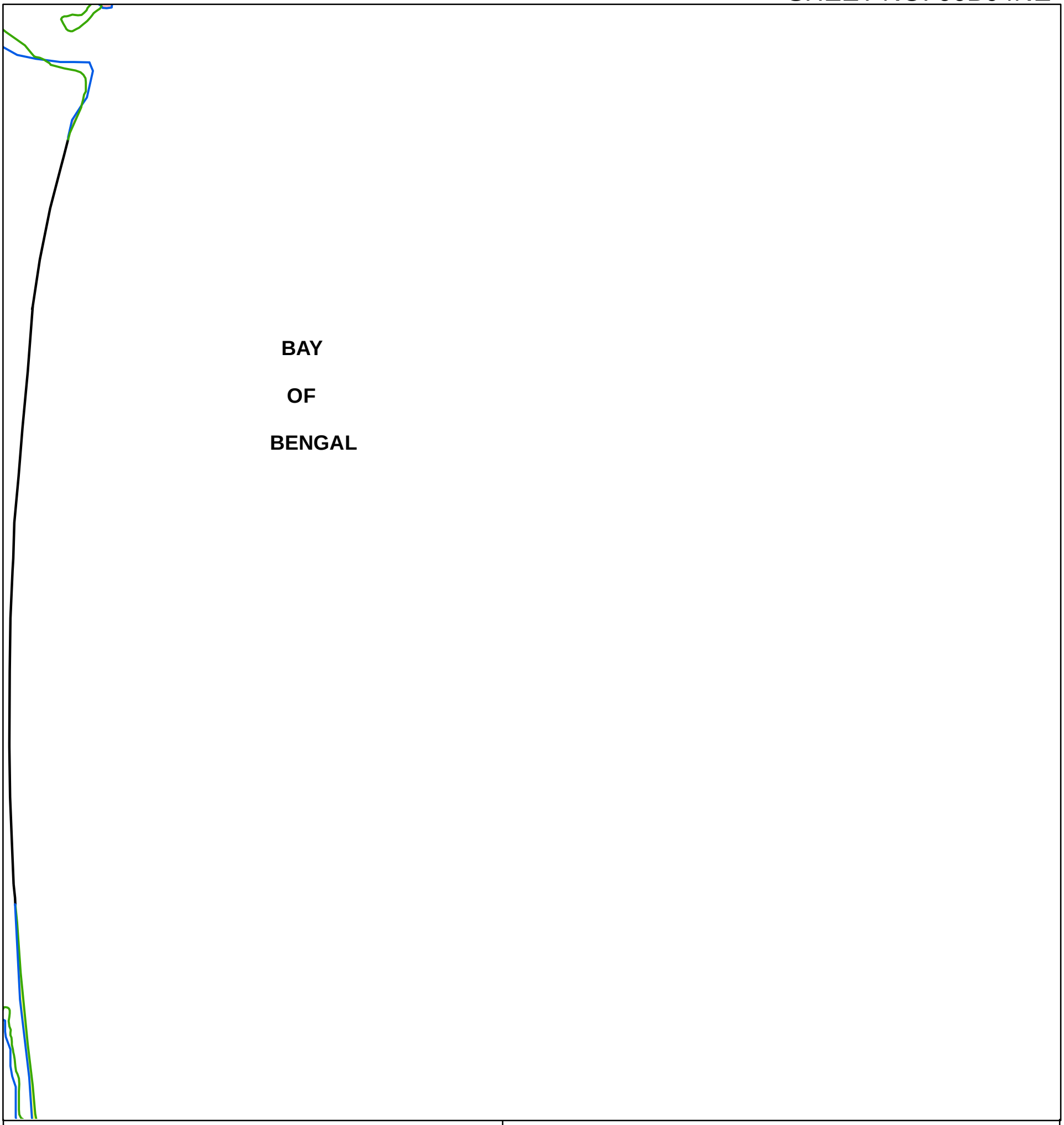
NELLORE DISTRICT

SHEET NO. 66B04NE



Legend

- EROSION
- ACCRETION
- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

66B03 SW	66B03 SE	SEA
66B04 NW		SEA
66B04 SW	66B04 SE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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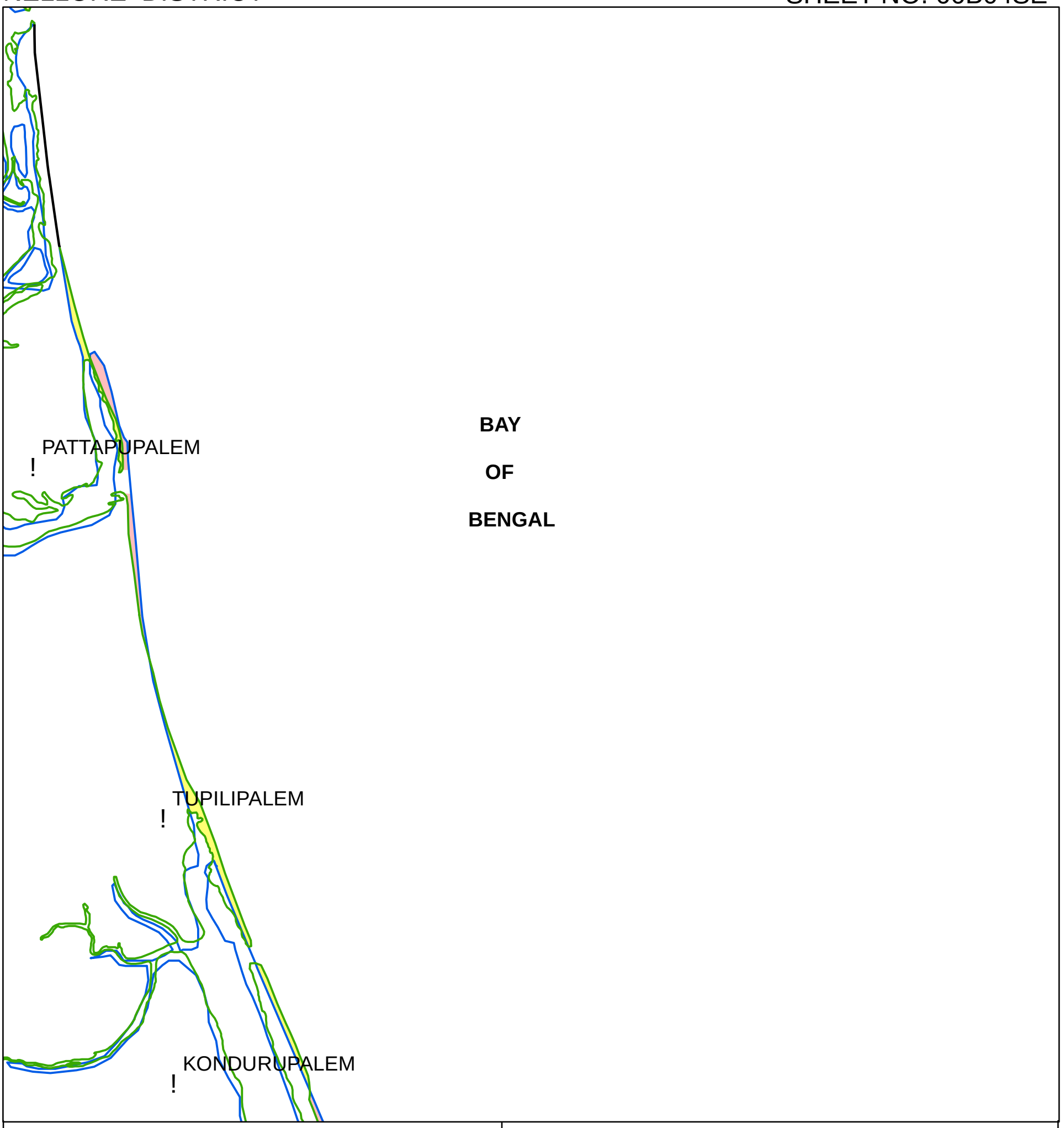
NELLORE DISTRICT

SHEET NO. 66B04SE



Legend

- EROSION
- ACCRETION
- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66B04 NW	66B04 NE	SEA
66B04 SW		SEA
66C01 NW	66C01 NE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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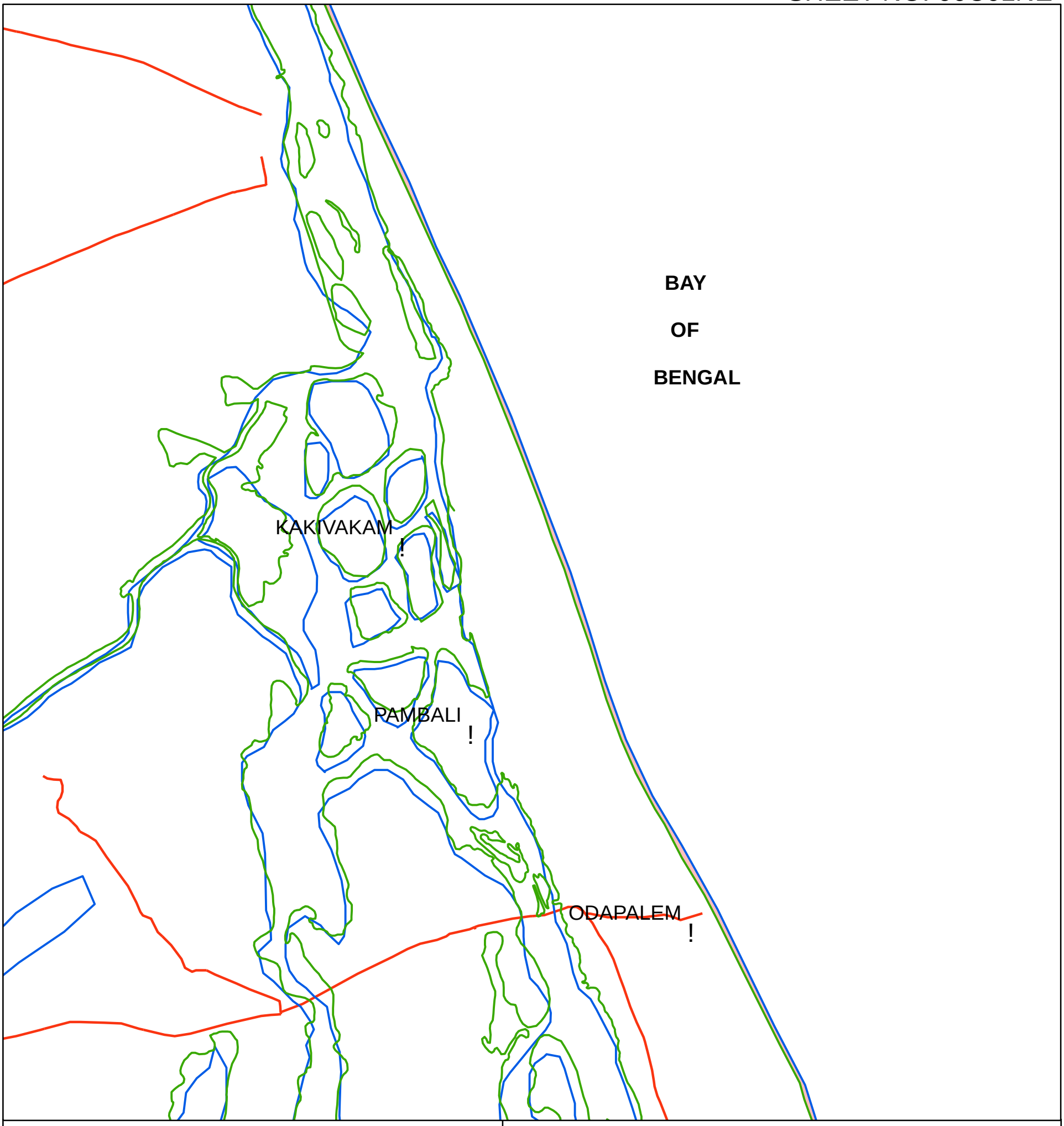
NELLORE DISTRICT

SHEET NO. 66C01NE



Legend

- EROSION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66B04 SW	66B04 SE	SEA
66C01 NW		SEA
66C01 SW	66C01 SE	66C05 SW

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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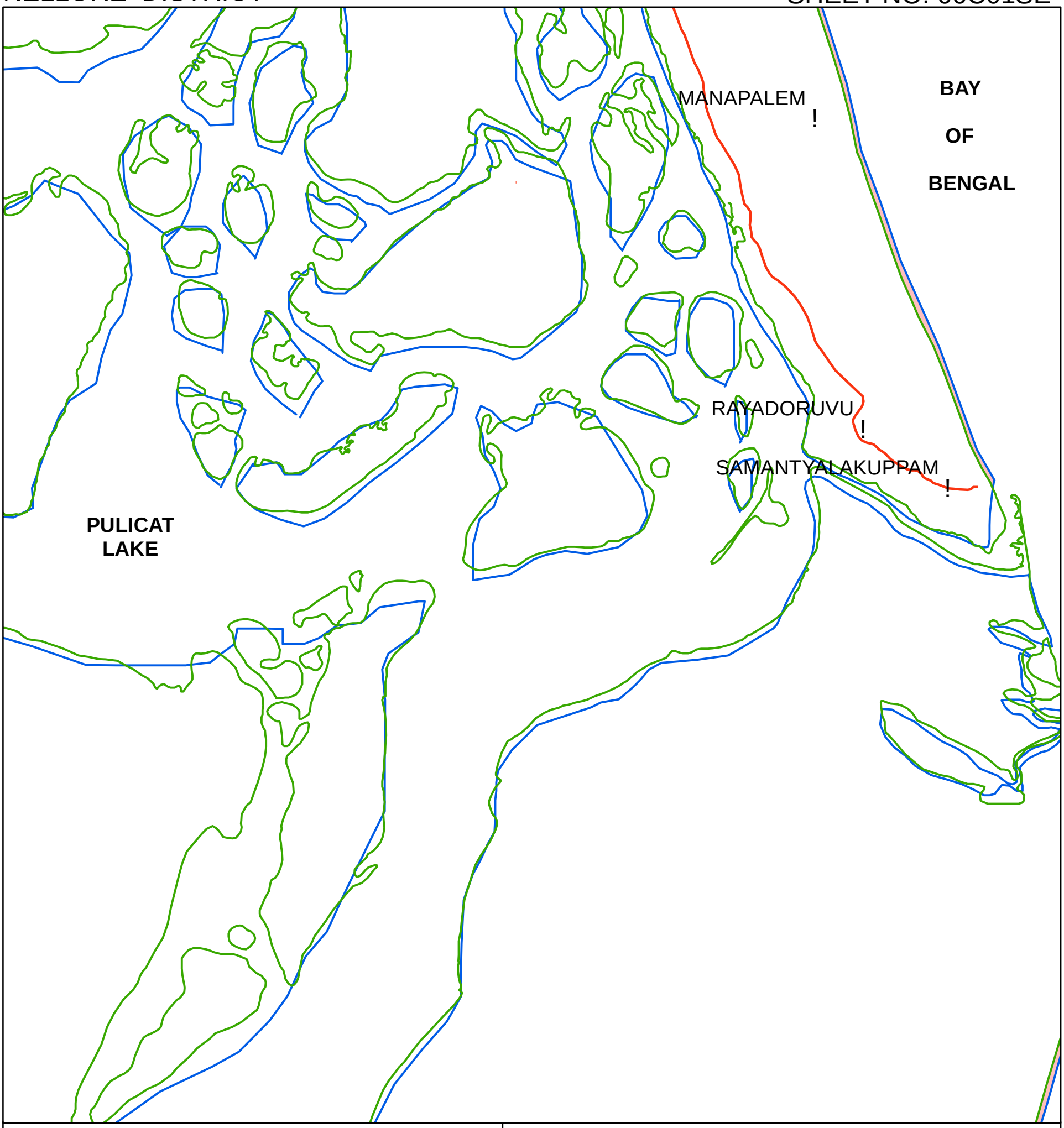
NELLORE DISTRICT

SHEET NO. 66C01SE



Legend

- EROSION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66C01 NW	66C01 NE	SEA
66C01 SW		66C05 SW
66C02 NW	66C02 NE	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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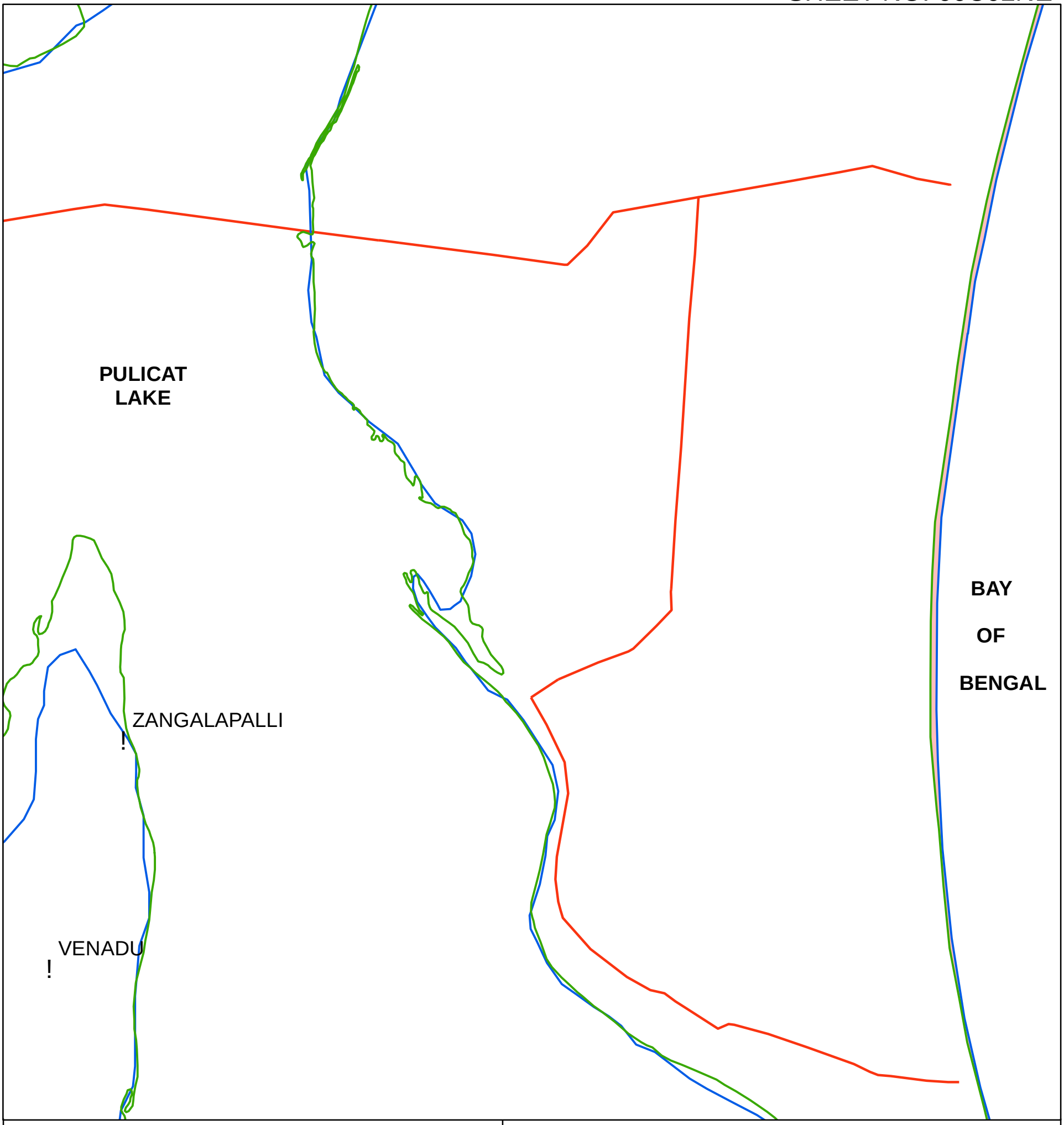
NELLORE DISTRICT

SHEET NO. 66C02NE



Legend

- EROSION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- ROAD

0 2

Scale in Km

INDEX TO SHEETS

66C01 SW	66C01 SE	66C05 SW
66C02 NW		SEA
66C02 SW	66C02 SE	66C06 SW

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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NELLORE DISTRICT

SHEET NO. 66C02SE

MITTAKUPPAM

VADAKODIKUPPAM

IRAKAM

KUPPAM

PULICAT LAKE

Legend

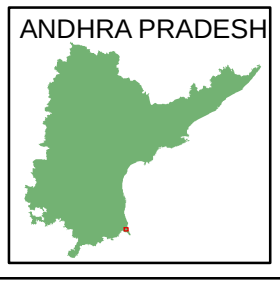
- EROSION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66C02 NW	66C02 NE	SEA
66C02 SW		66C06 SW
66C03 NW	66C03 NE	66C07 NW



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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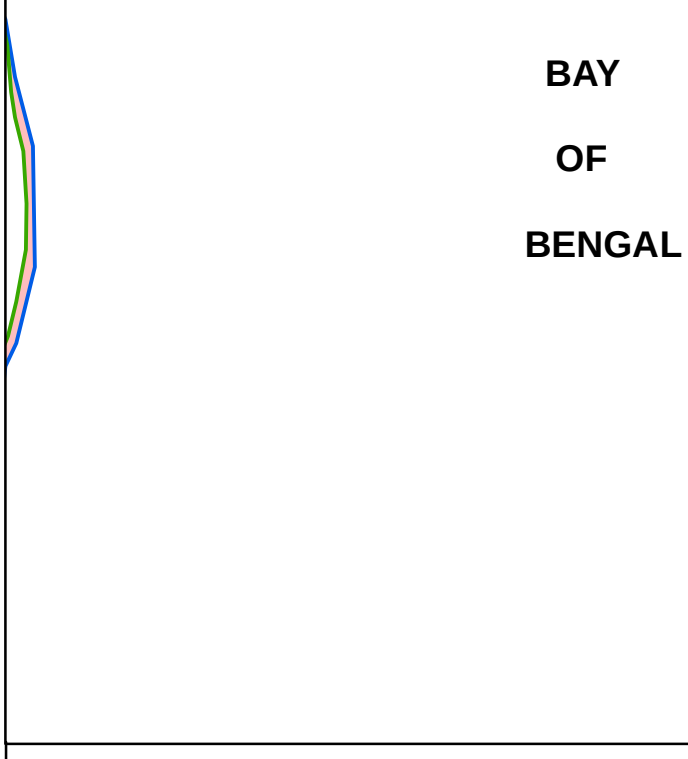
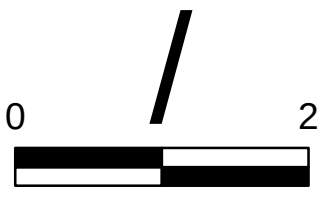
NELLORE DISTRICT

SHEET NO. 66C05SW



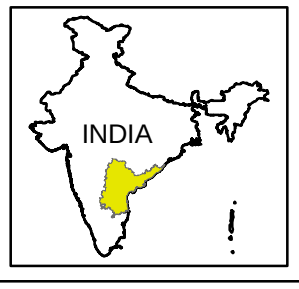
Legend

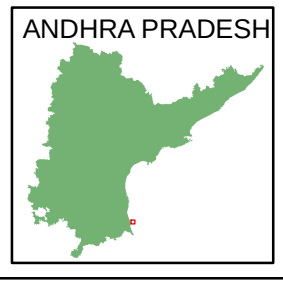
- EROSION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91



INDEX TO SHEETS

66C01 NE	SEA	SEA
66C01 SE		SEA
66C02 NE	SEA	SEA





DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

ANDHRA PRADESH

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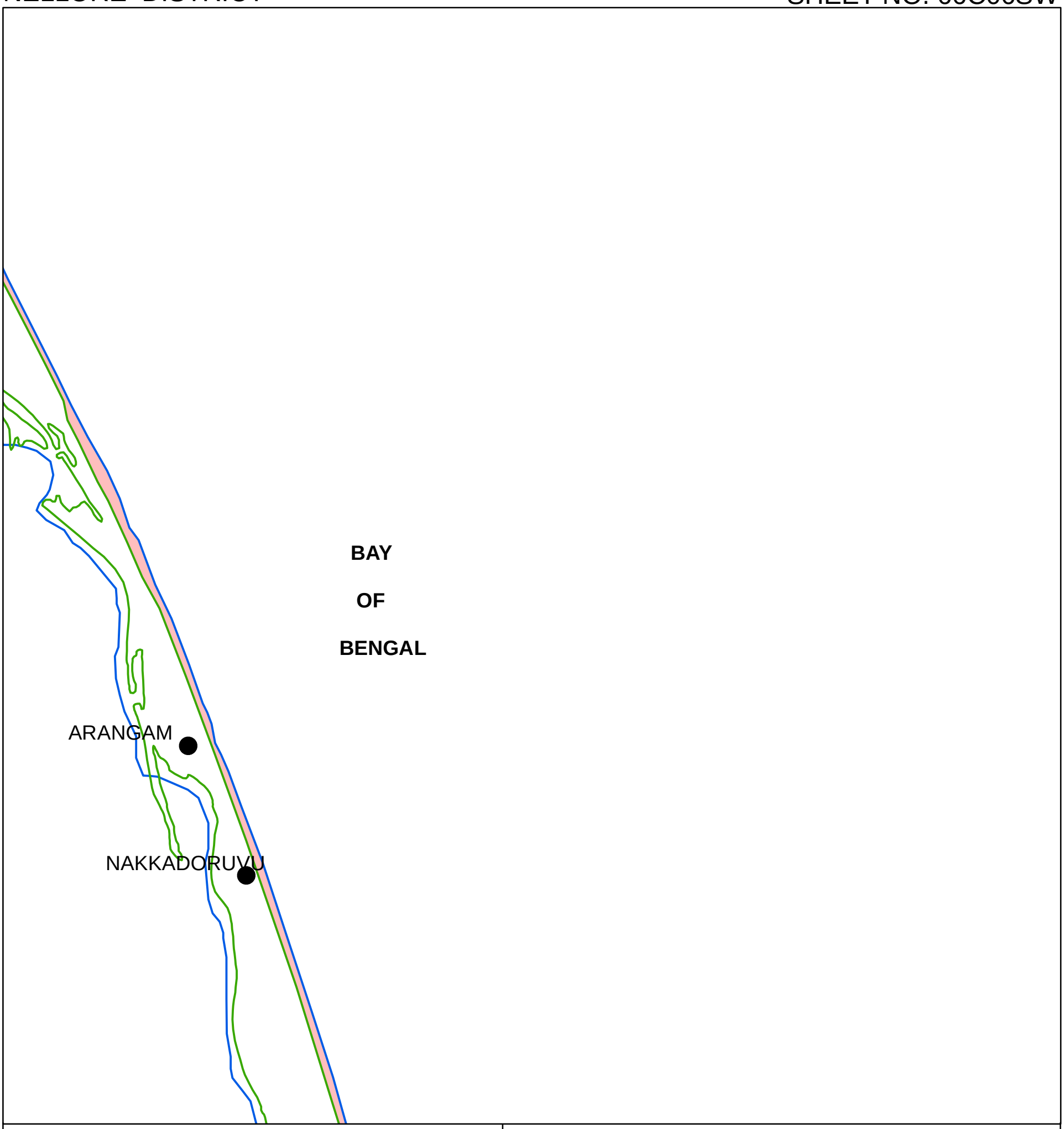
NELLORE DISTRICT

SHEET NO. 66C06SW



Legend

- EROSION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66C02 NE	66C06 NW	SEA
66C02 SE		SEA
66C03 NE	66C07 NW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

ANDHRA PRADESH

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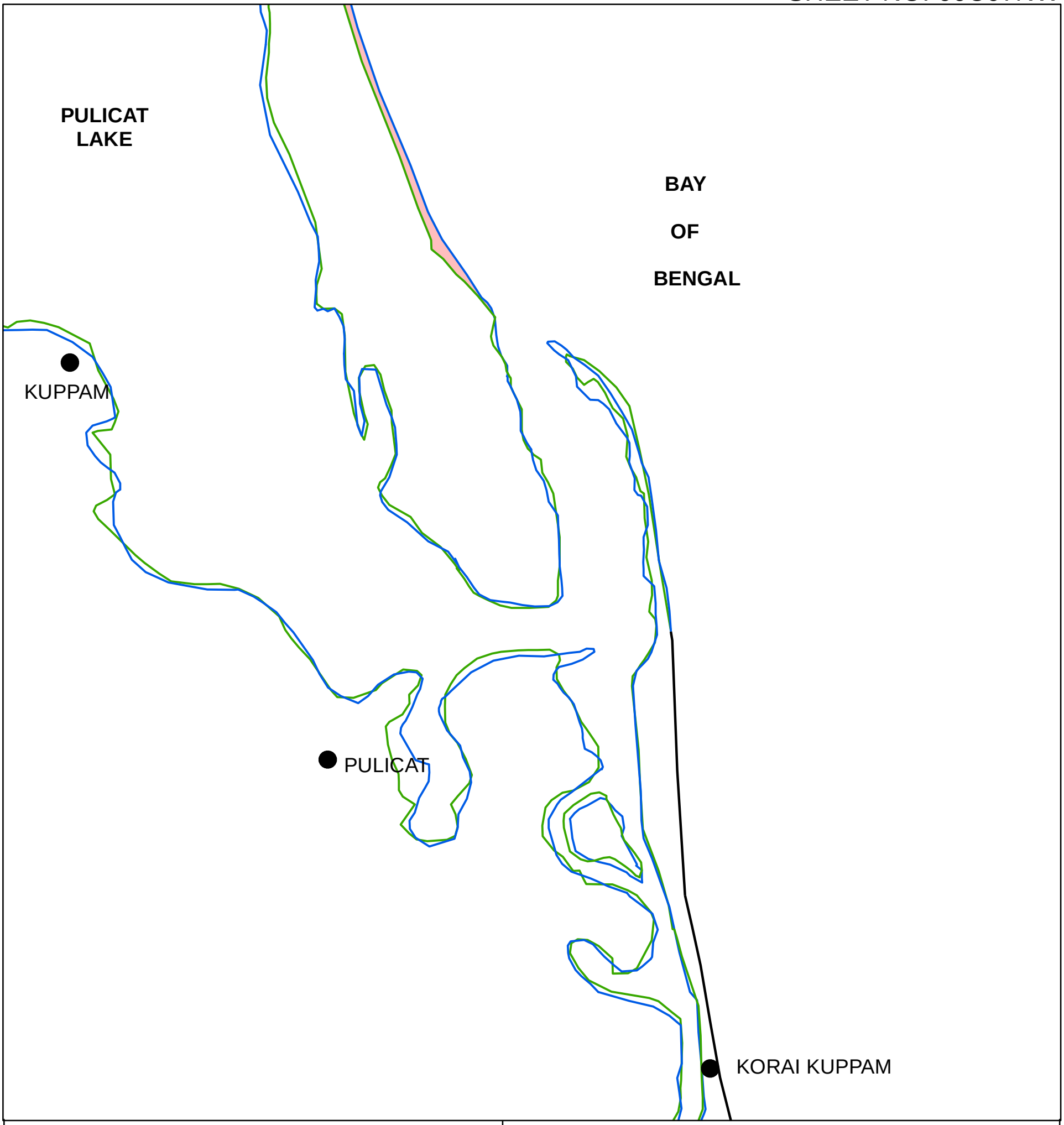
NELLORE DISTRICT

SHEET NO. 66C07NW



Legend

- EROSION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- STABLE
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66C02 SE	66C06 SW	SEA
66C03 NE		SEA
66C03 SE	66C07 SW	SEA

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

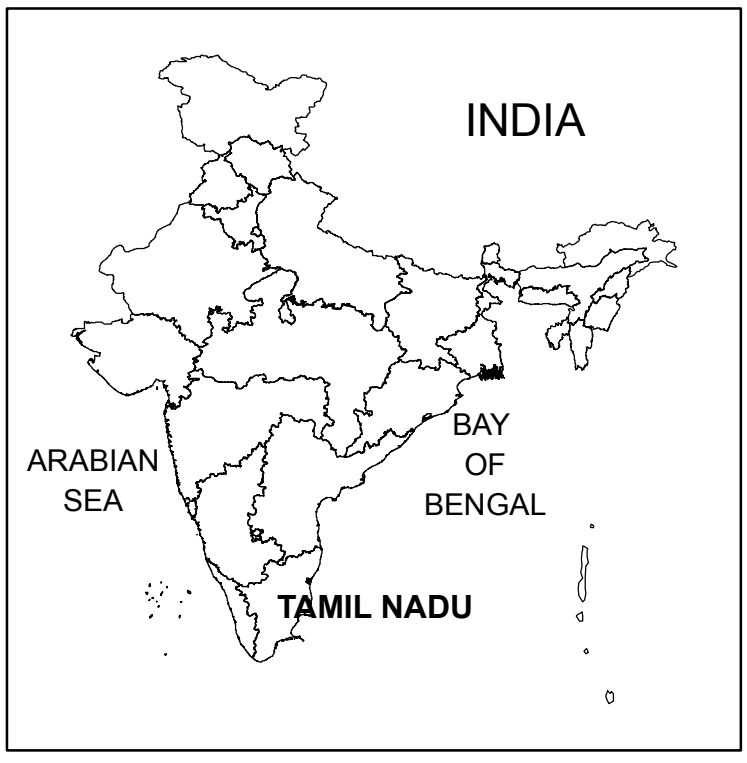
SHORELINE CHANGE MAPS

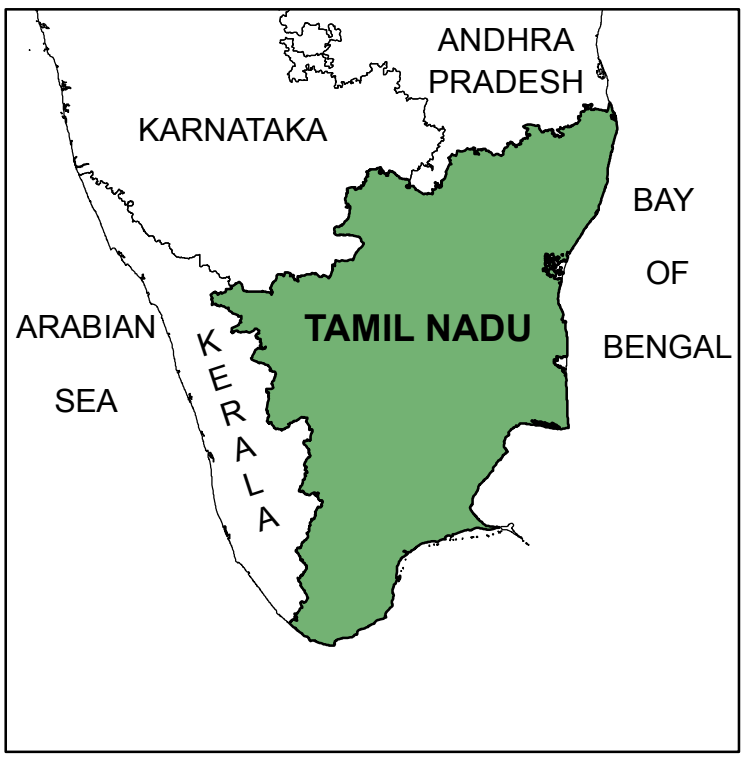
TAMIL NADU

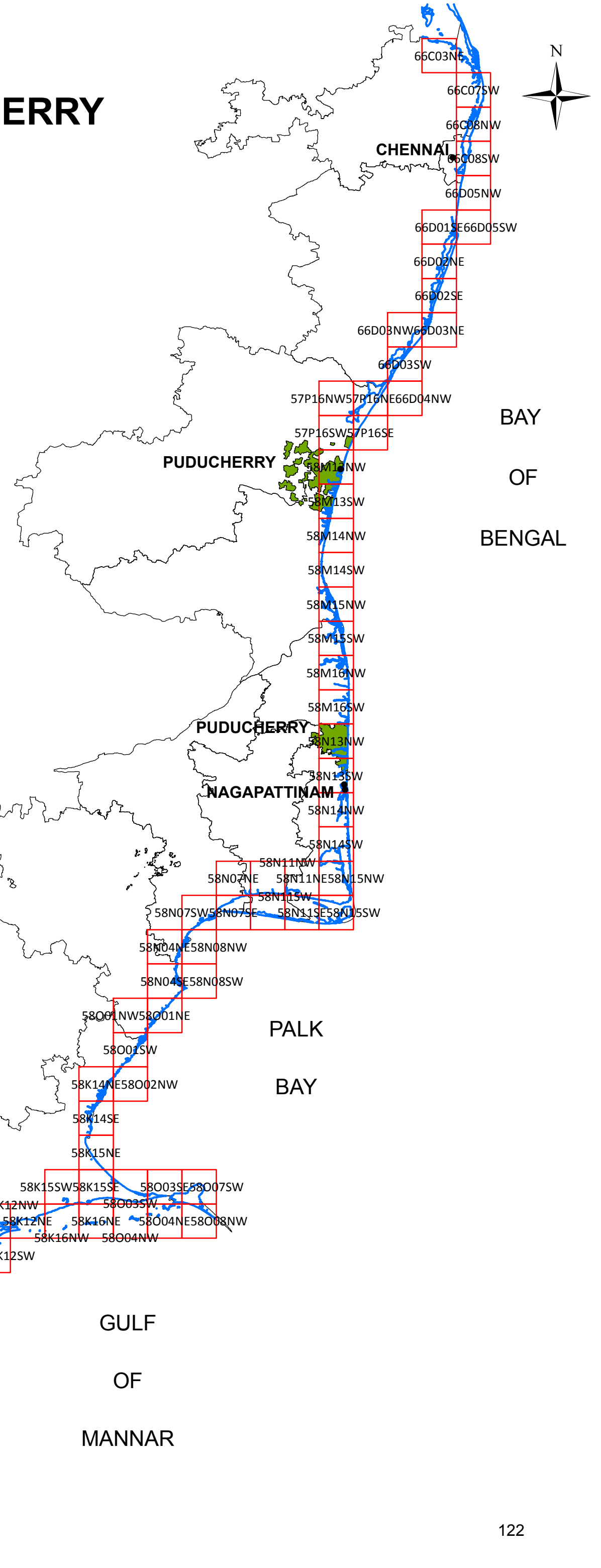
AND

PUDUCHERRY

INDEX MAP
TAMIL NADU & PUDUCHERRY







SHORELINE CHANGES FOR TAMIL NADU & PUDUCHERRY

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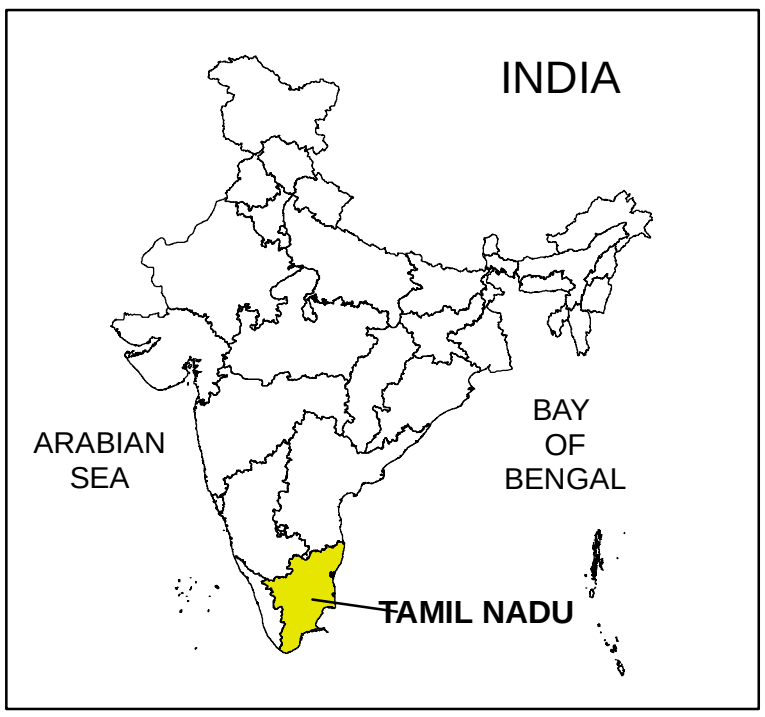


CHENNAI

PUDUCHERRY

BAY OF BENGAL

NAGAPATTINAM

PALK STRAIT

PALK BAY

RAMESHWARAM

GULF OF MANNAR

KANNIYAKUMARI

LEGEND

ACCRETING COAST

ERODING COAST

STABLE COAST

HIGH WATER LINE (1989-1991)

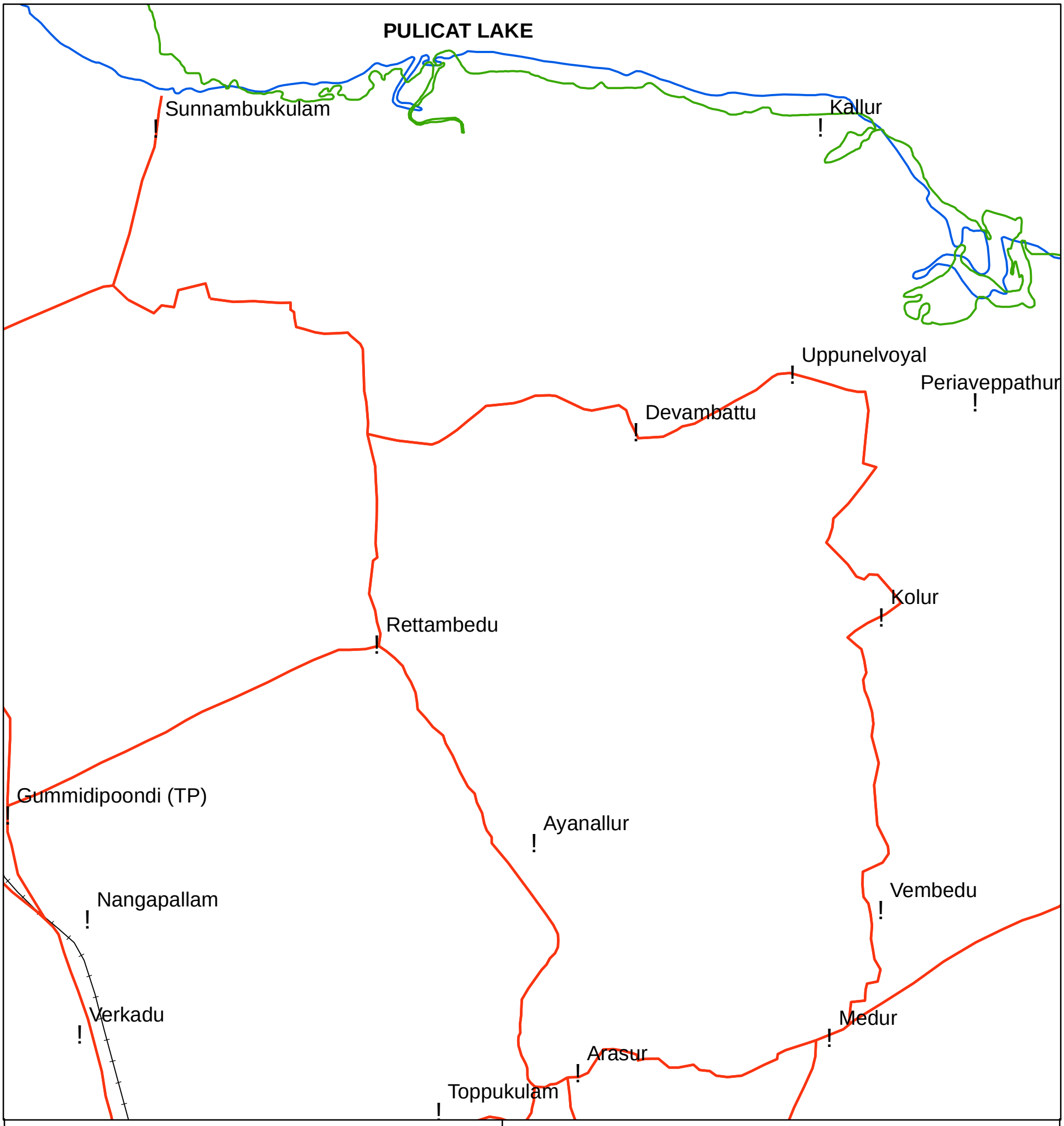
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

THIRUVALLUR DISTRICT

SHEET NO. 66C03NE



Legend

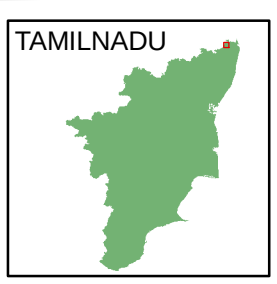
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66C02 SW	66C02 SE	66C06 SW
66C03 NW		66C07 NW
66C03 SW	66C03 SE	66C07 SW



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

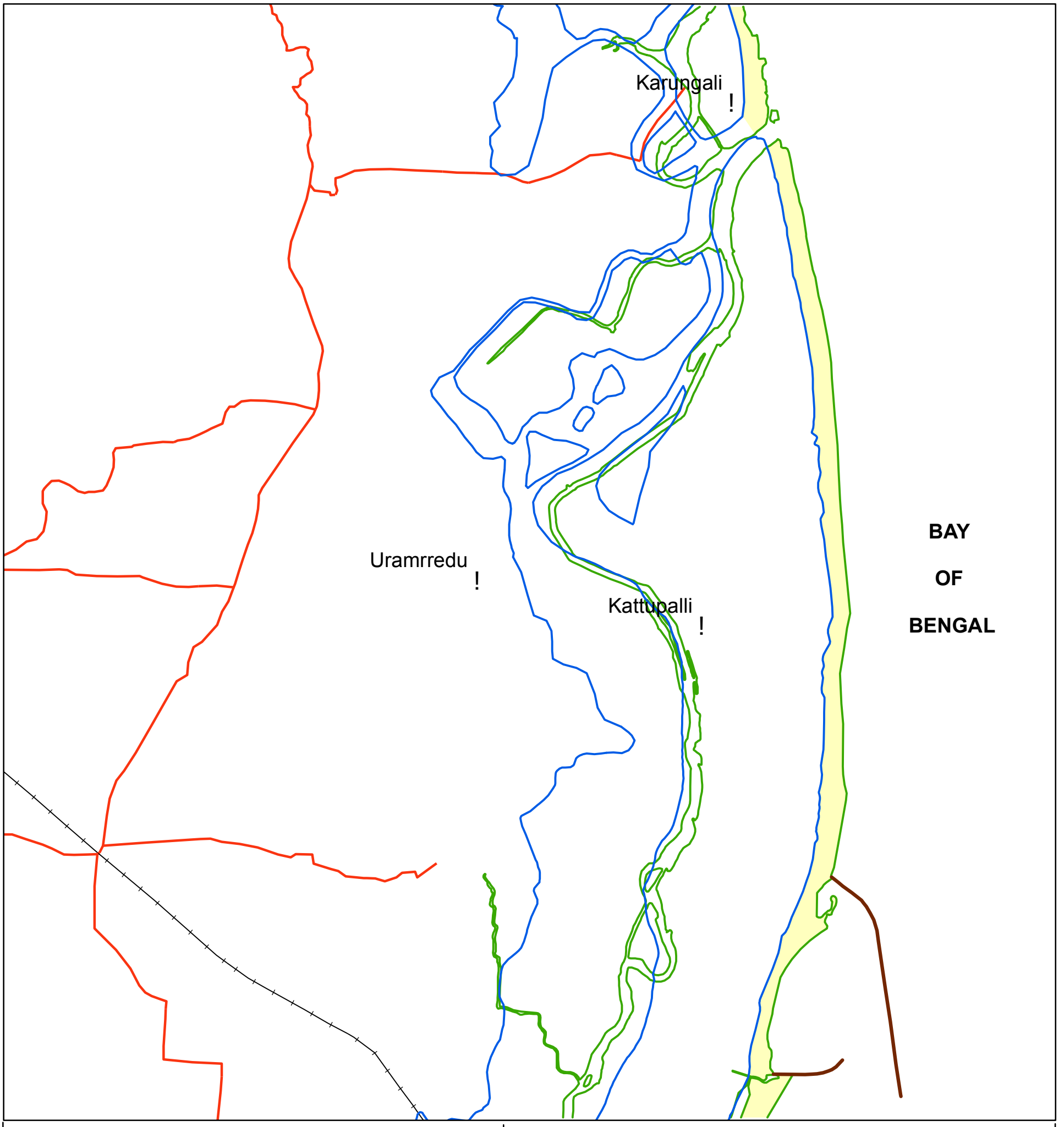
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

THIRUVALLUR DISTRICT

SHEET NO. 66C07SW



Legend

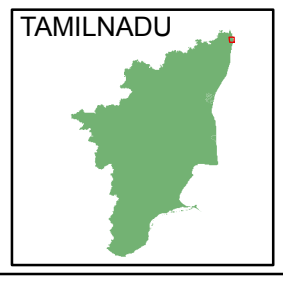
- ACCRETION
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- JETTY

0 2

Scale in Km

INDEX TO SHEETS

66C03 NE	66C07 NW	SEA
66C03 SE		SEA
66C04 NE	66C08 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
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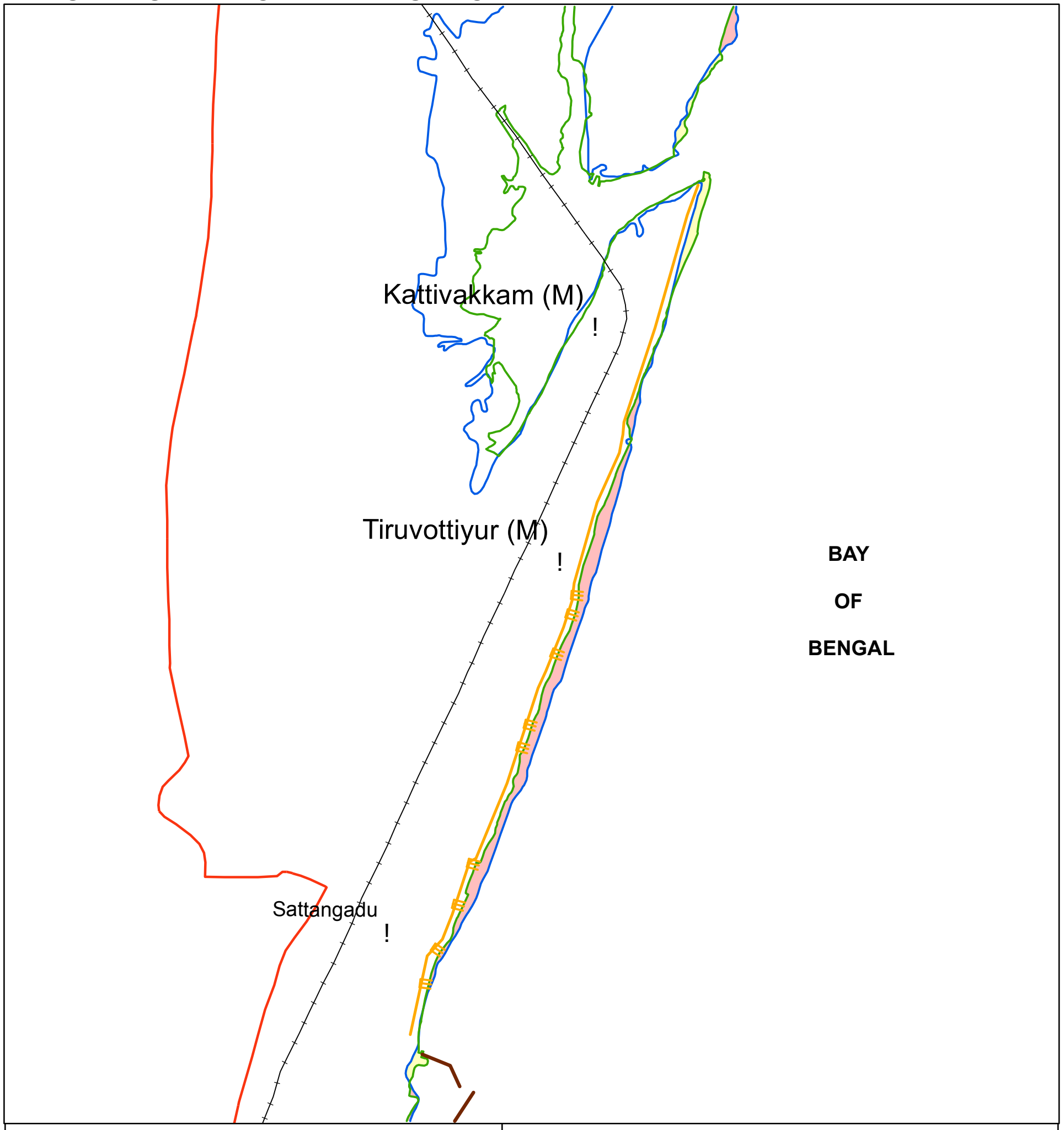
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

THIRUVALLUR AND CHENNAI DISTRICT

SHEET NO. 66C08NW



Legend

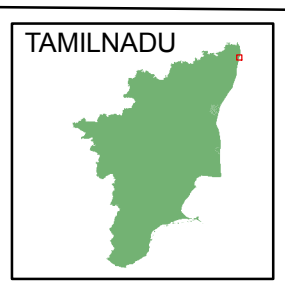
- EROSION
- ACCRETION
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- GROYNE
- SEA WALL
- JETTY

0 2

Scale in Km

INDEX TO SHEETS

66C03SE	66C07SW	SEA
66C04NE		SEA
66C04SE	66C08SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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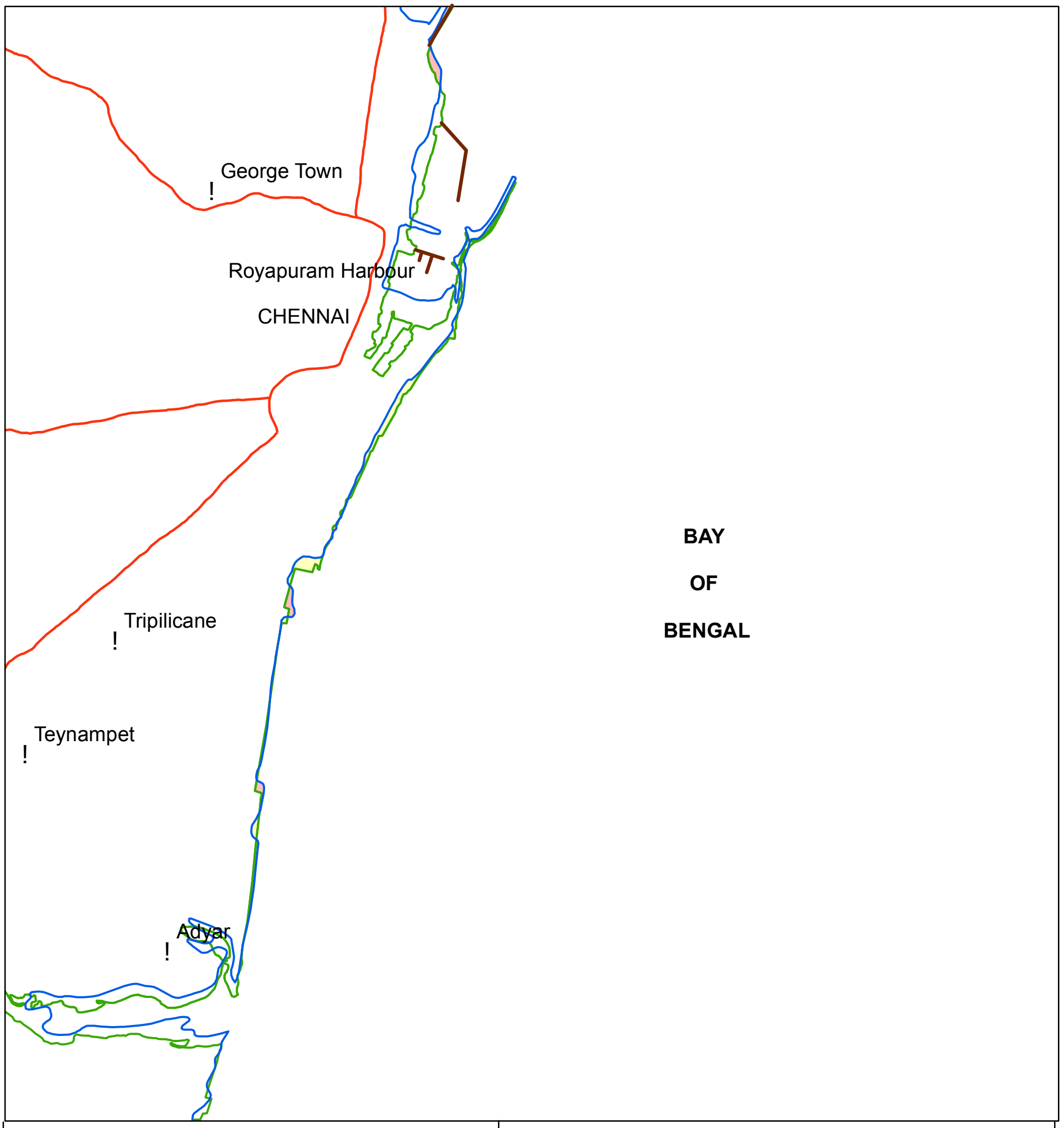
CHENNAI DISTRICT

SHEET NO. 66C08SW



Legend

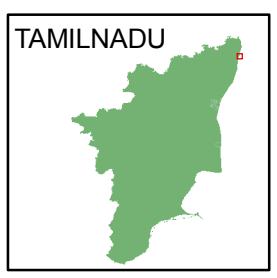
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- JETTY

0 2

Scale in Km

INDEX TO SHEETS

66C04 NE	66C08 NW	SEA
66C04 SE		SEA
66D01 NE	66D05 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

TAMILNADU

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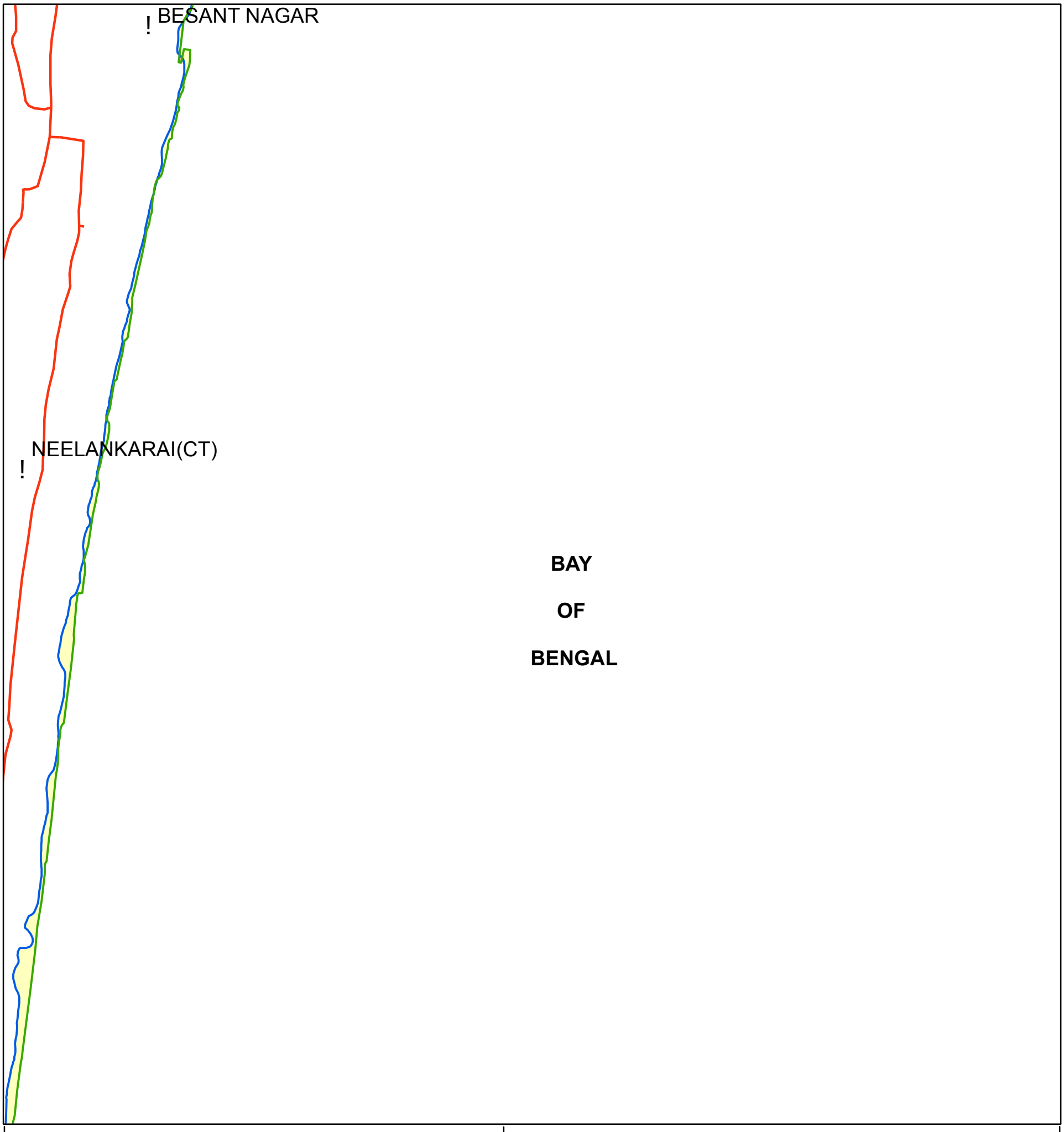
SHEET NO. 66D05NW

KANCHEEPURAM DISTRICT



Legend

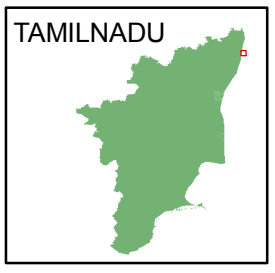
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66C04 SE	66C08 SW	SEA
66D01 NE		SEA
66D01 SE	66D05 SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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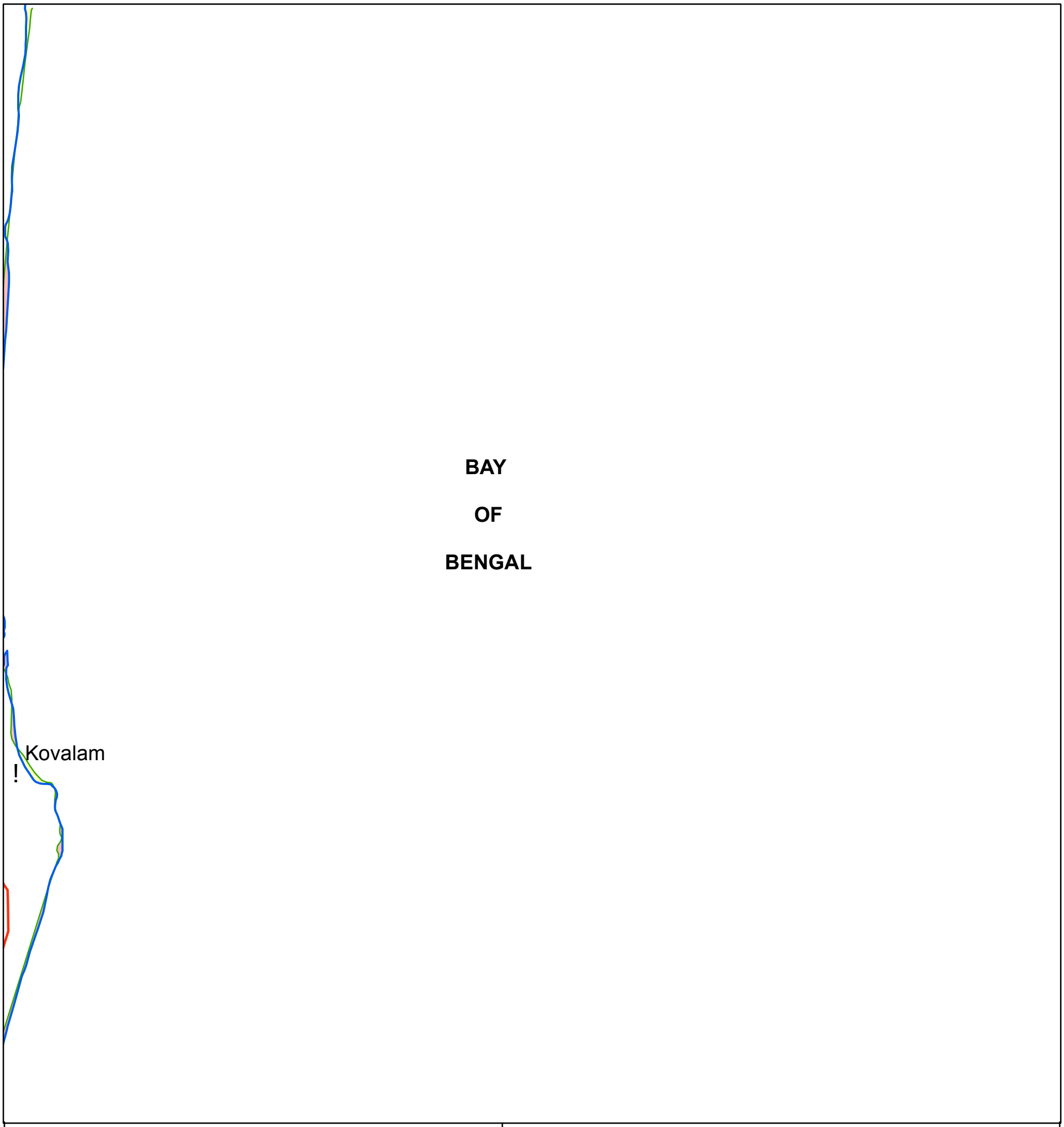
SHORELINE CHANGE MAP

TAMILNADU

KANCHEEPURAM DISTRICT

FOR OFFICIAL USE ONLY

SHEET NO. 66D05SW



Legend

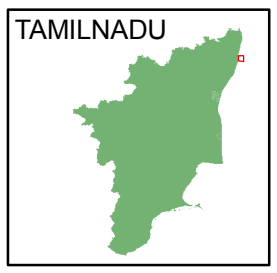
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66D01NE	66D05NW	SEA
66D01SE		SEA
66D02NE	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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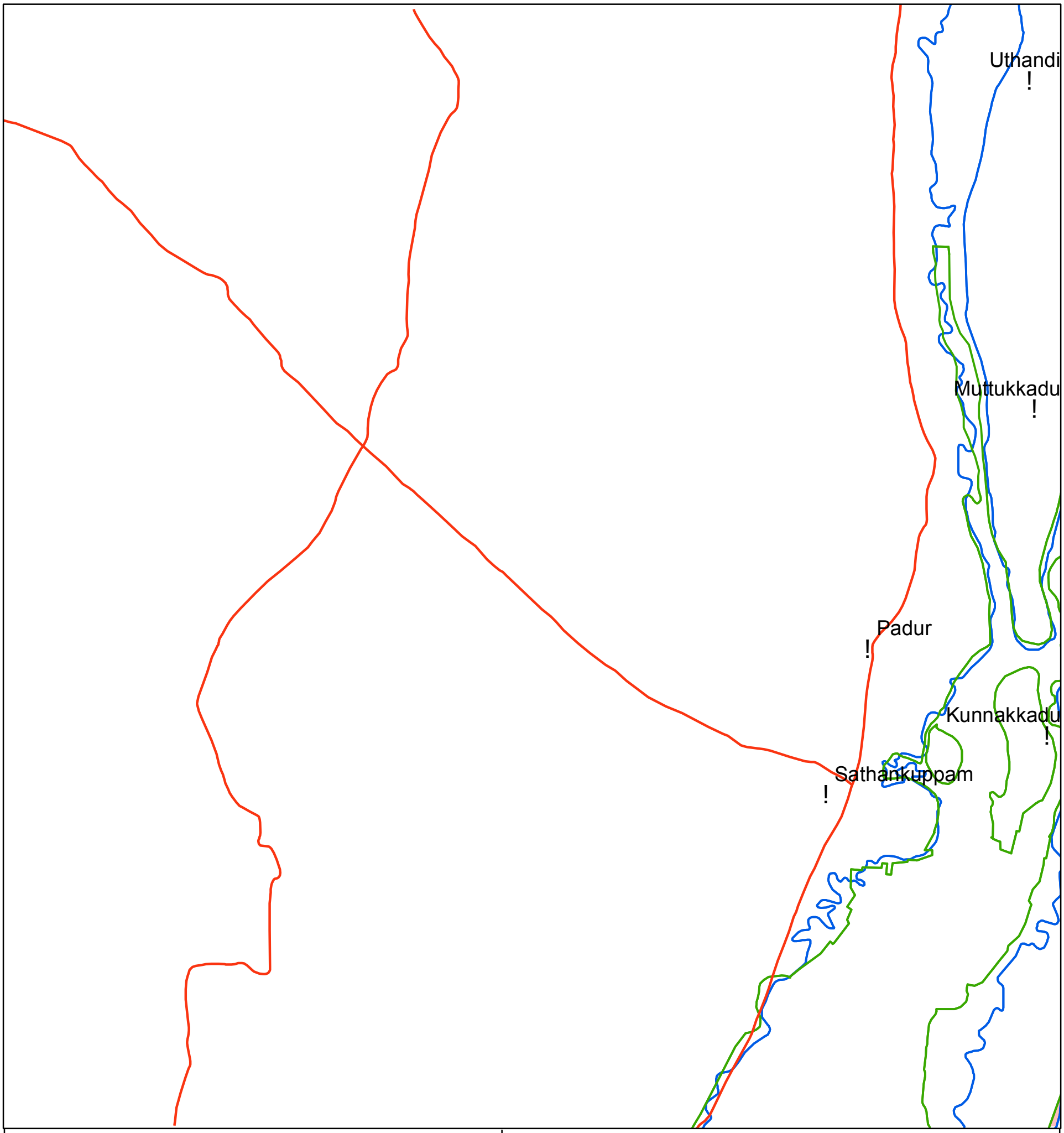
KANCHEEPURAM DISTRICT

SHEET NO. 66D01SE



Legend

- EROSION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

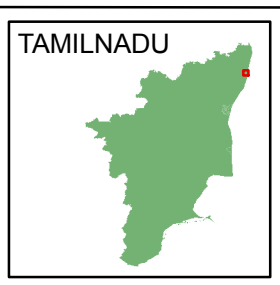
Scale in Km

INDEX TO SHEETS

66D01 NW	66D01 NE	66D05 NW
66D01 SW		66D05 SW
66D02 NW	66D02 NE	66D06 NW

INDIA

TAMILNADU



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

TAMILNADU

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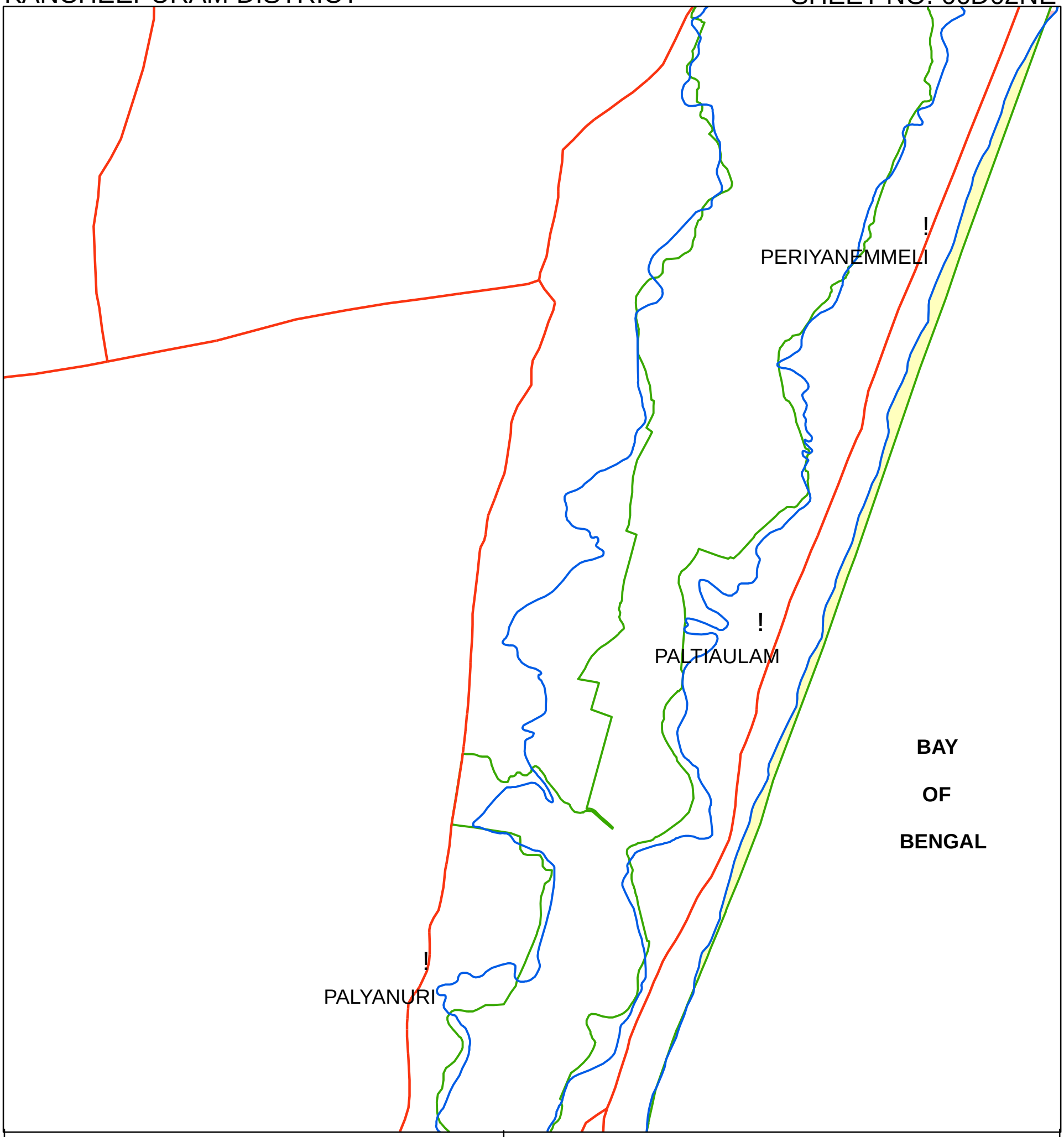
KANCHEEPURAM DISTRICT

SHEET NO. 66D02NE



Legend

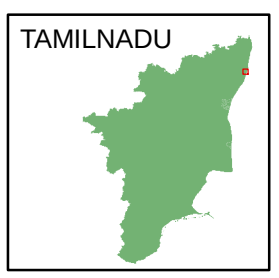
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66D01 SW	66D01 SE	66D05 SW
66D02 NW		SEA
66D02 SW	66D02 SE	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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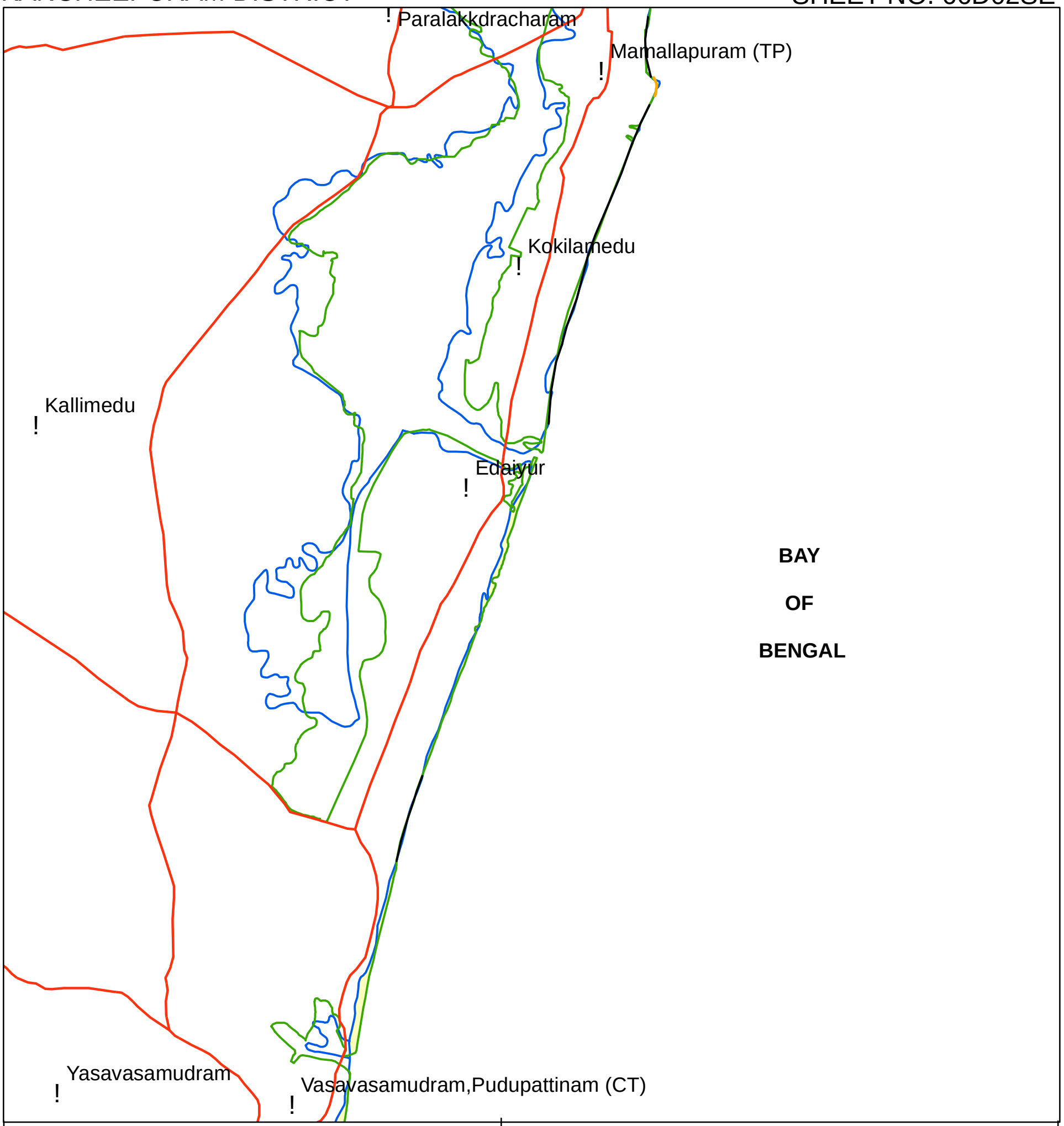
KANCHEEPURAM DISTRICT

SHEET NO. 66D02SE



Legend

- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- STABLE
- SEA WALL

0 2

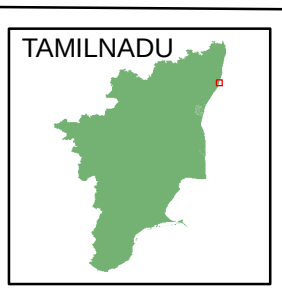
Scale in Km

INDEX TO SHEETS

66D02 NW	66D02 NE	SEA
66D02 SW		SEA
66D03 NW	66D03 NE	SEA

INDIA

TAMILNADU



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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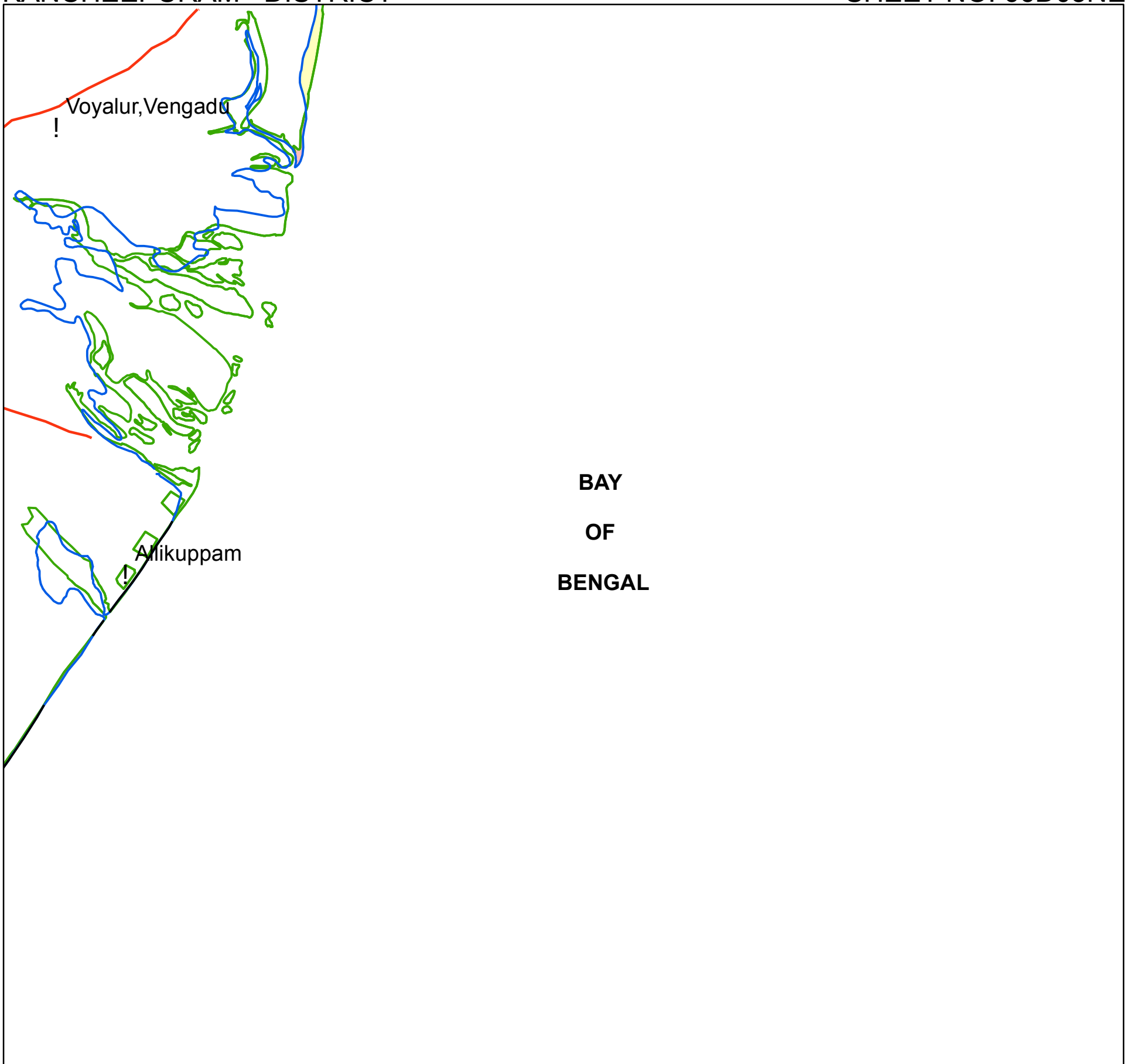
KANCHEEPURAM DISTRICT

SHEET NO. 66D03NE



Legend

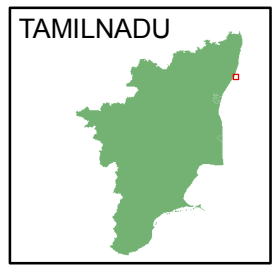
- EROSION
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

66D02 SW	66D02 SE	66D06 SW
66D03 NW		66D07 NW
66D03 SW	66D03 SE	66D07 SW



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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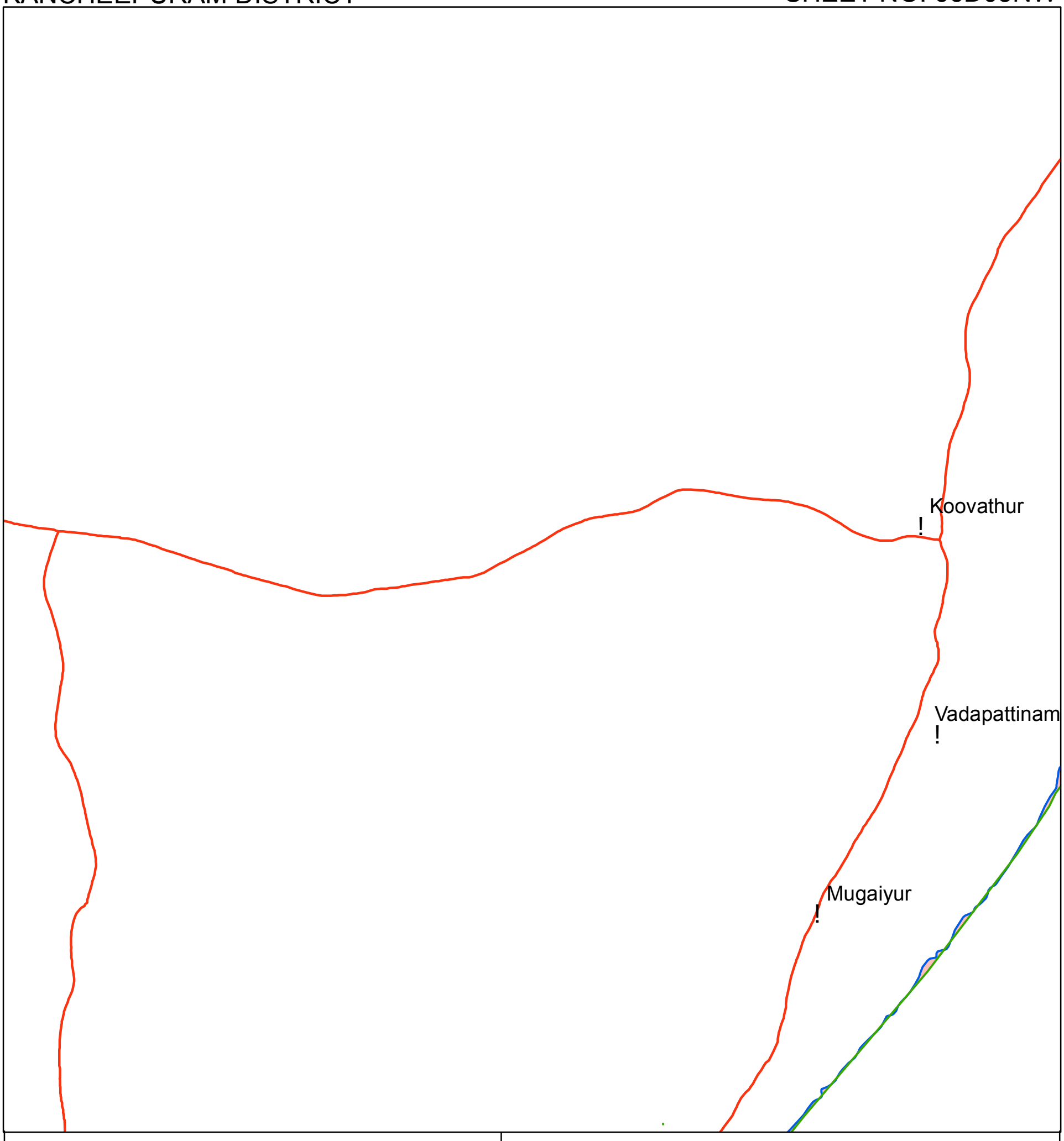
KANCHEEPURAM DISTRICT

SHEET NO. 66D03NW



Legend

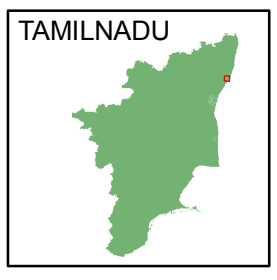
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

57P14 SE	66D02 SW	66D02 SE
57P15 NE		SEA
57P15 SE	66D03 SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
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SHORELINE CHANGE MAP

TAMILNADU

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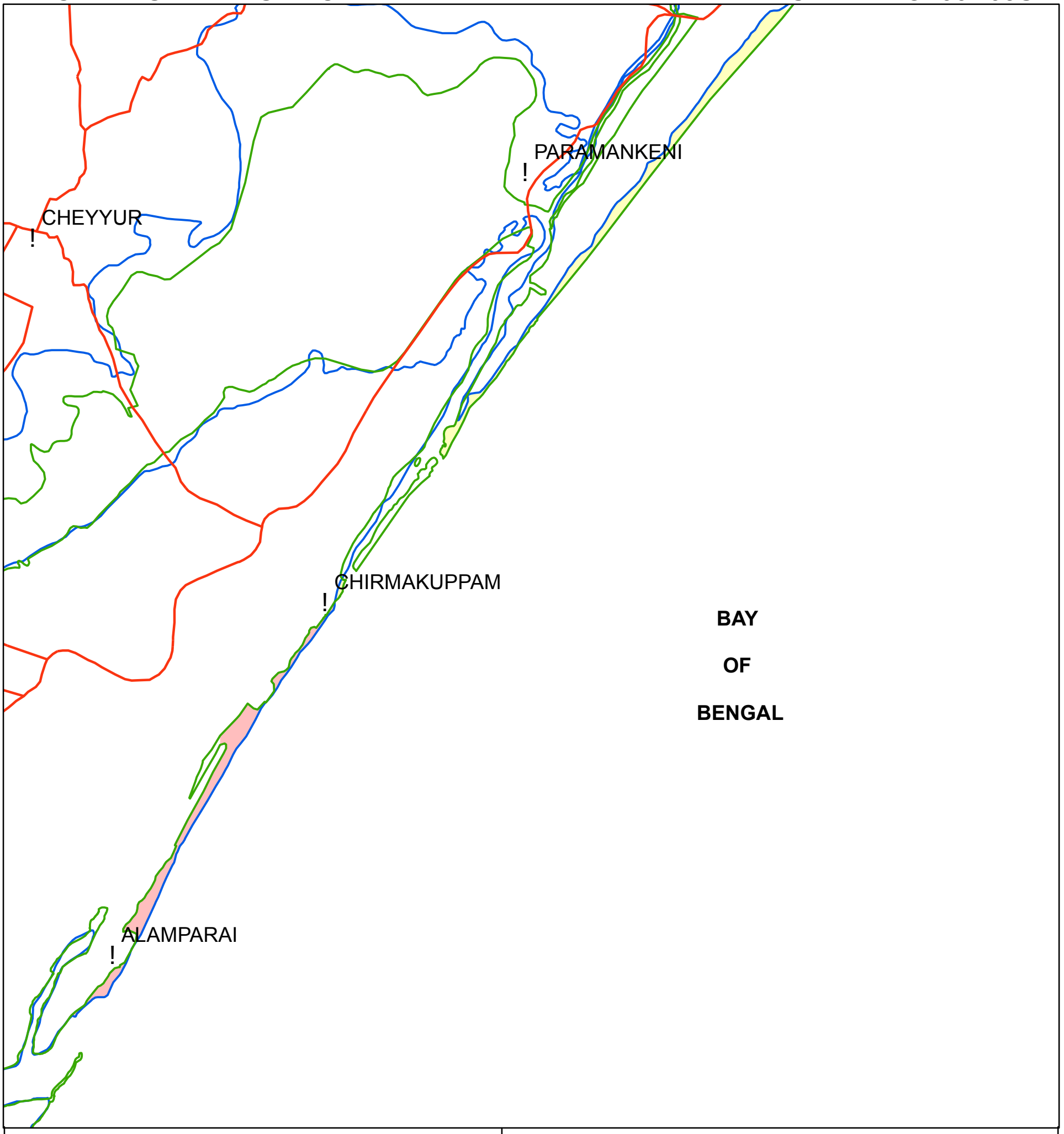
KANCHEEPURAM DISTRICT

SHEET NO. 66D03SW



Legend

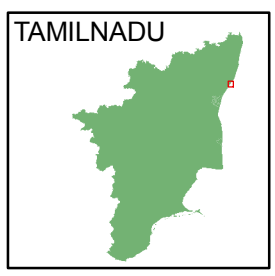
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

57P15 NE	66D02 NE	66D03 NE
57P15 SE		SEA
57P16 NE	66D04 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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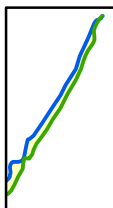
SHORELINE CHANGE MAP

TAMILNADU

VILUPPURAM DISTRICT

FOR OFFICIAL USE ONLY

SHEET NO. 66D04NW



BAY

OF

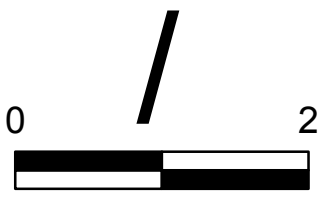
BENGAL

Legend

ACCRETION

HIGH-TIDE LINE 2004-06

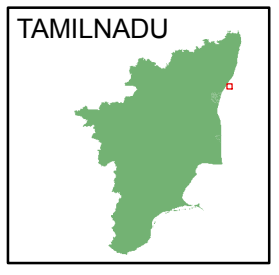
HIGH-TIDE LINE 1989-91



Scale in Km

INDEX TO SHEETS

57P15 SE	66D03 SW	SEA
57P16 NE		SEA
57P16 SE	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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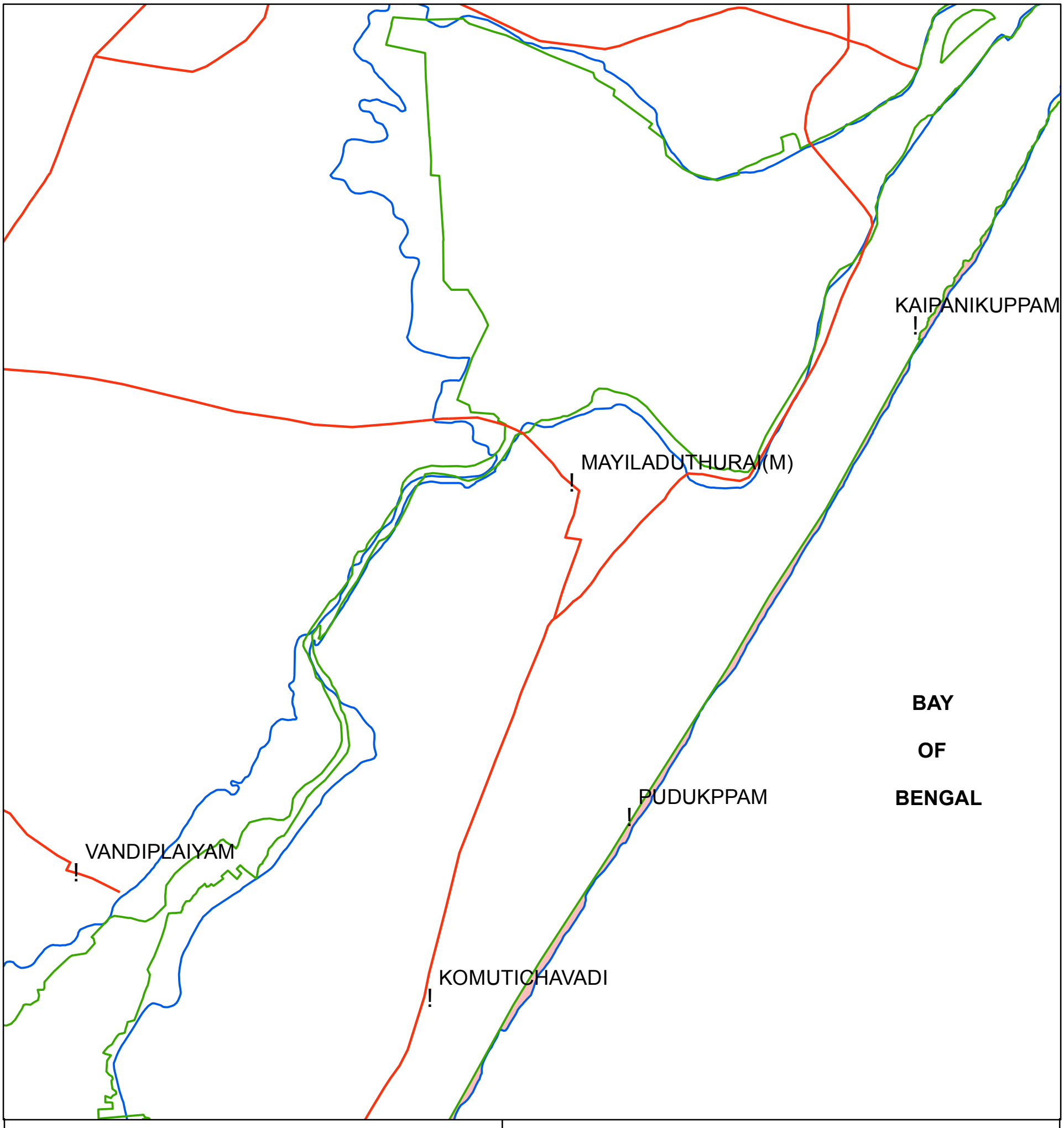
VILUPPURAM DISTRICT

SHEET NO. 57P16NE



Legend

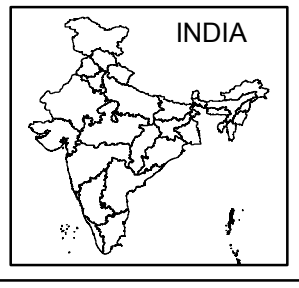
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

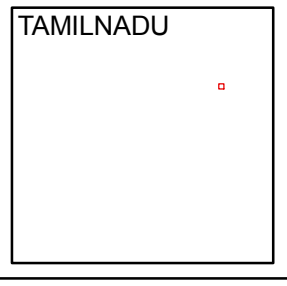
0 2

Scale in Km

INDEX TO SHEETS

57P15 SW	57P15 SE	66D03 SW
57P16 NW		66D04 NW
57P16 SW	57P16 SE	SEA





DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

TAMILNADU

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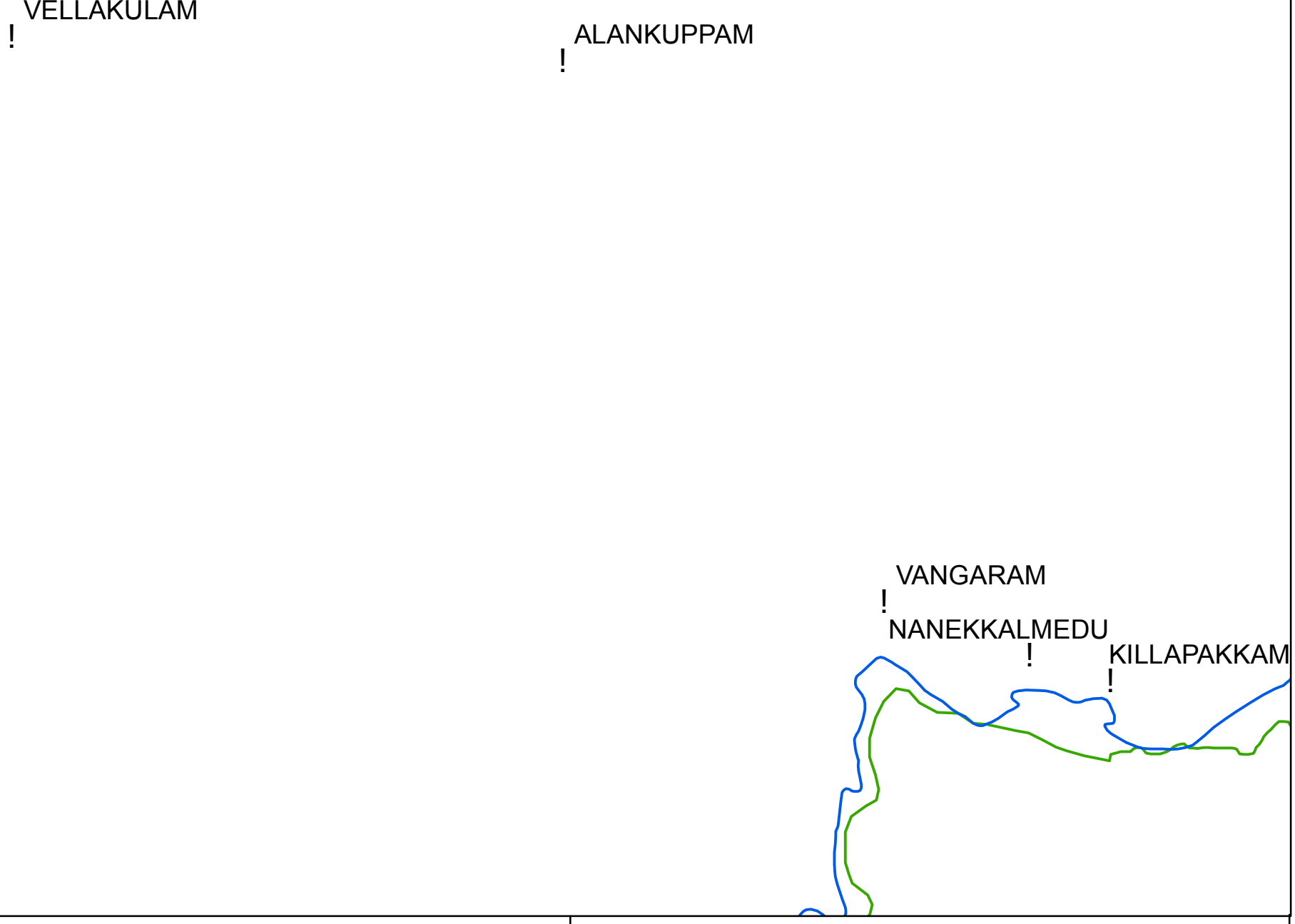
VILUPPURAM DISTRICT

SHEET NO. 57P16NW



Legend

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

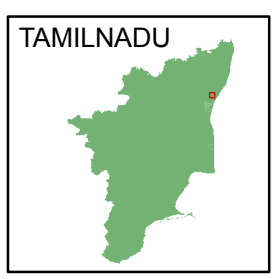
! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

57P11 SE	57P15 SW	57P15 SE
57P12 NE		57P16 NE
57P12 SE	57P16 SW	57P16 SE



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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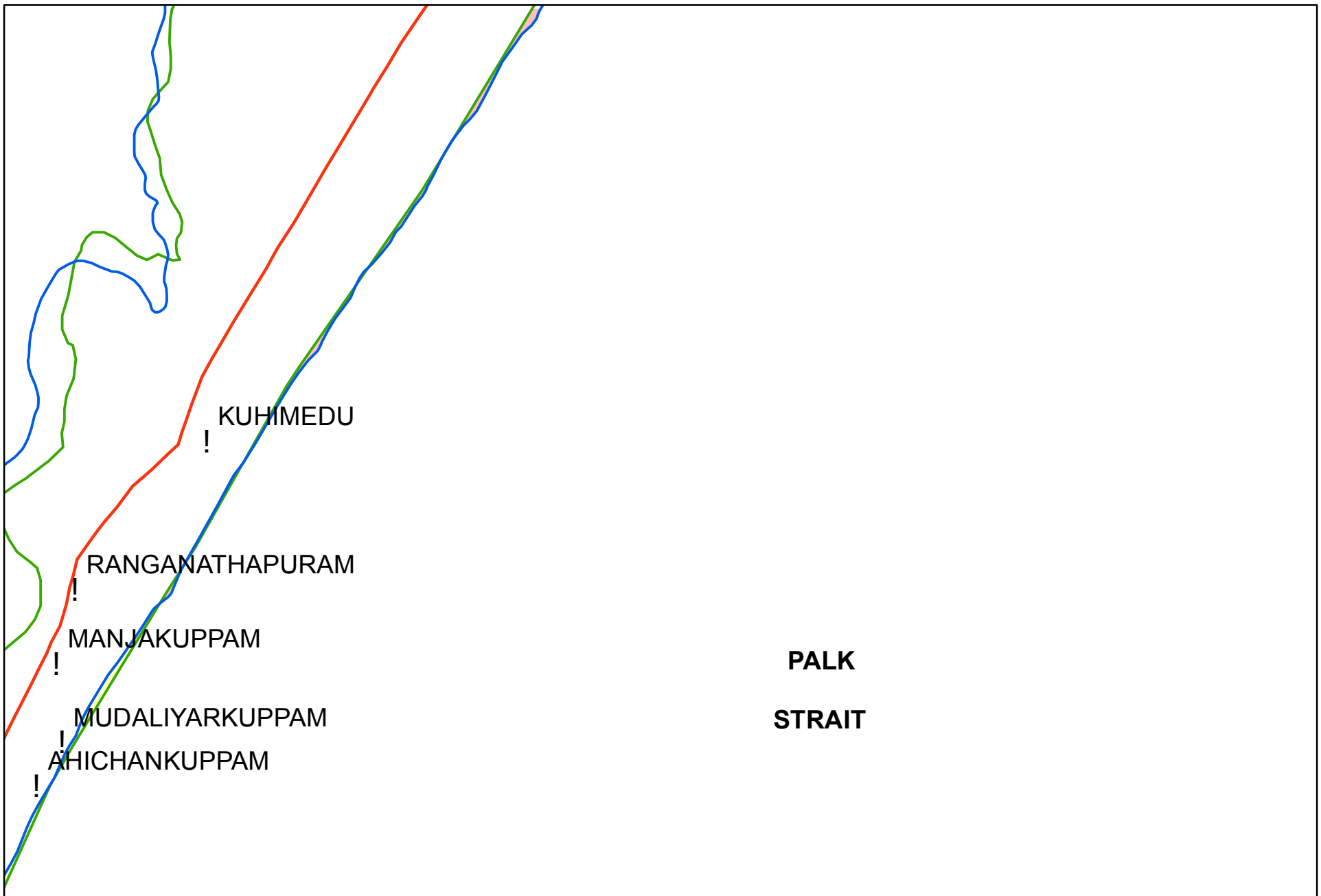
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

VILUPPURAM DISTRICT

SHEET NO. 57P16SE



Legend

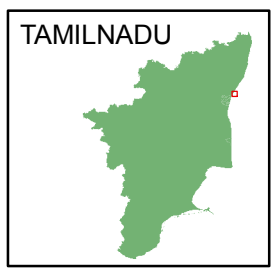
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

57P16 NW	57P16 NE	66D04 NW
57P16 SW		SEA
58M13 NW	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

PUDUCHERRY

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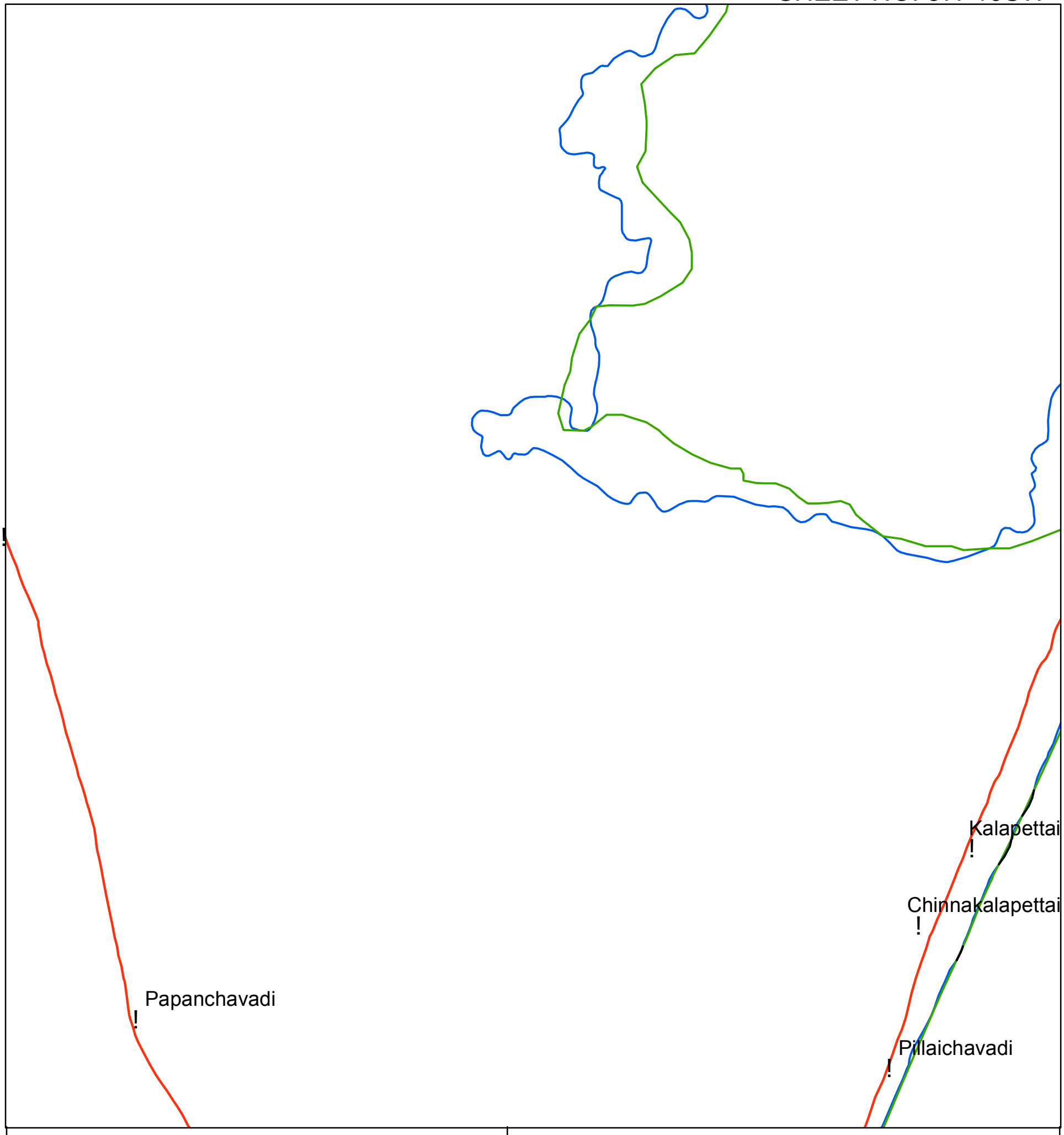
PUDUCHERRY

SHEET NO. 57P16SW



Legend

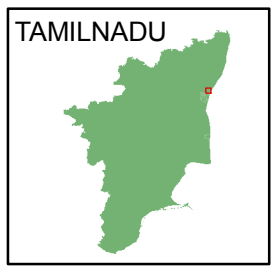
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

57P12 NE	57P16 NW	57P16 NE
57P12 SE		57P16 SE
58M09 NE	58M13 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

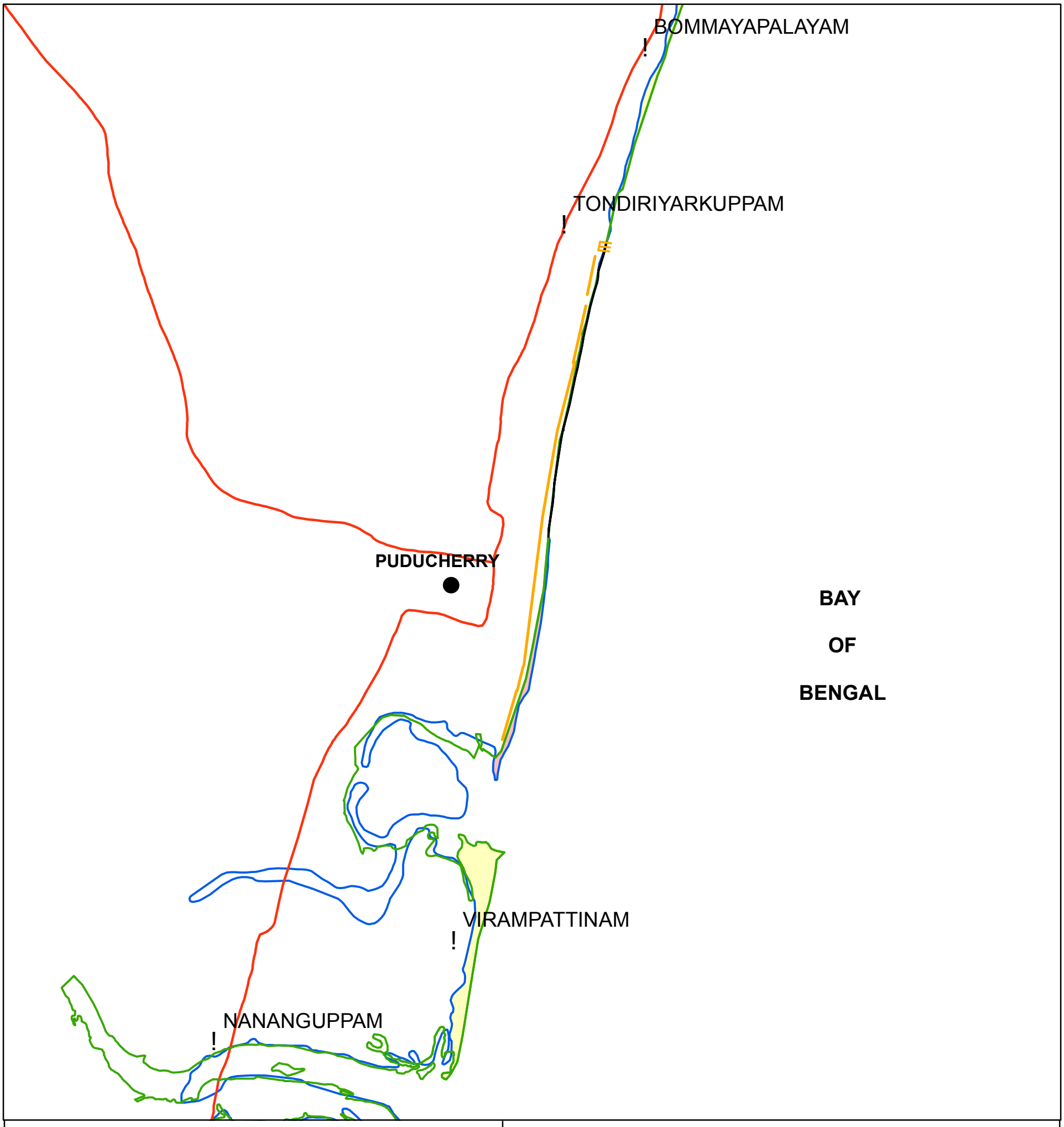
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

VILLUPPURAM DISTRICT & PUDUCHERRY

SHEET NO. 58M13NW



Legend

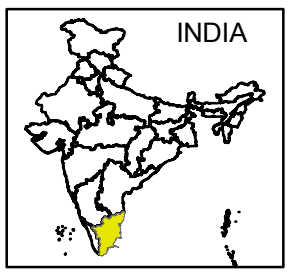
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- GROYNE
- SEA WALL

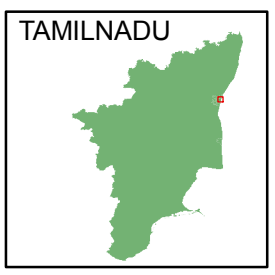
0 2

Scale in Km

INDEX TO SHEETS

57P12 SE	57P16 SW	57P16 SE
58M09 NE		SEA
58M09 SE	58M13 SW	SEA





DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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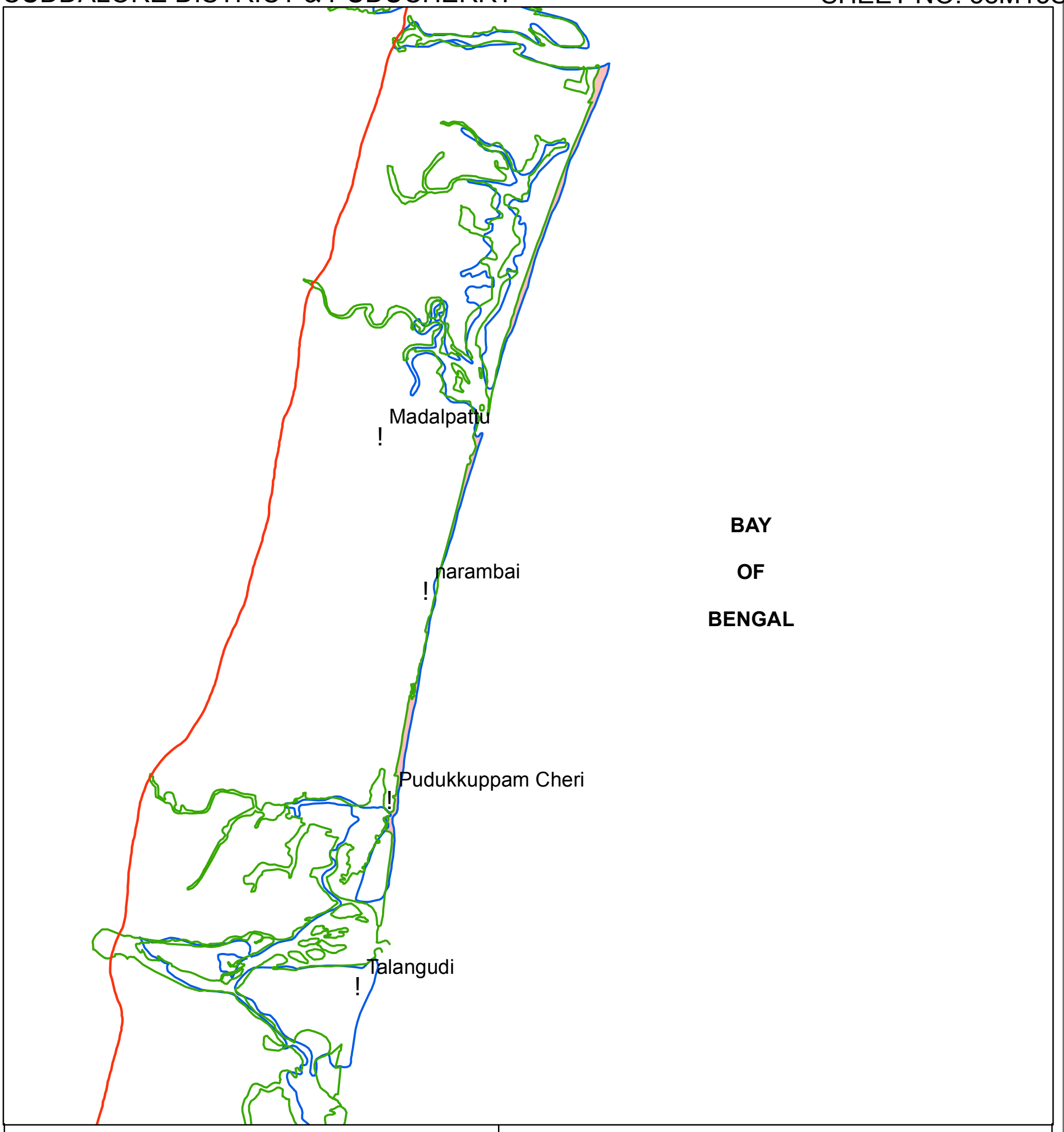
CUDDALORE DISTRICT & PUDUCHERRY

SHEET NO. 58M13SW



Legend

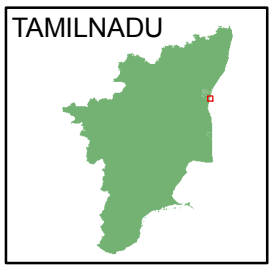
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58M09 NE	58M13 NW	SEA
58M09 SE		SEA
58M10 NE	58M14 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

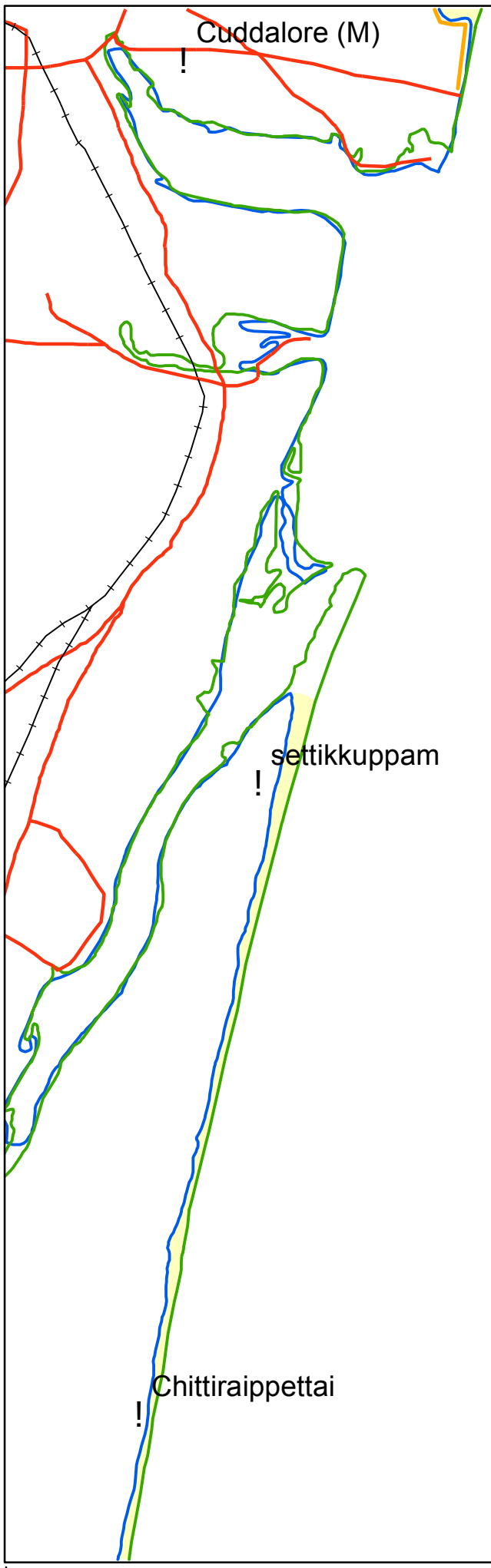
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

CUDDALORE DISTRICT

SHEET NO. 58M14NW



Legend

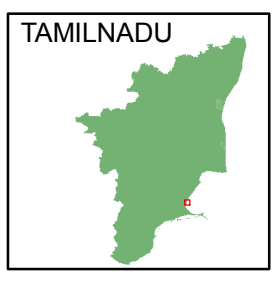
- EROSION
- ACCRETION
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

58M09 SE	58M13 SW	SEA
58M10 NE		SEA
58M10 SE	58M14 SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
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SHORELINE CHANGE MAP

TAMILNADU

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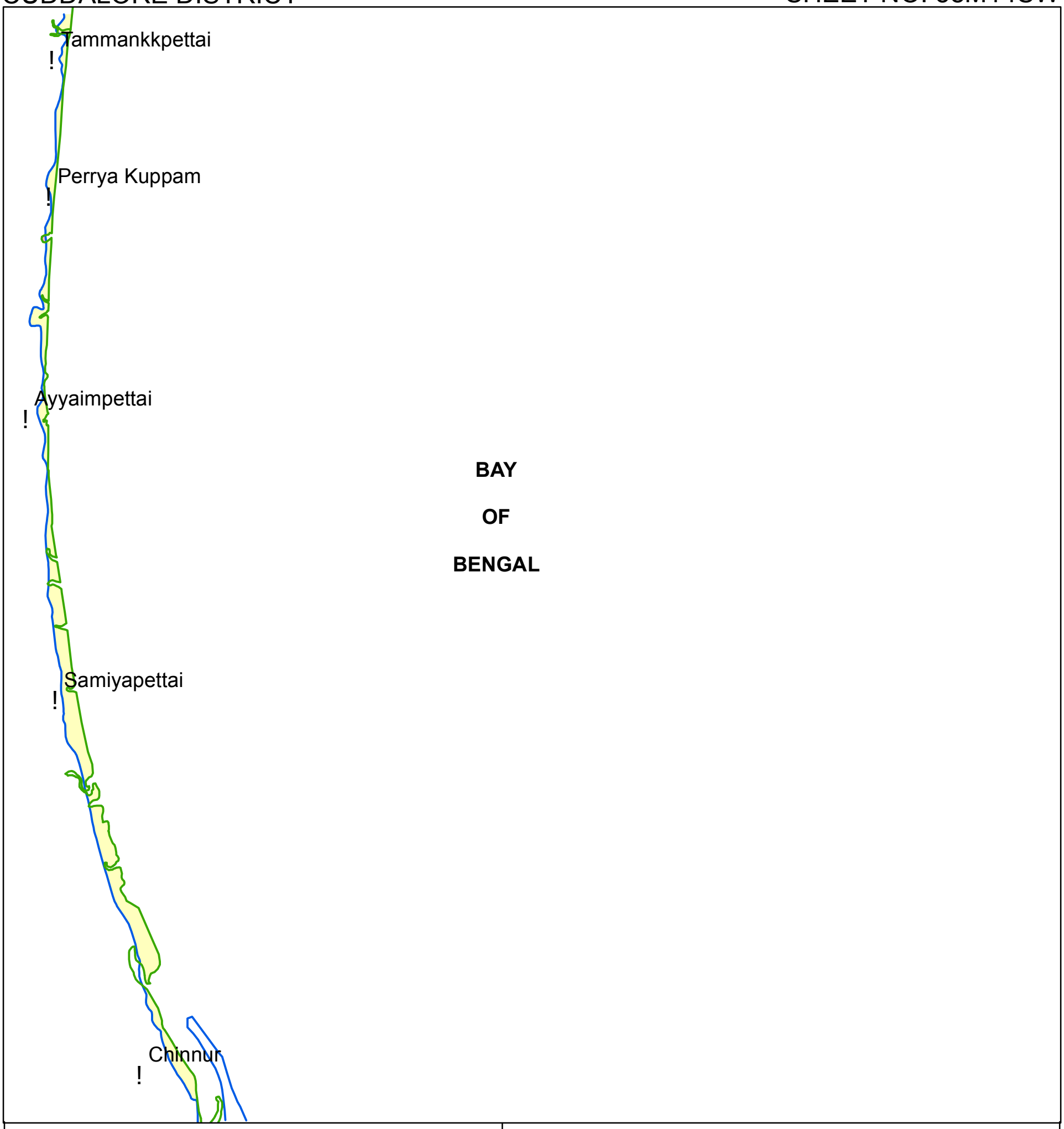
CUDDALORE DISTRICT

SHEET NO. 58M14SW



Legend

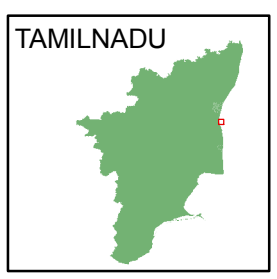
- EROSION
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58M10 NE	58M14 NW	SEA
58M10 SE		SEA
58M11 NE	58M15 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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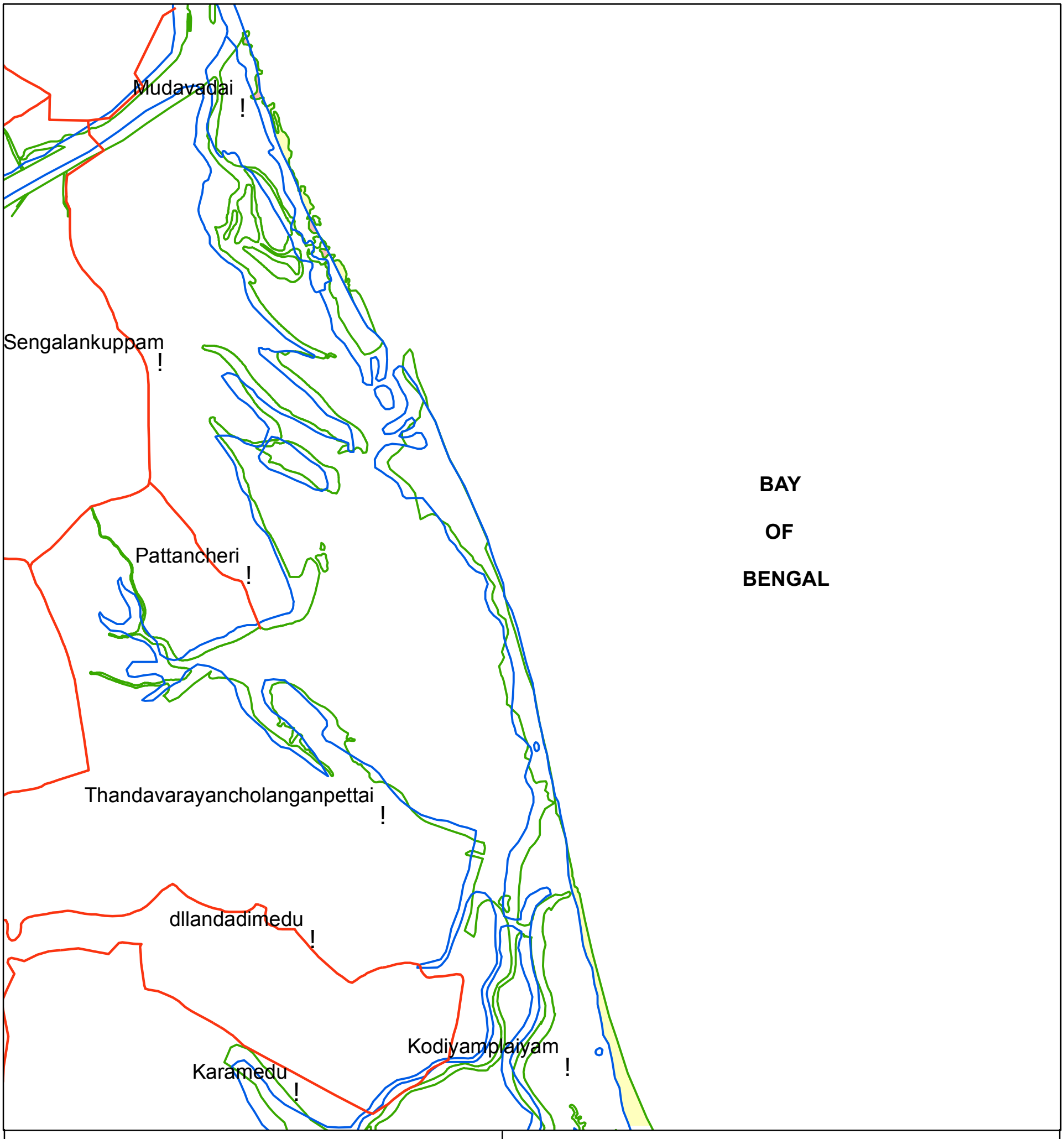
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

CUDDALORE DISTRICT

SHEET NO. 58M15NW



Legend

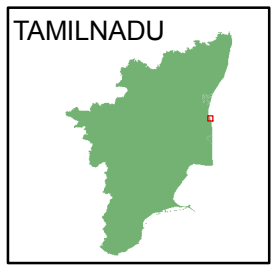
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58M10 SE	58M14 SW	SEA
58M11 NE		SEA
58M11 SE	58M15 SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

TAMILNADU

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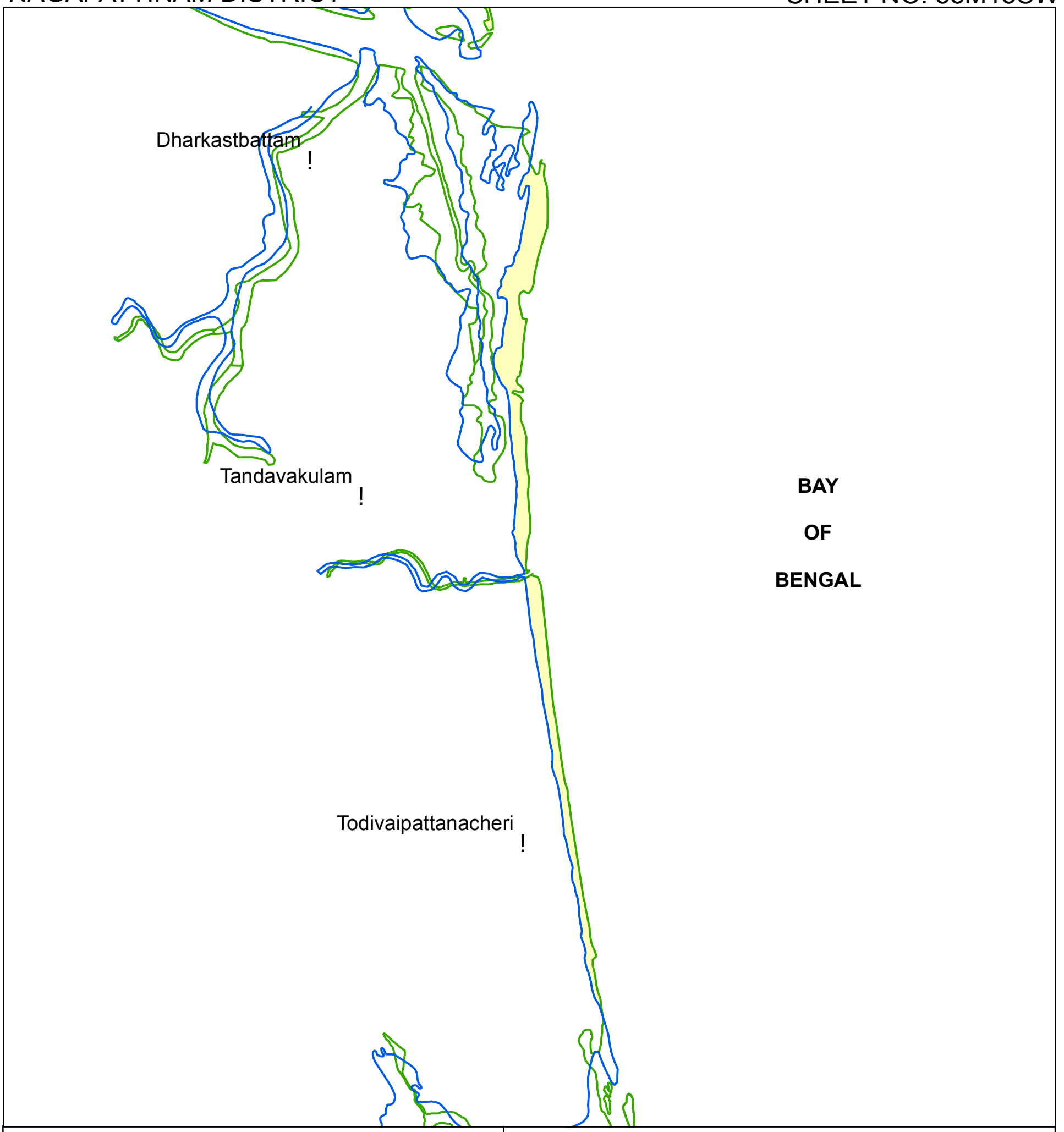
NAGAPATTINAM DISTRICT

SHEET NO. 58M15SW



Legend

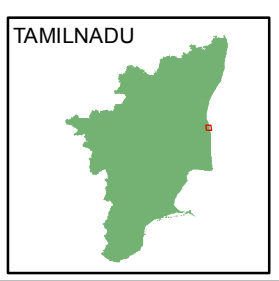
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58M11 NE	58M15 NW	SEA
58M11 NE		SEA
58M12 NE	58M16 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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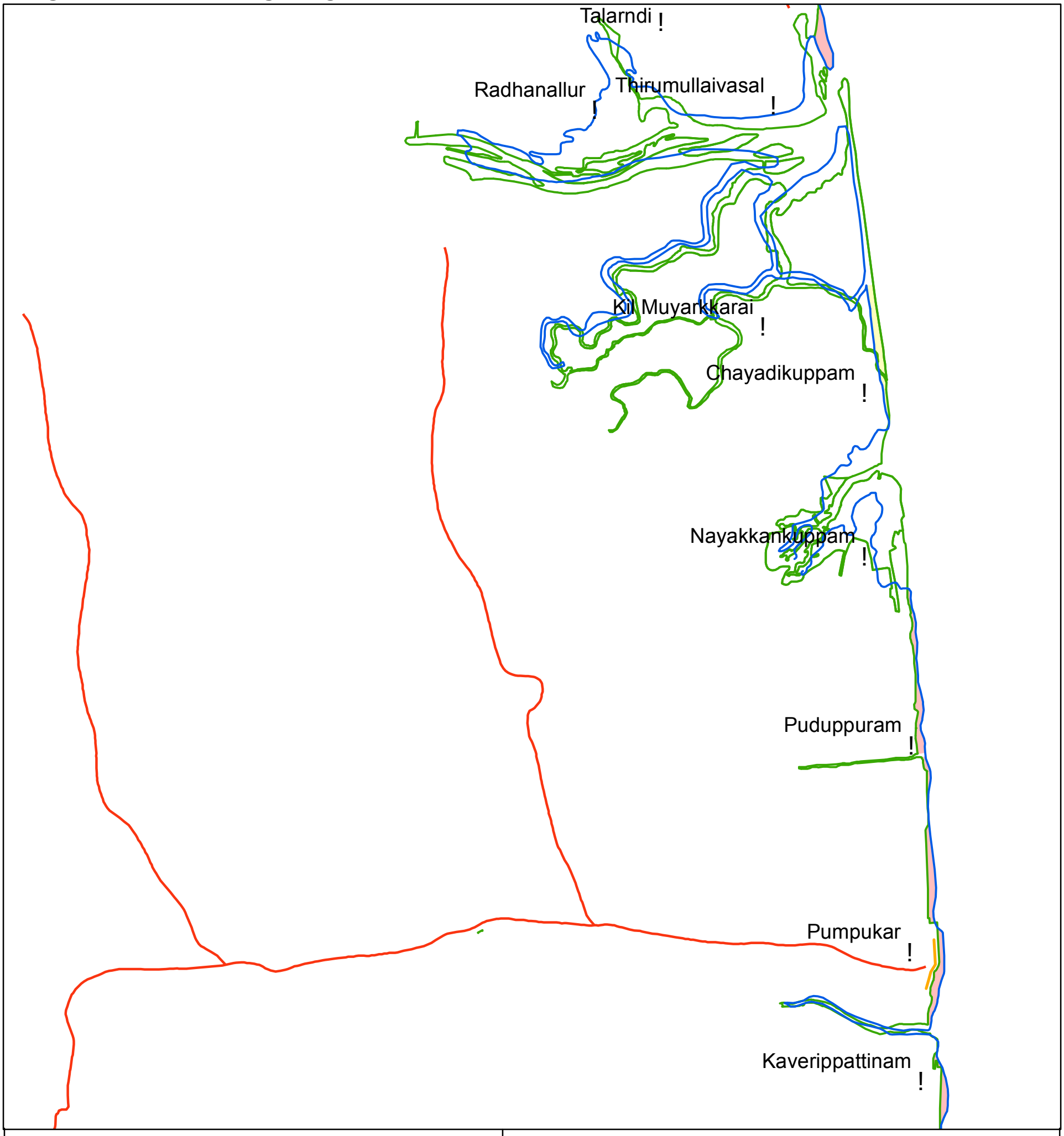
NAGAPATTINAM DISTRICT

SHEET NO. 58M16NW



Legend

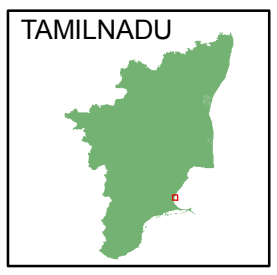
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

58M11 SE	58M15 SW	SEA
58M12 NE		SEA
58M12 SE	58M16 SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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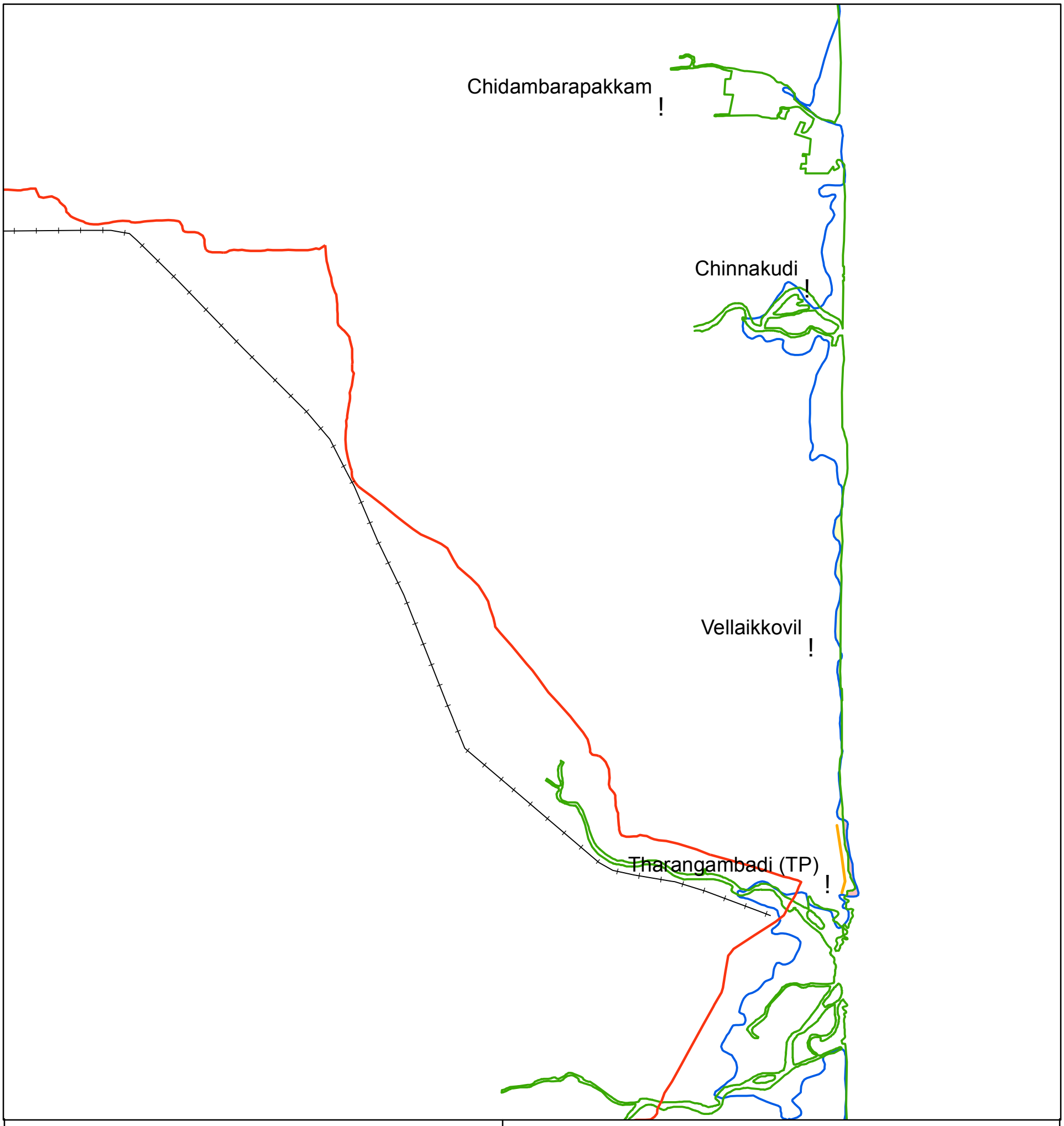
NAGAPATTINAM DISTRICT

SHEET NO. 58M16SW



Legend

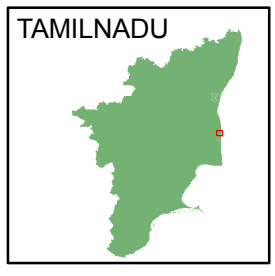
- EROSION
- ACCRETION
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

58M12 NE	58M16 NW	SEA
58M12 SE		SEA
58N09 NE	58N13 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

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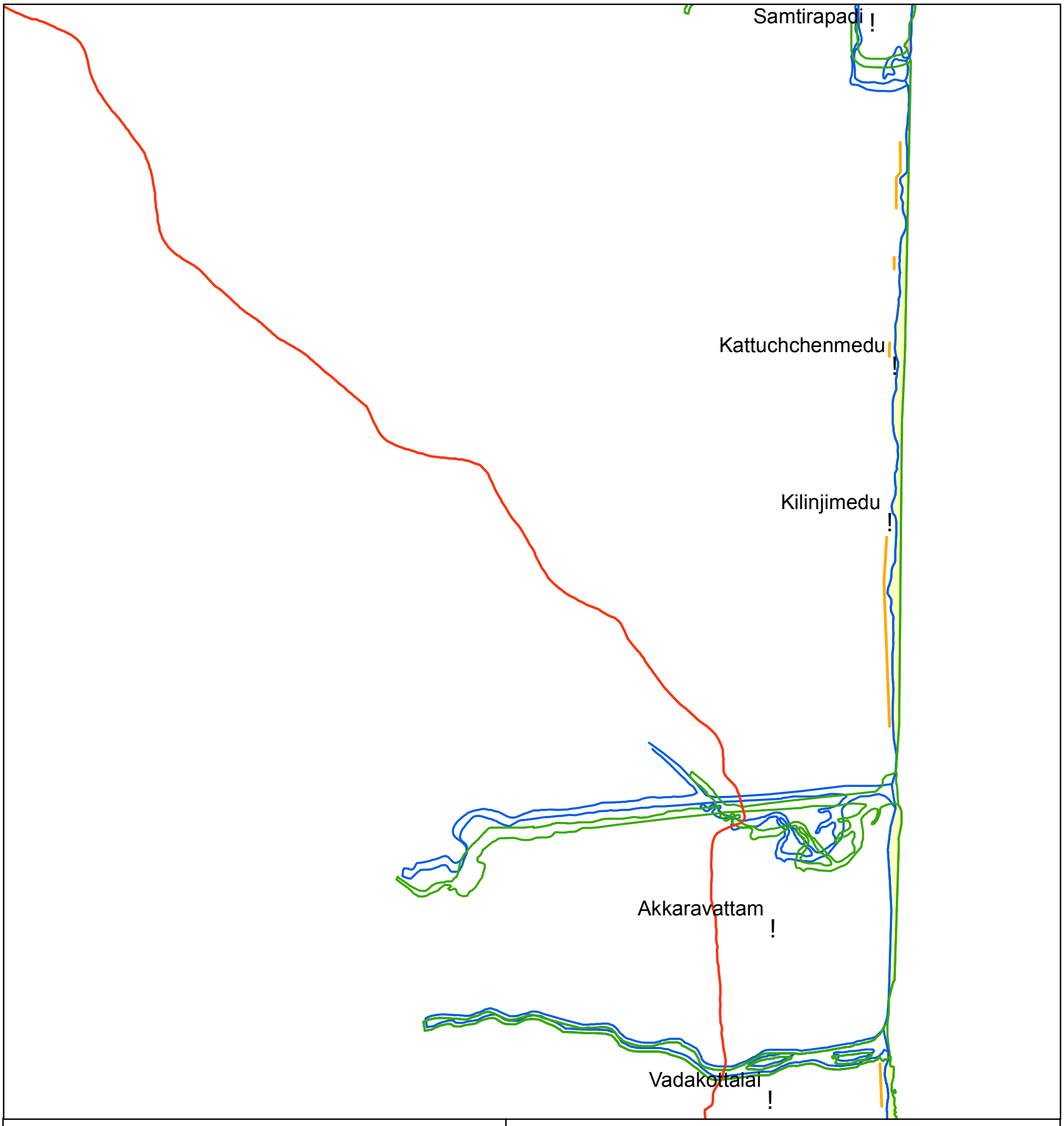
PUDUCHERRY

SHEET NO. 58N13NW



Legend

- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58M12 SE	58M16 SW	SEA
58N09 NE		SEA
58N09 SE	58N13 SW	SEA

INDIA

TAMILNADU

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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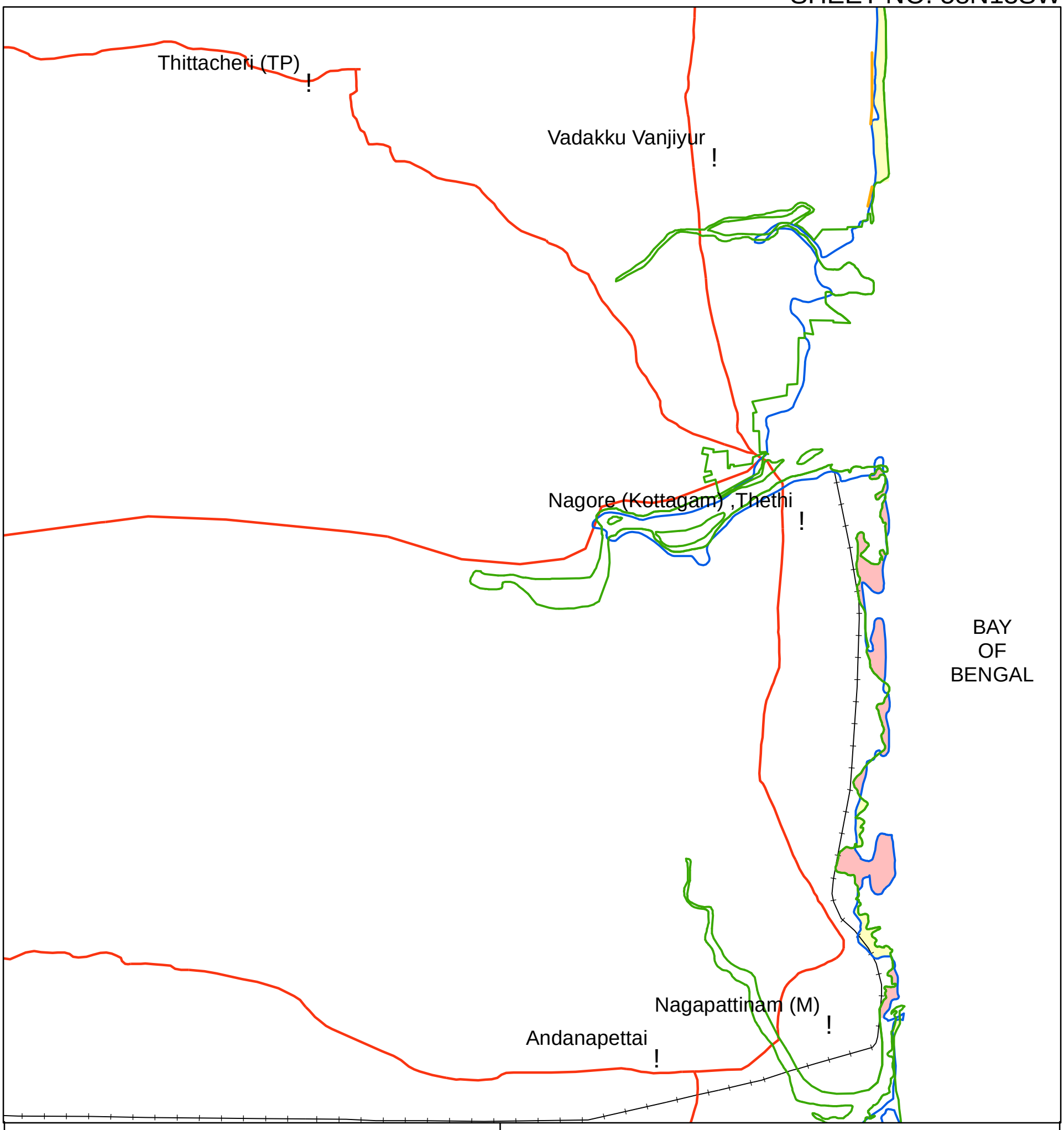
NAGAPATTINAM DISTRICT & PONDICHERRY

SHEET NO. 58N13SW



Legend

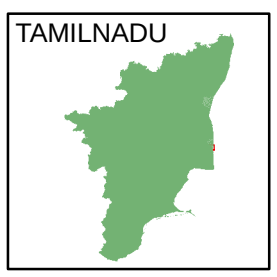
- EROSION
- ACCRETION
- ROAD
- SEA WALL
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N09 NE	58N13 NW	SEA
58N09 SE		SEA
58N10 NE	58N14 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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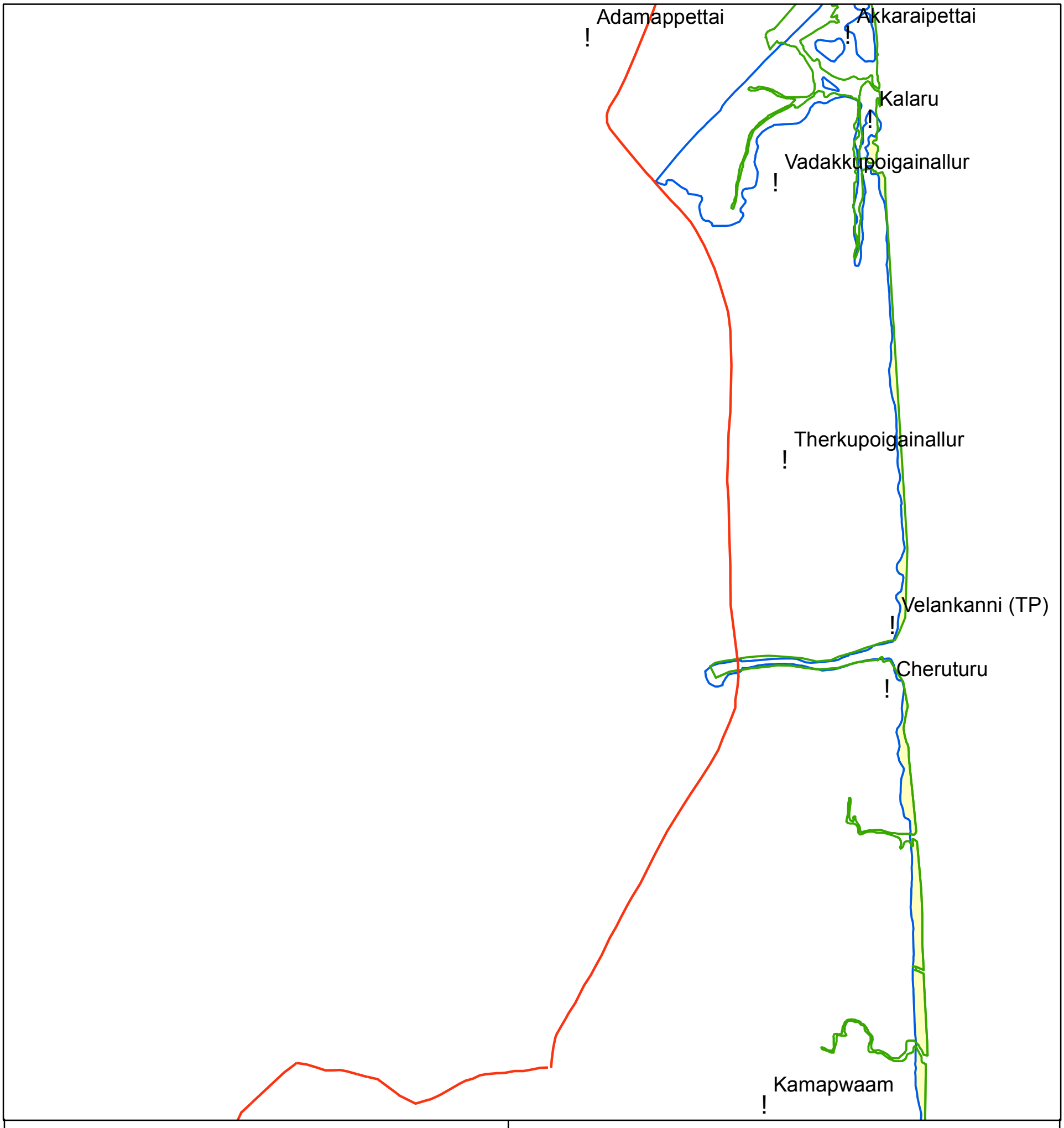
NAGAPATTINAM DISTRICT

SHEET NO. 58N14NW



Legend

- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N09 SE	58N13 SW	SEA
58N10 NE		SEA
58N10 SE	58N14 SW	SEA

INDIA

TAMILNADU

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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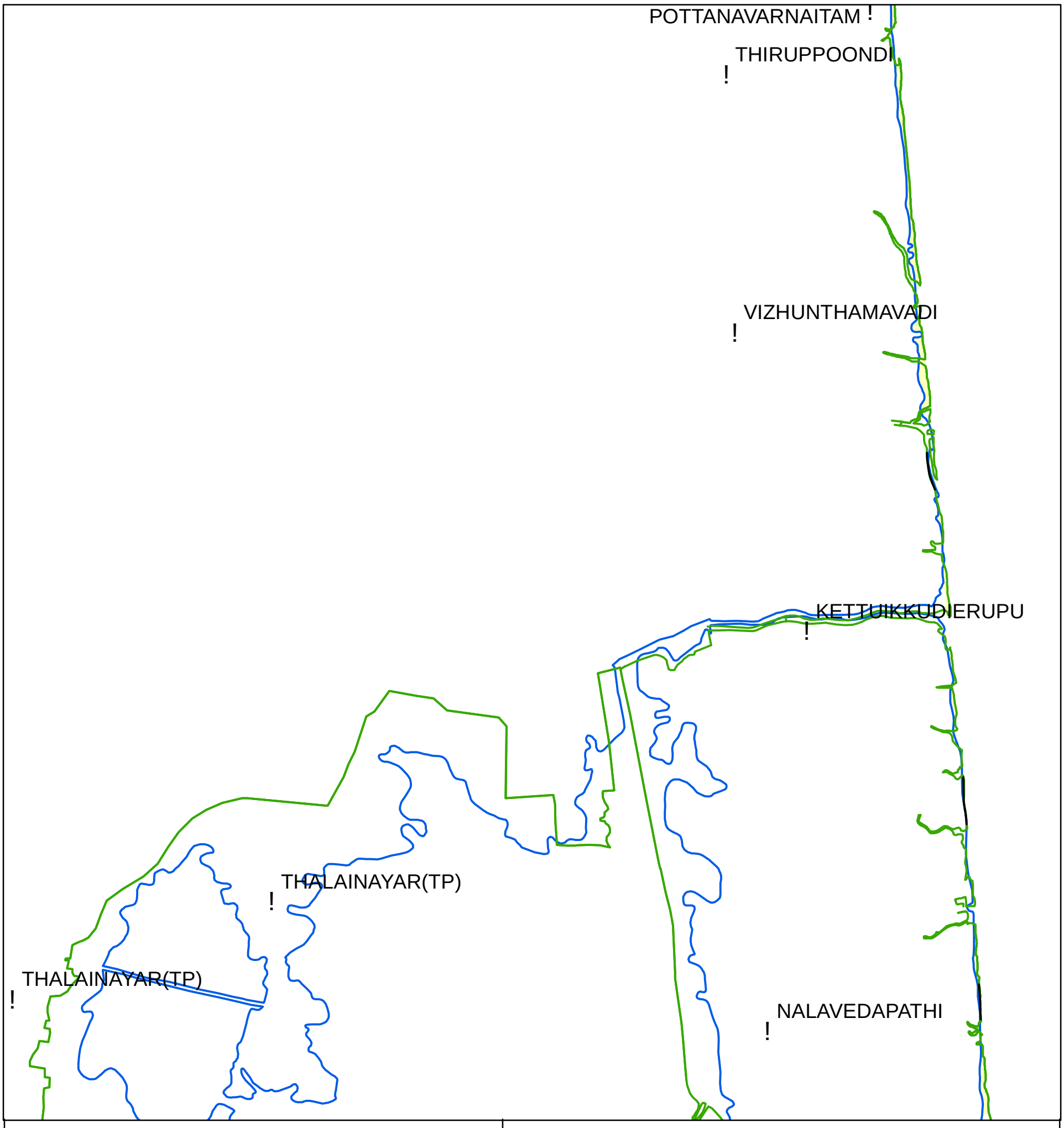
NAGAPATTINAM DISTRICT

SHEET NO. 58N14SW



Legend

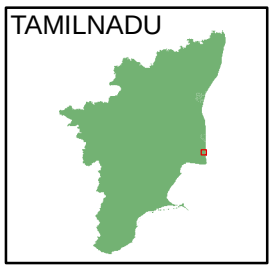
- ACCRETION
- STABLE
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N10 NE	58N14 NW	SEA
58N10 SE		SEA
58N11 NE	58N15 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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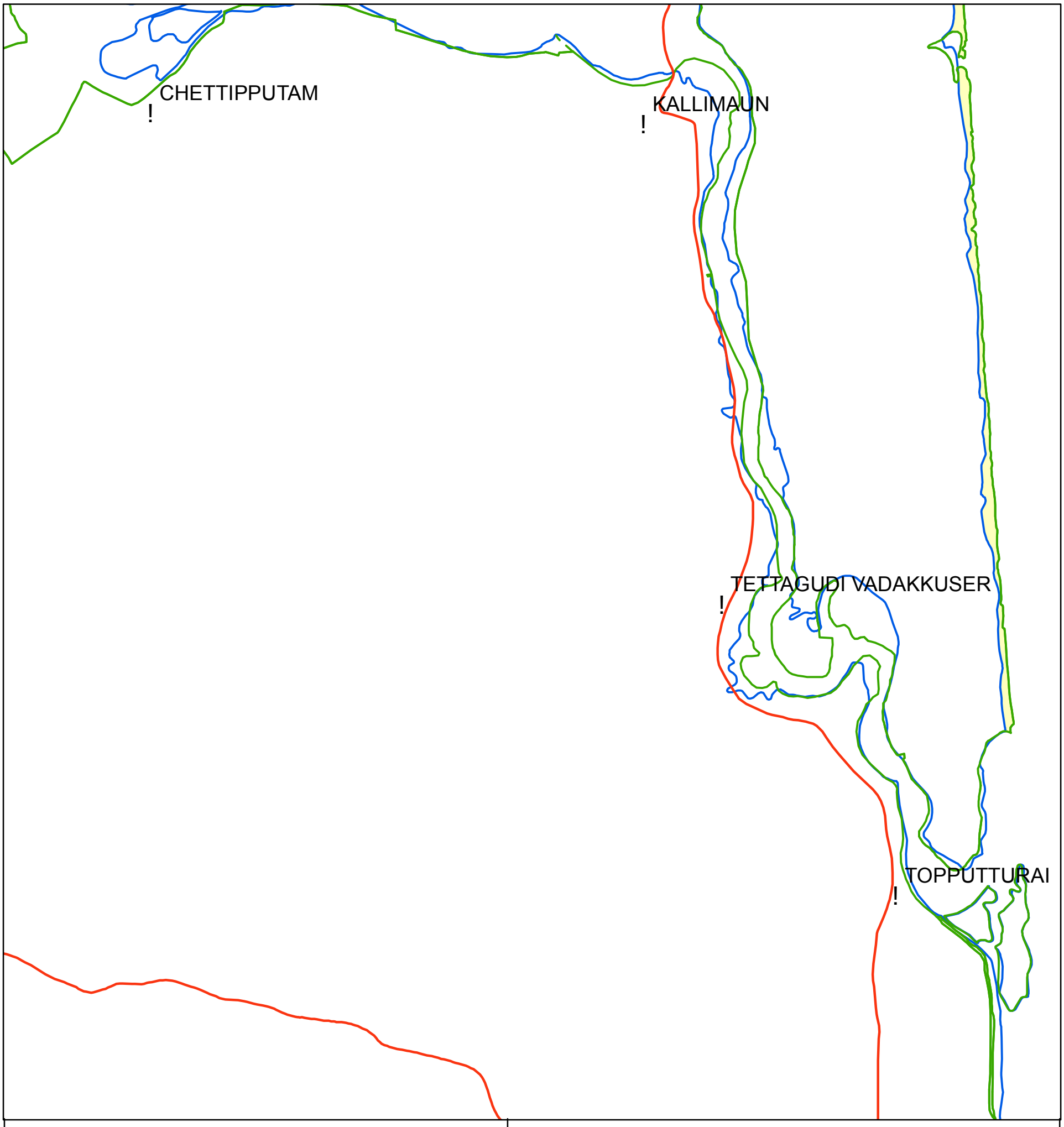
NAGAPATTINAM DISTRICT

SHEET NO. 58N15NW



Legend

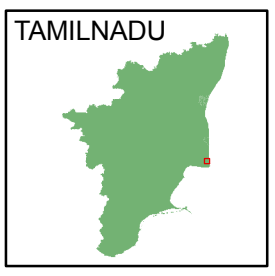
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N10 SE	58N14 SW	SEA
58N11 NE		SEA
58N11 SE	58N15 SW	58N15 SE



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

NAGAPATTINAM DISTRICT

SHEET NO. 58N15SW

Kadanavaya

Kailanpatai

Agastyampalli

Panchanadikkulam Nadusetti

VEDARANNIYAM SWAMP

Kodiakkadu

PALK STRAIT

Legend

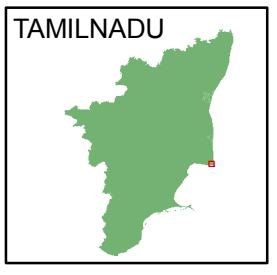
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N1 NE	58N14 SW	SEA
58N11 SE		SEA
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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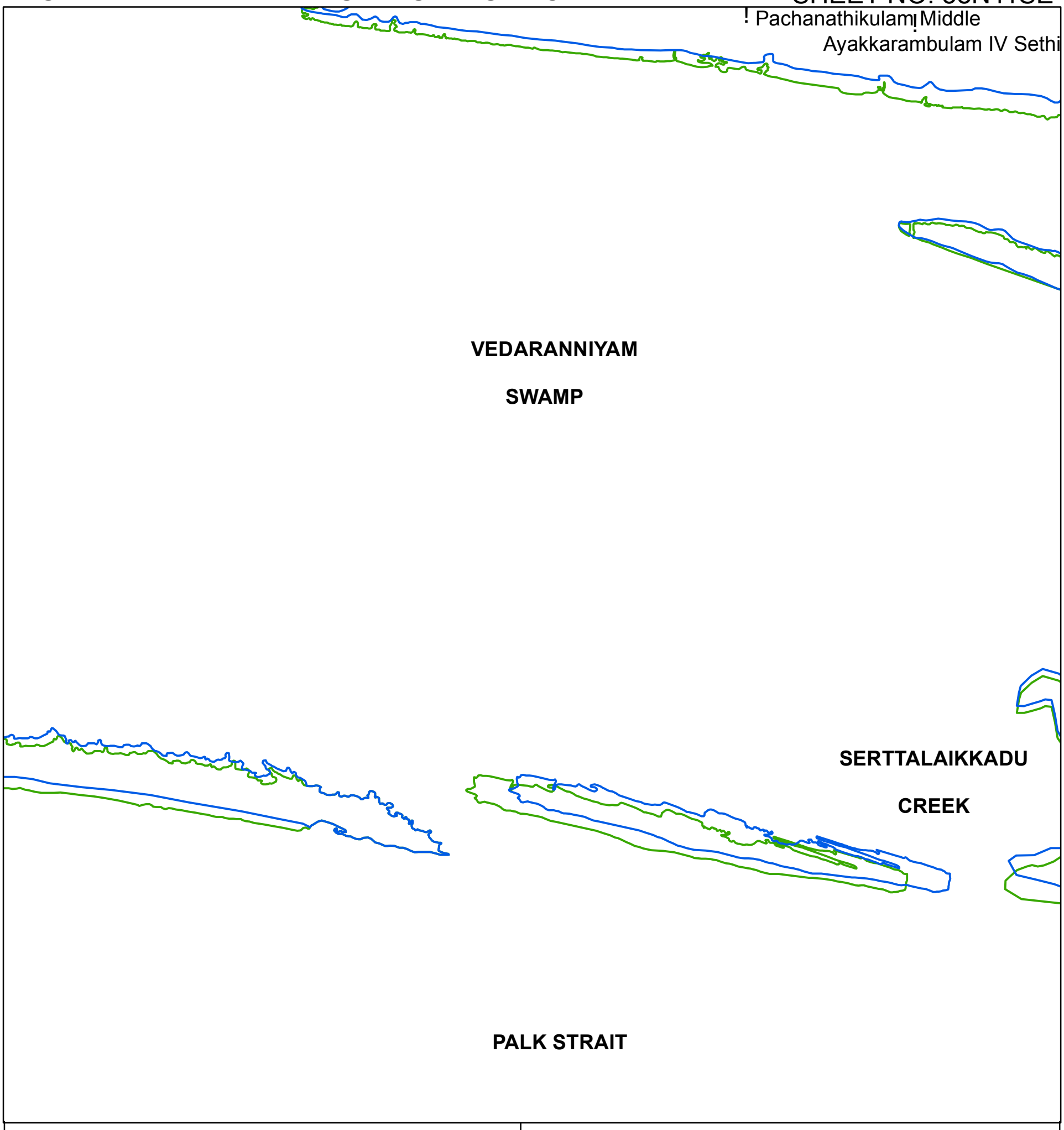
NAGAPATTINAM AND THIRUVARUR DISTRICT

SHEET NO. 58N11SE



Legend

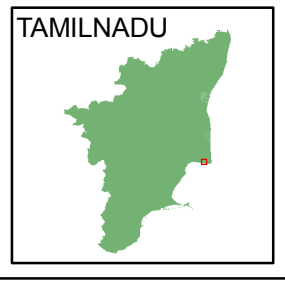
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N11 NE	58N11 NE	58N15 NW
58N11 SW		58N15 SW
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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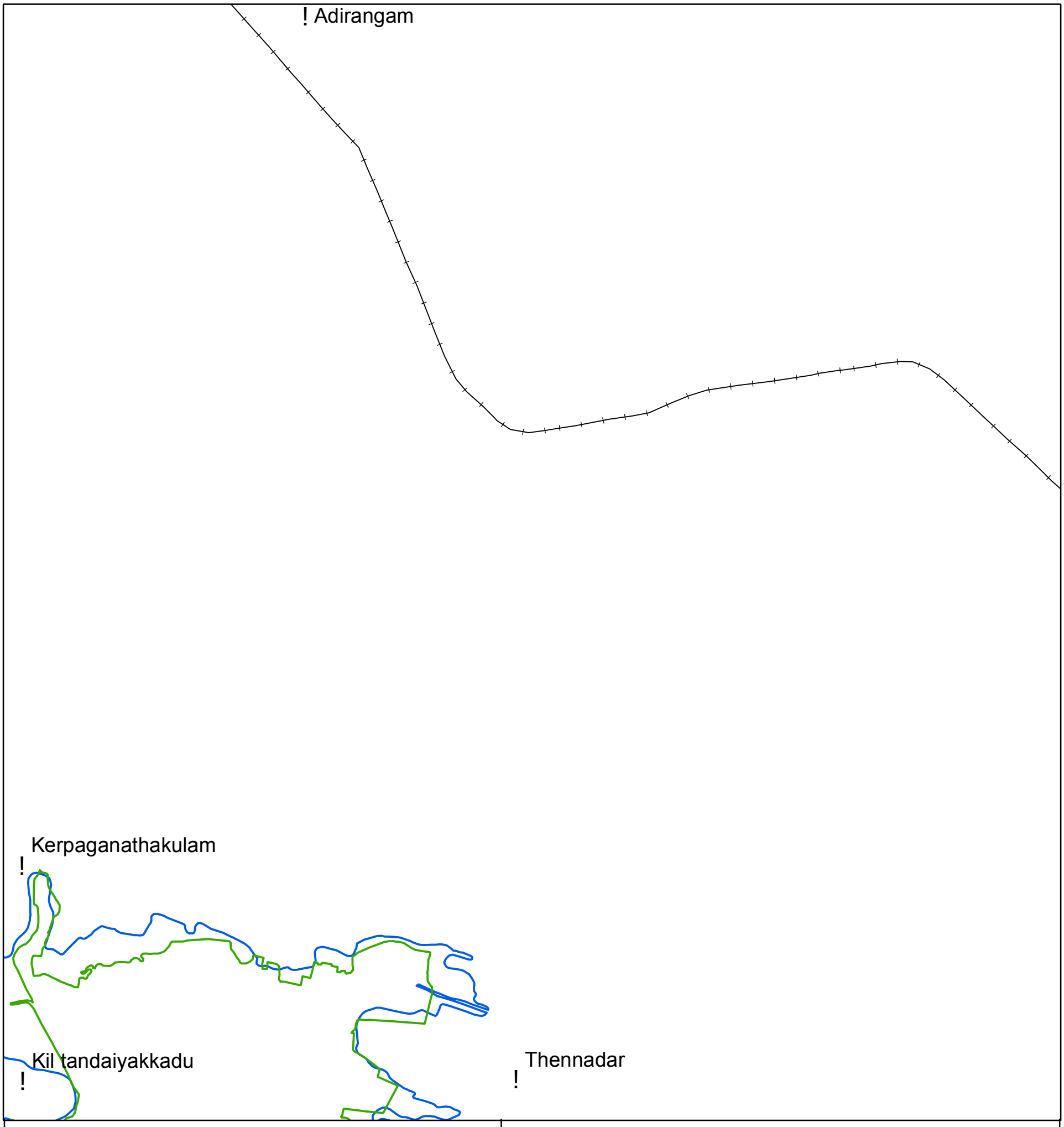
NAGAPATTINAM DISTRICT

SHEET NO. 58N11NE



Legend

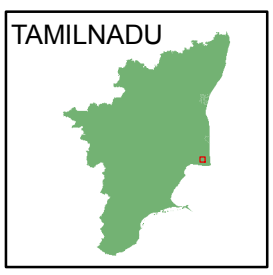
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N10 SW	58N10 SE	58N14 SW
58N11 NW		58N15 NW
58N11 SW	58N11 SE	58N15 SW



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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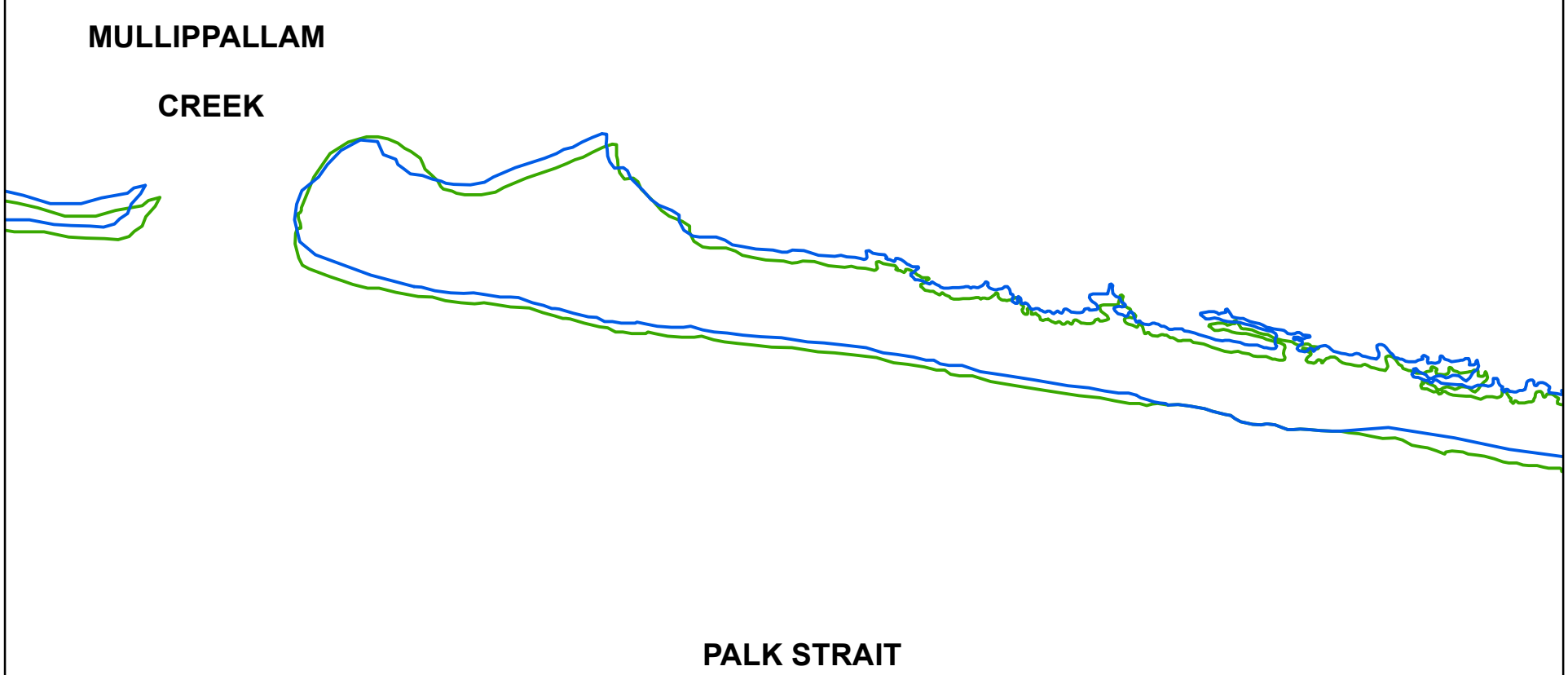
NAGAPATTINAM DISTRICT

SHEET NO. 58N11SW



Legend

HIGH-TIDE LINE 2004-06

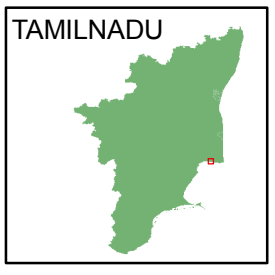
HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

58N07 NE	58N11 NW	58N11 NE
58N07 SE		58N11 SE
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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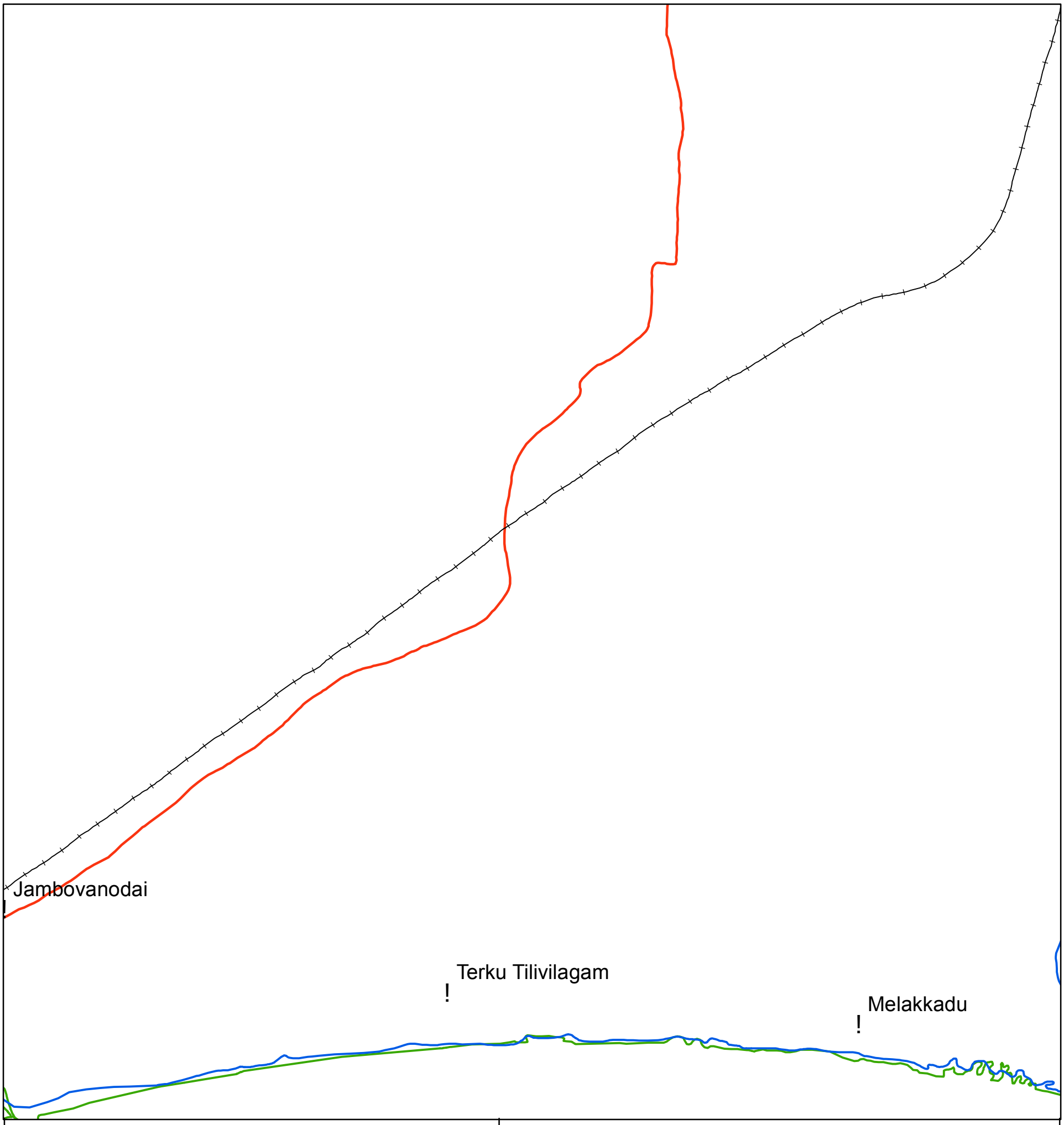
THIRUVARUR DISTRICT

SHEET NO. 58N11NW



Legend

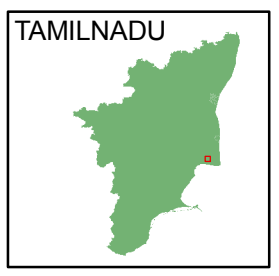
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N06 SE	58N10 SW	58N10 SE
58N07 NE		58N11 NE
58N07 SE	58N11 SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

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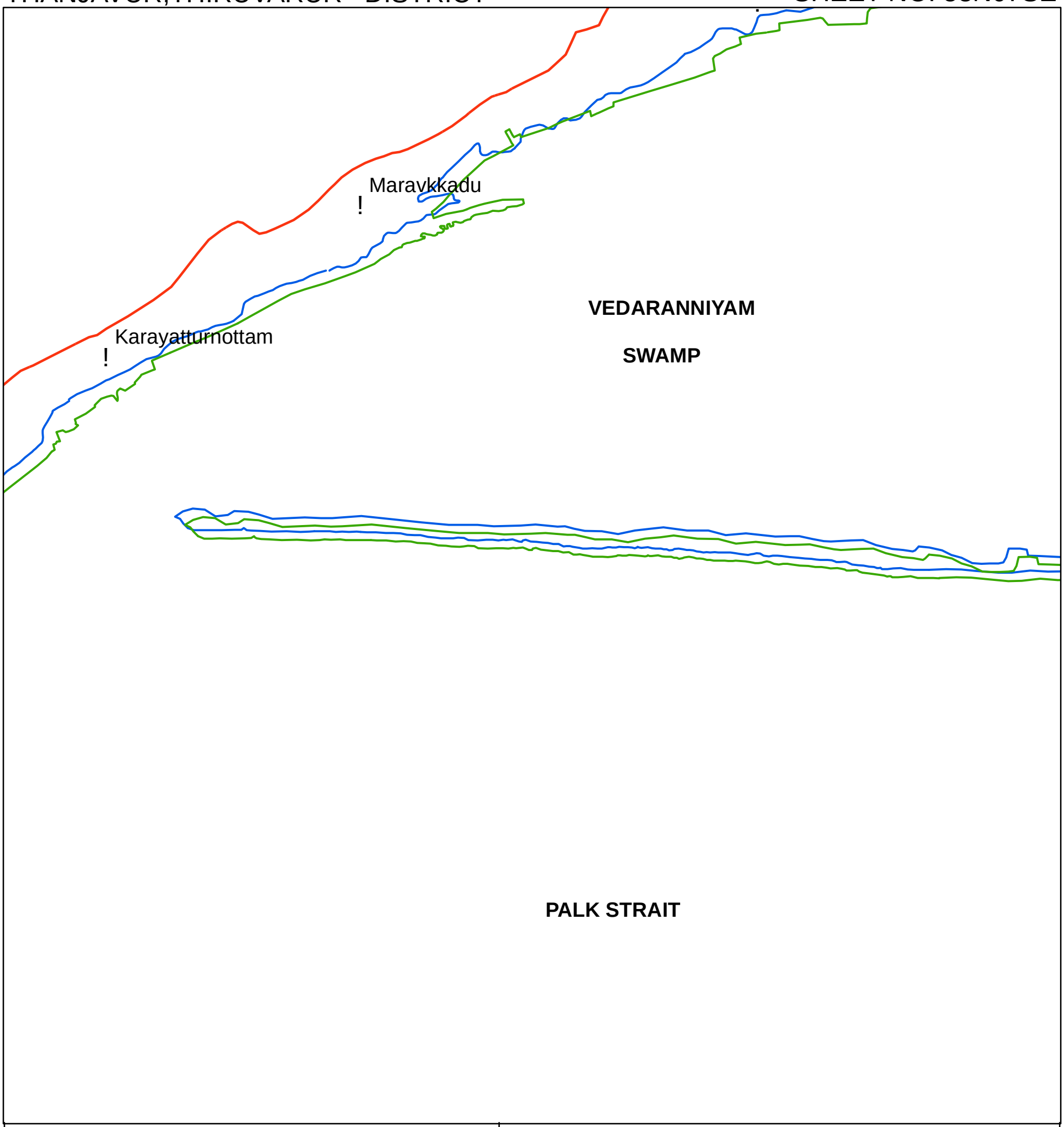
TAMILNADU

THANJAVUR,THIRUVARUR DISTRICT

SHEET NO. 58N07SE



Legend

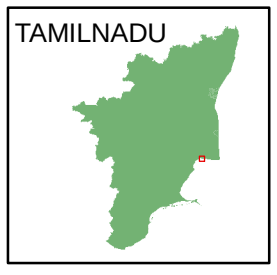
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N07 NW	58N07 NE	58N11 NW
58N07 SW		58N11 SW
58N08 NW	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

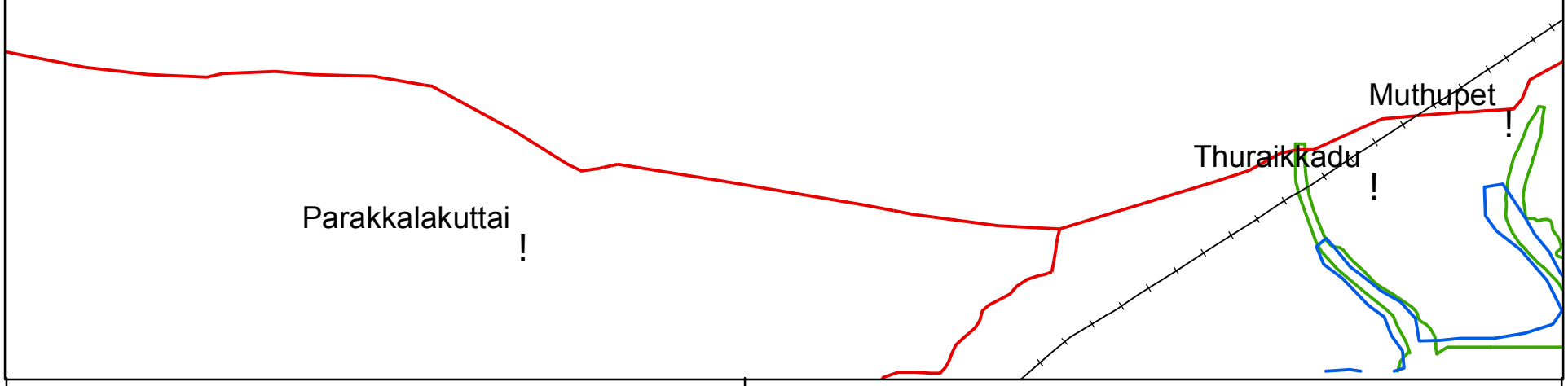
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

THANJAVUR AND THIRUVARUR DISTRICT

SHEET NO. 58N07NE



Legend

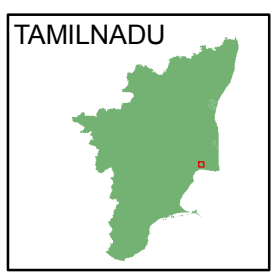
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N06 SW	58N06 SE	58N10 SW
58N07 NW		58N11 NW
58N07 SW	58N07 SE	58N11 SW



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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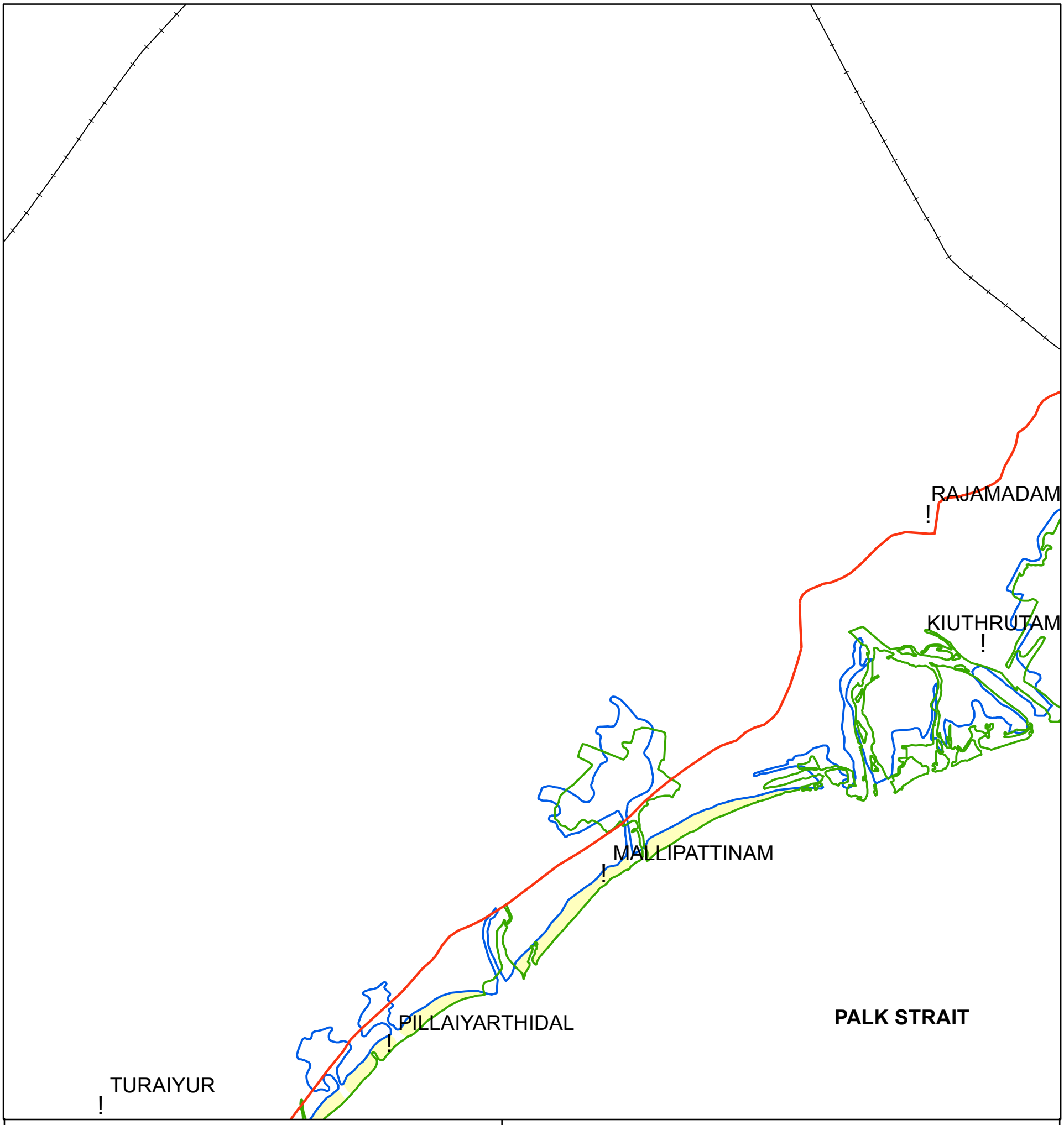
THANJAVUR DISTRICT

SHEET NO. 58N07SW



Legend

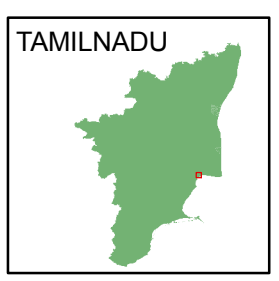
- ACCRETION
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N03 NE	58N07 NW	58N07 NE
58N03 SE		58N07 SE
58N04 NE	58N08 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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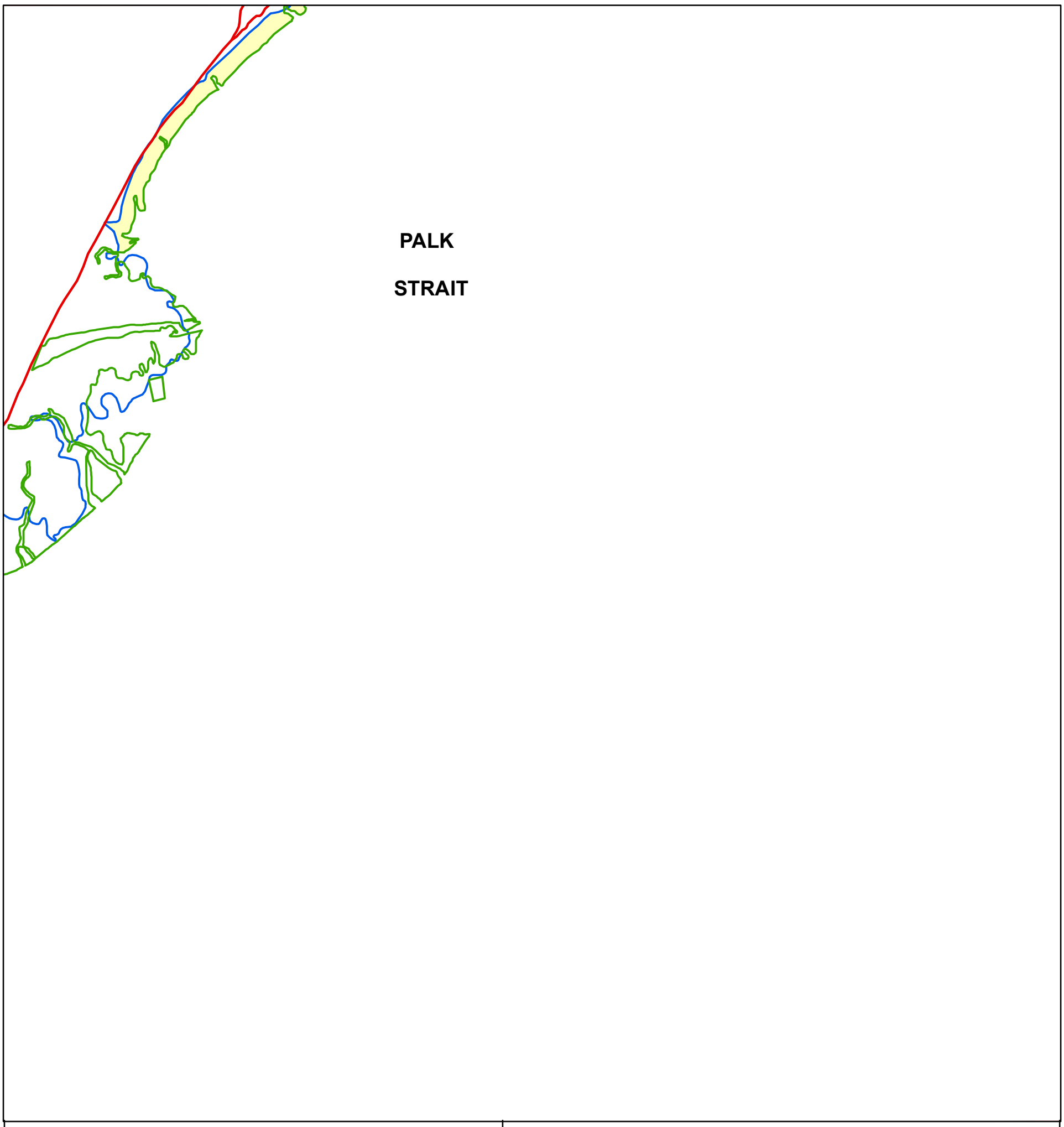
THANJAVUR DISTRICT

SHEET NO. 58N08NW



Legend

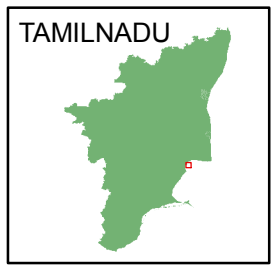
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

58N03 SE	58N07 SW	SEA
58N04 NE		SEA
58N04 SE	58N08 SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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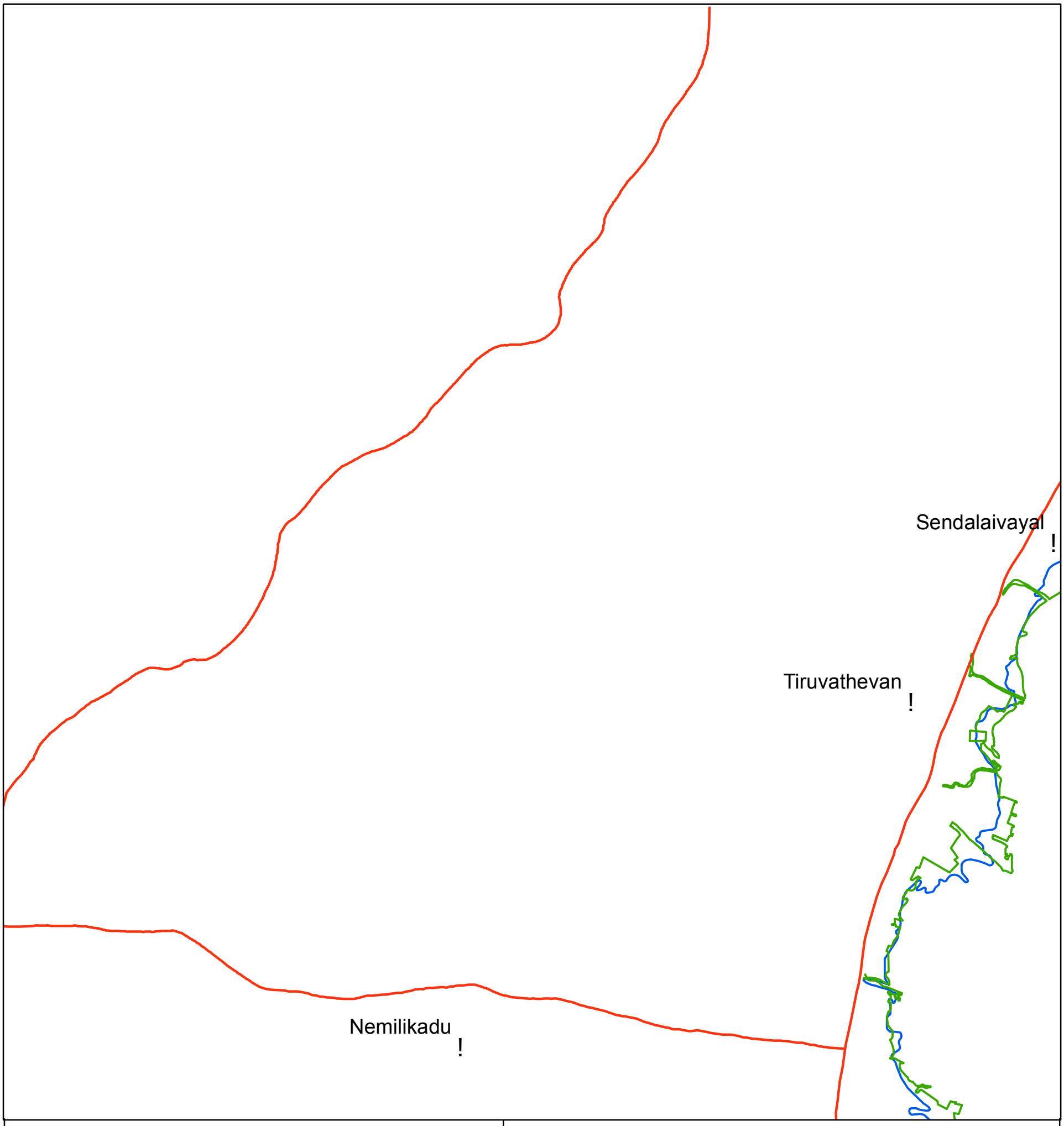
THANJAVUR DISTRICT

SHEET NO. 58N04NE



Legend

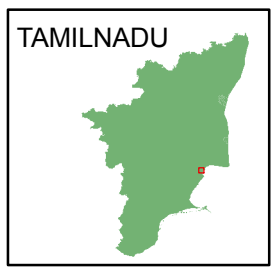
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N03 SW	58N03 SE	58N07 SW
58N04 NW		58N08 NW
58N04 SW	58N04 SE	58N08 SW



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

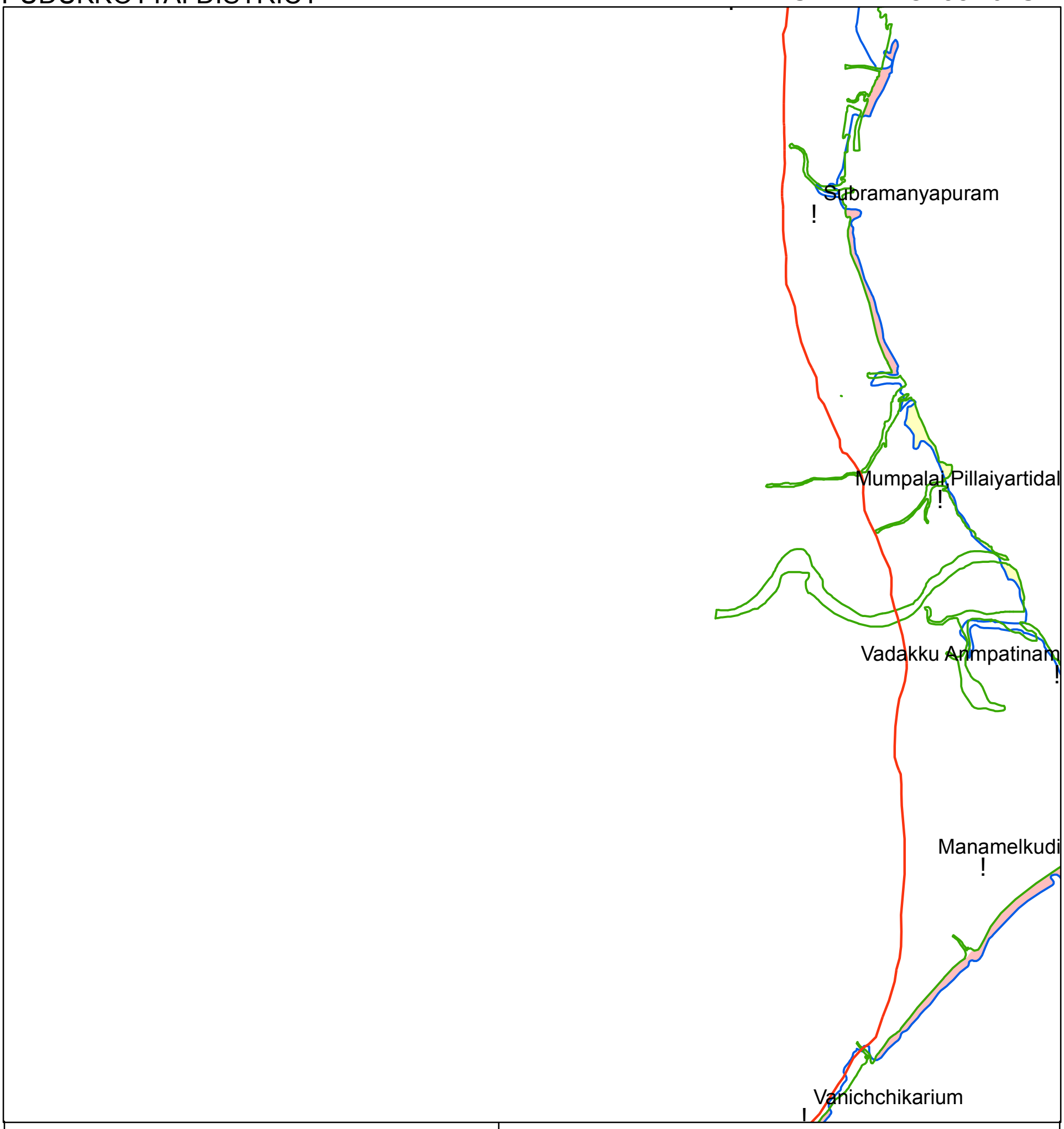
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

PUDUKKOTTAI DISTRICT

SHEET NO. 58N04SE



Legend

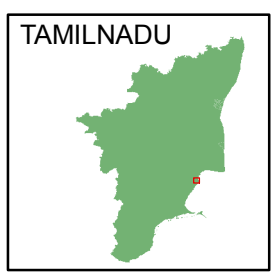
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N04 NW	58N04 NE	SEA
58N04 SW		58N08 SW
58O01 NW	58O01 NE	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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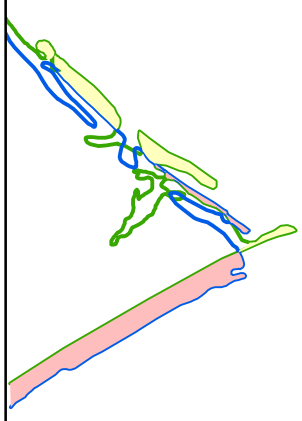
PUDDUKKOTAI DISTRICT

SHEET NO. 58N08SW

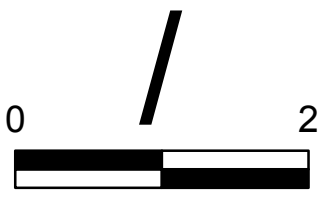


PALK

STRAIT

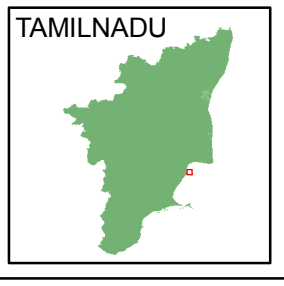
Legend

- EROSION
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91



INDEX TO SHEETS

58N04 NE	58N08 NW	SEA
58N04 SE		SEA
58O01 NE	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

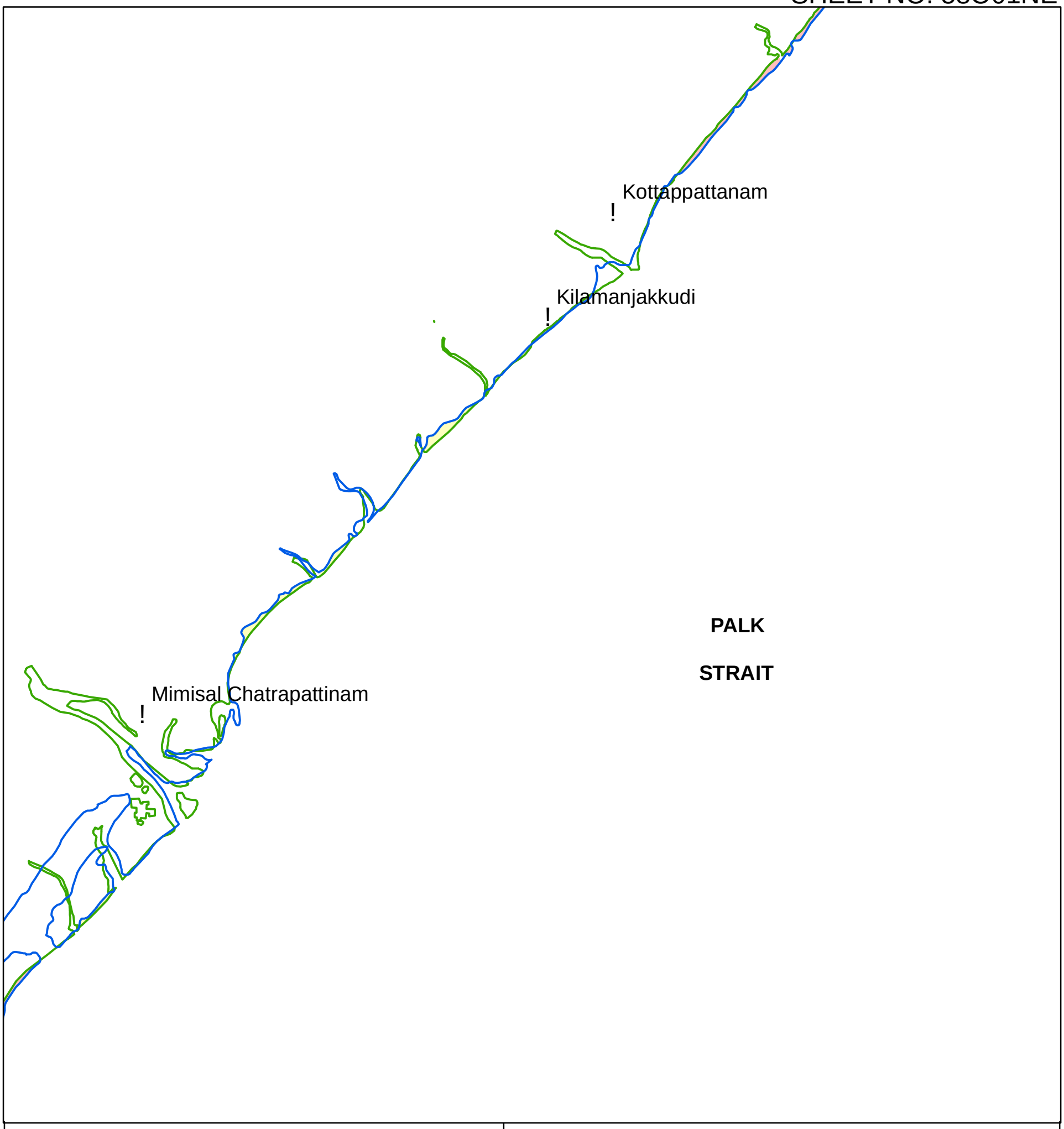
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

PUDUKKOTTAI DISTRICT

SHEET NO. 58O01NE



Legend

EROSION

ACCRETION

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

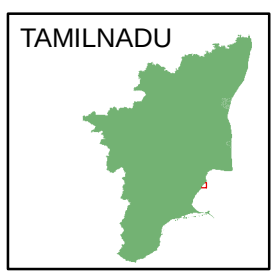
! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58N04 SW	58N04 SE	58N08 SW
58O01 NW		SEA
58O01 SW	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

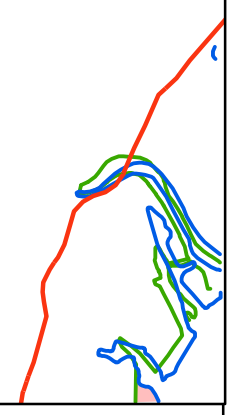
PUDUKKOTTAI DISTRICT

SHEET NO. 58O01NW

KANNAKKUR
!

TIYATTUR
!

PAGANUR
!



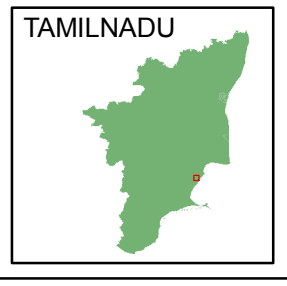
Legend

- EROSION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

Scale in Km

INDEX TO SHEETS

58J16 SE	58N04 SW	58N04 SE
58K13 NE		58O01 NE
58K13 SE	58O01 SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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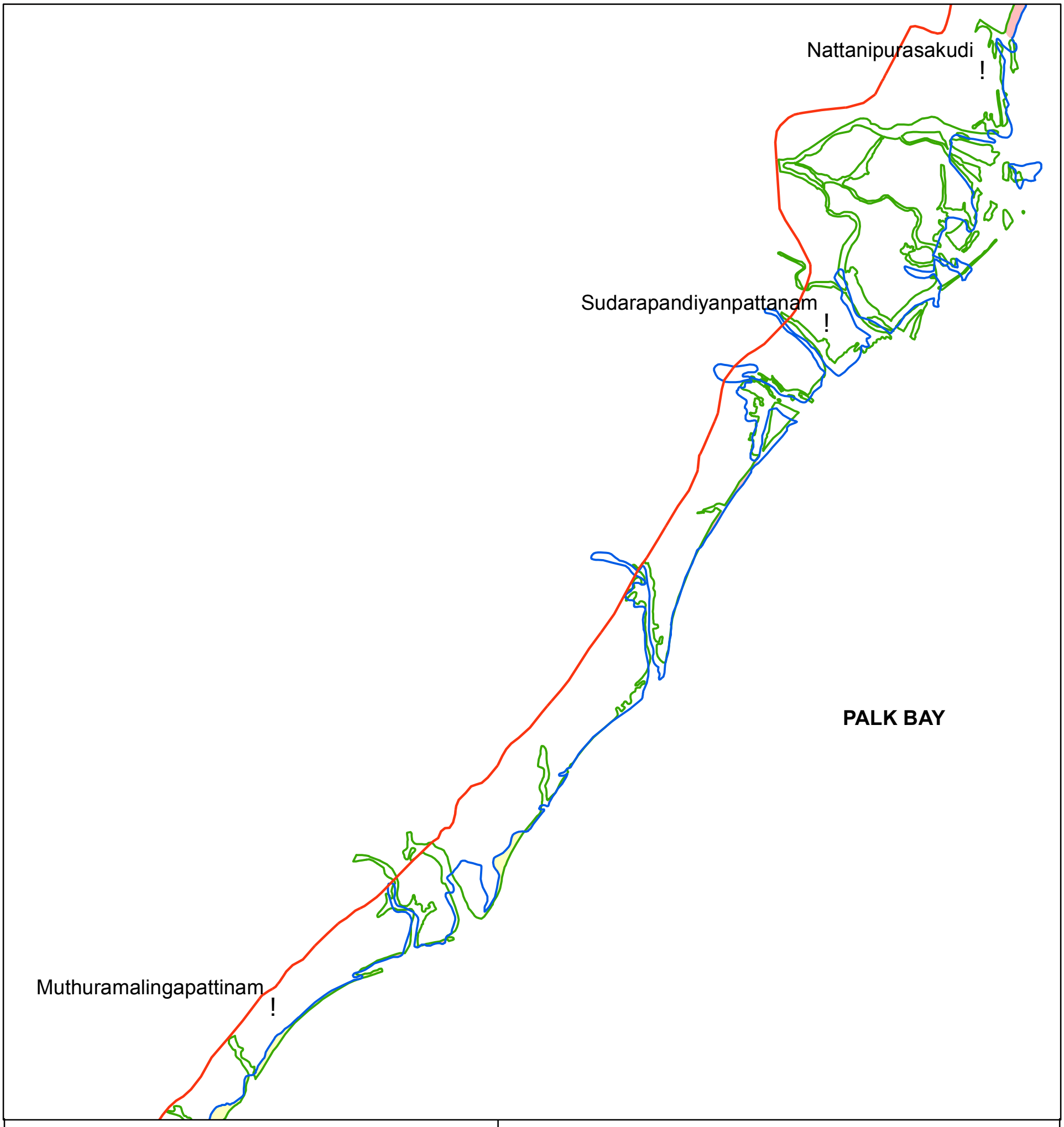
RAMANATHAPURAM AND PUDUKKOTAI DISTRICT

SHEET NO. 58O01SW



Legend

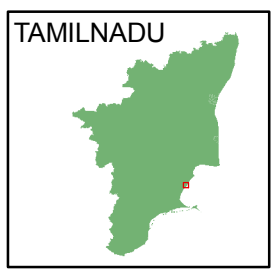
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K13 NE	58O01 NW	58O01 NE
58K13 SE		58H12 SE
58K14 NE	58O02 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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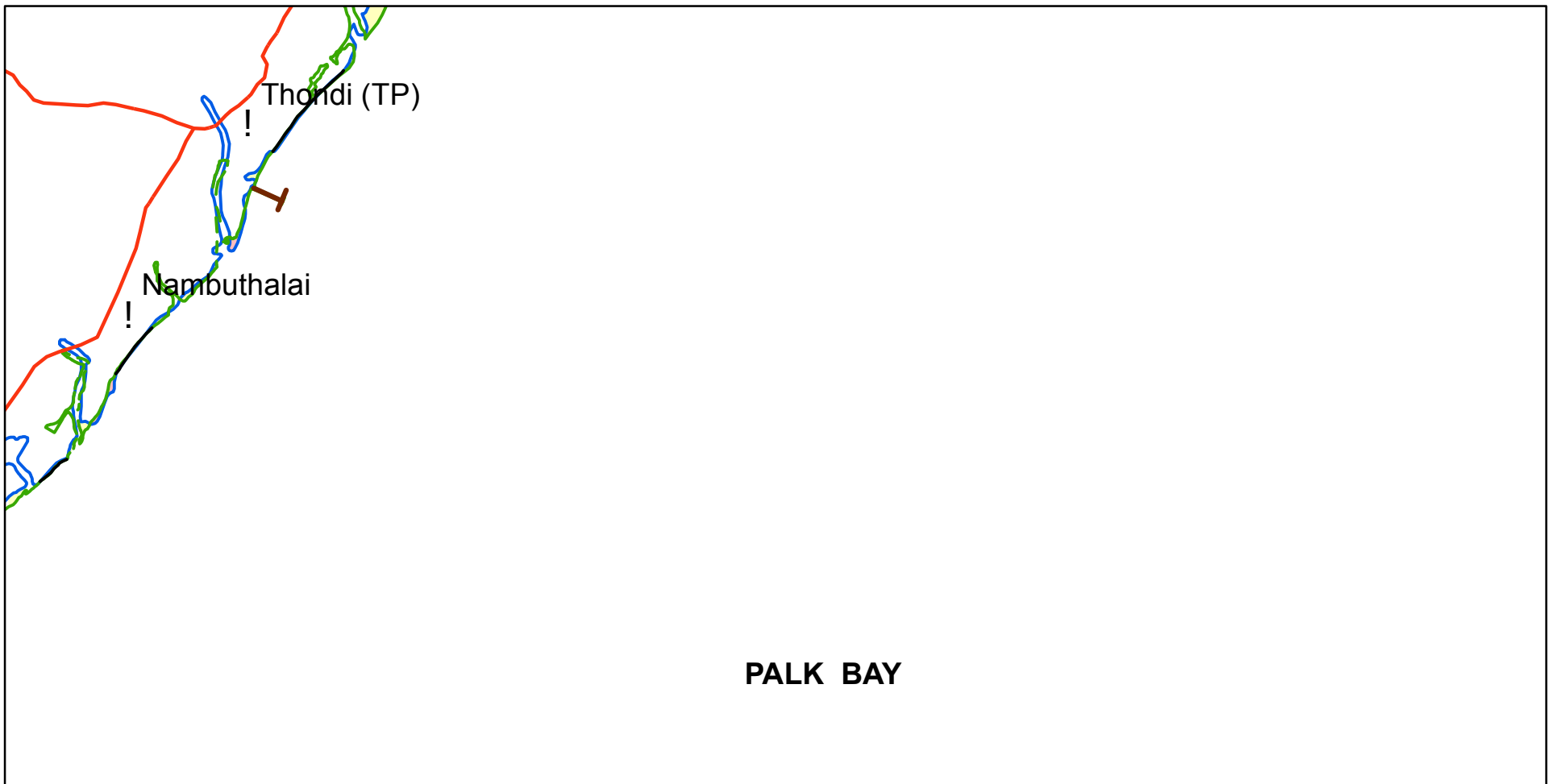
RAMANATHAPURAM DISTRICT

SHEET NO. 58O02NW



Legend

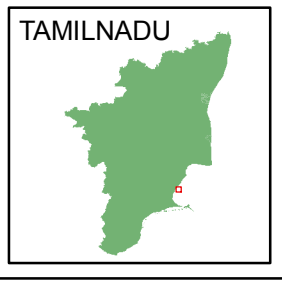
- EROSION
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- JETTY

0 2

Scale in Km

INDEX TO SHEETS

58K13 SE	58O01 SW	SEA
58K14 NE		SEA
58K14 SE	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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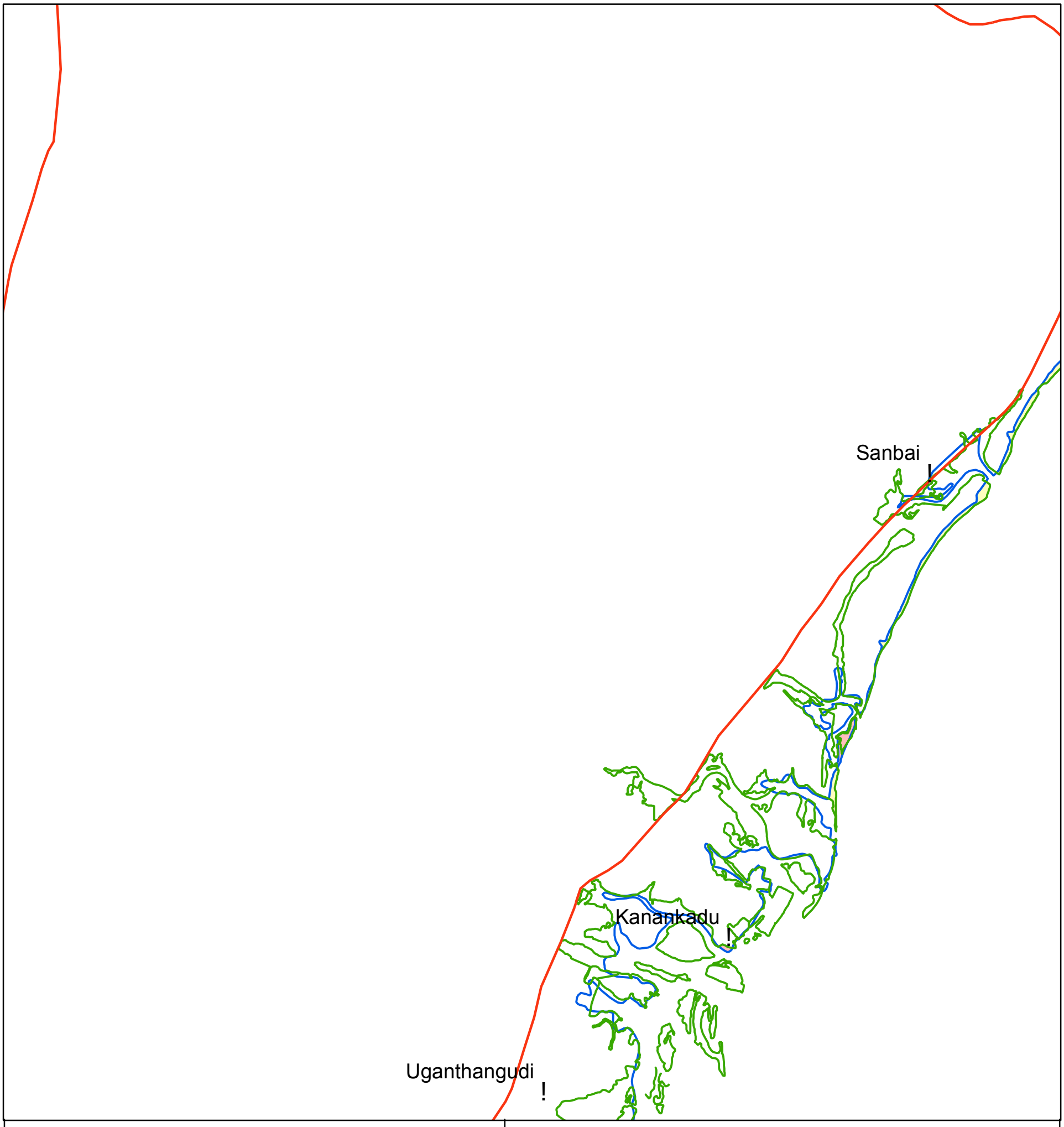
RAMANATHAPURAM DISTRICT

SHEET NO. 58K14NE



Legend

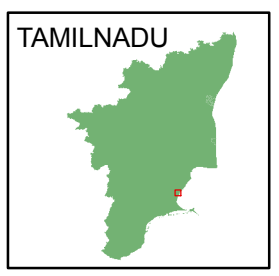
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K13 SW	58K13 SE	58O01 SW
58K14 NW		58O02 NW
58K14 SW	58K14 SE	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

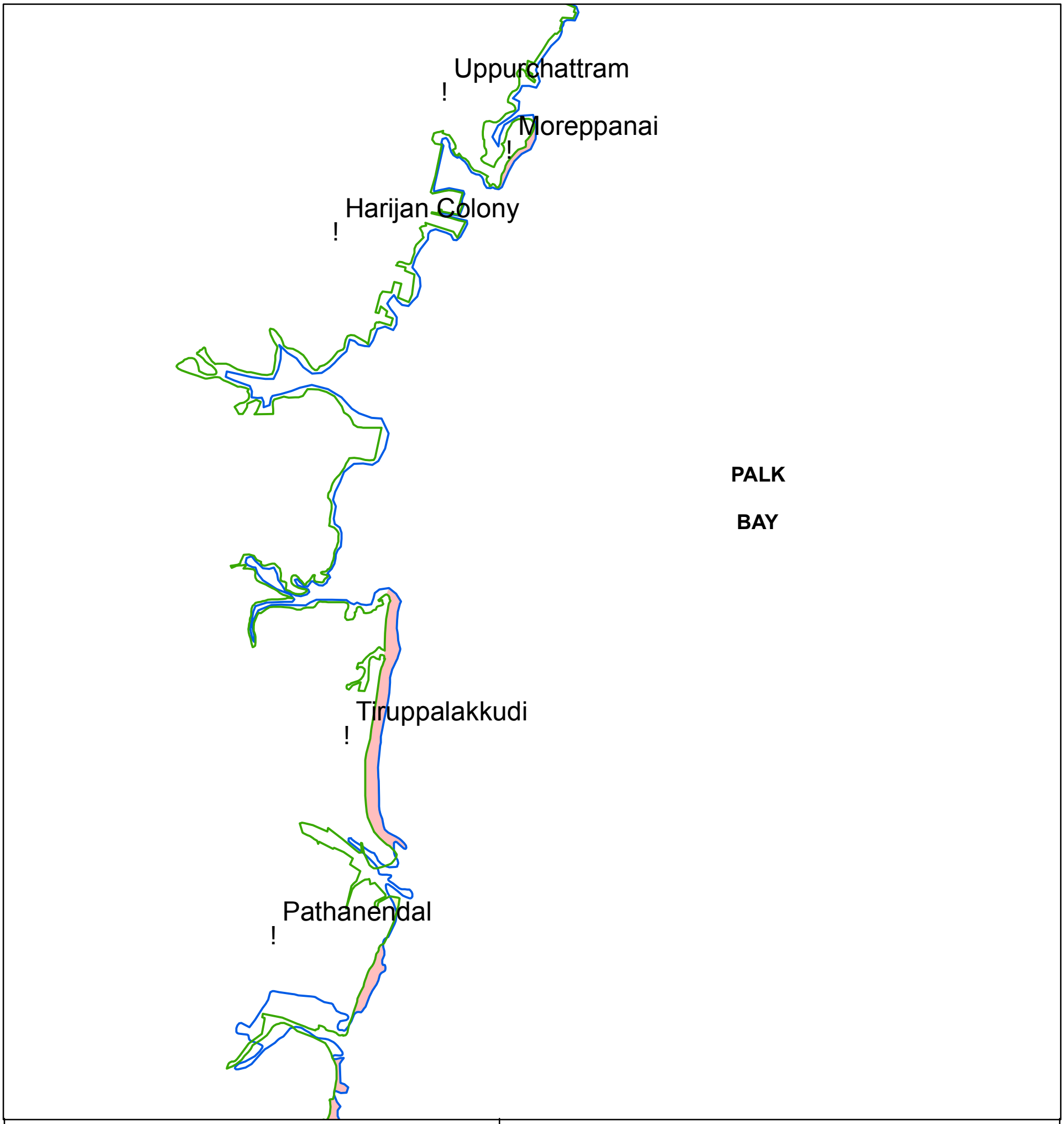
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

RAMANATHAPURAM DISTRICT

SHEET NO. 58K14SE



Legend

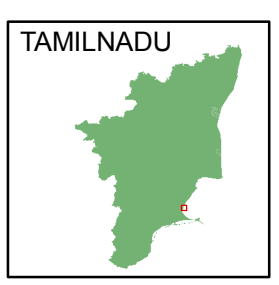
- EROSION
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K14 NE	58K14 NW	SEA
SEA		SEA
58K15 NW	58K15 NE	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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RAMANATHAPURAM DISTRICT

SHEET NO. 58K15NE

Kalanitkudi

Gandhinagarm

Ilandaikuttam

PALK

BAY

Chorantoppu

Legend

- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K14 SW	58K14 SE	SEA
58K15 NW		SEA
58K15 SW	58K15 SE	58O03 SW

INDIA

TAMILNADU

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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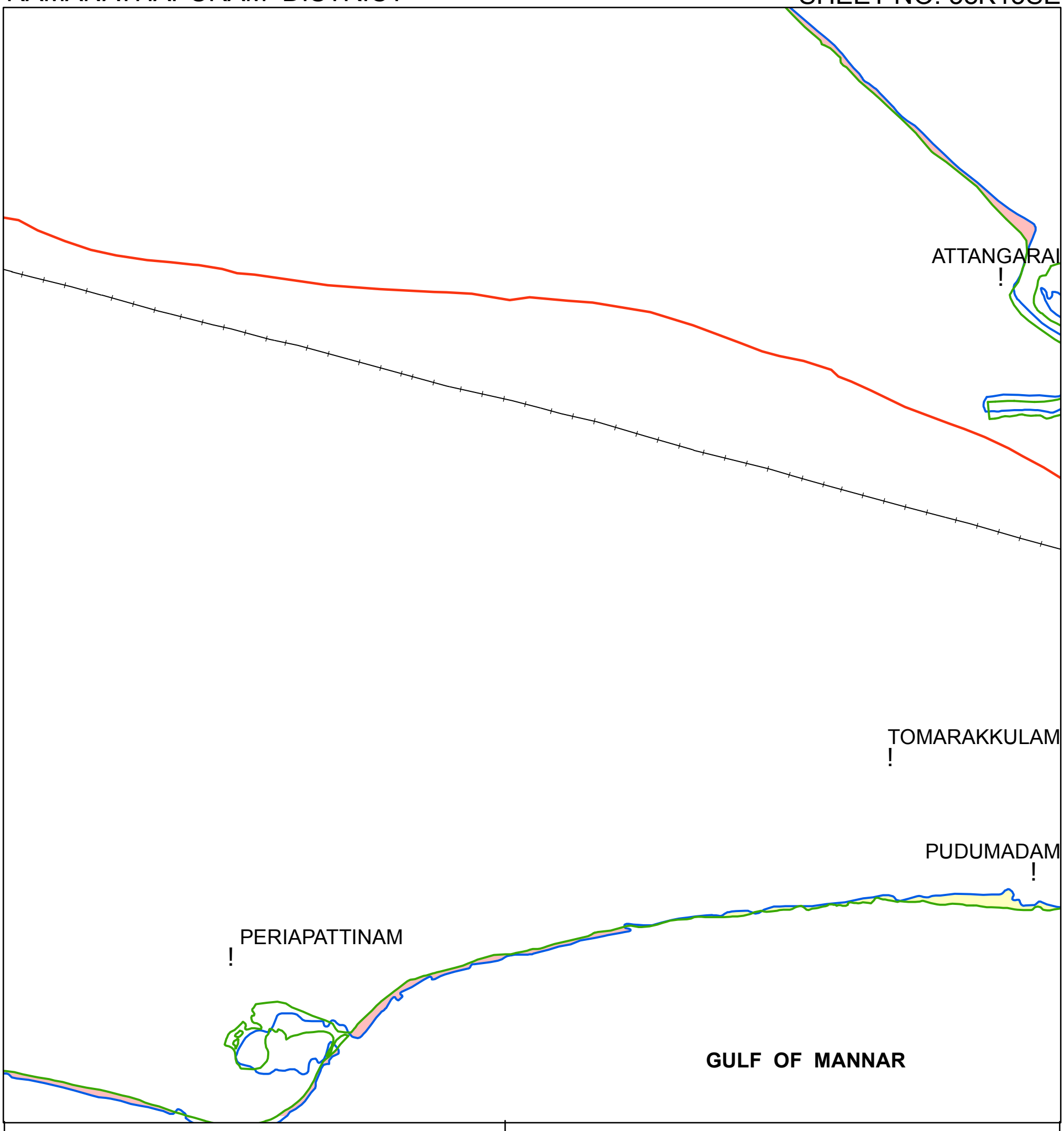
RAMANATHAPURAM DISTRICT

SHEET NO. 58K15SE



Legend

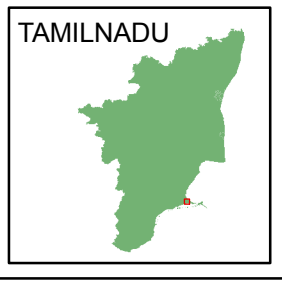
- EROSION
- ACCRETION
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K15 NW	58K15 NE	58O03 NW
58K15 SW		58O03 SW
58K16 NW	58K16 NE	58O04 NW



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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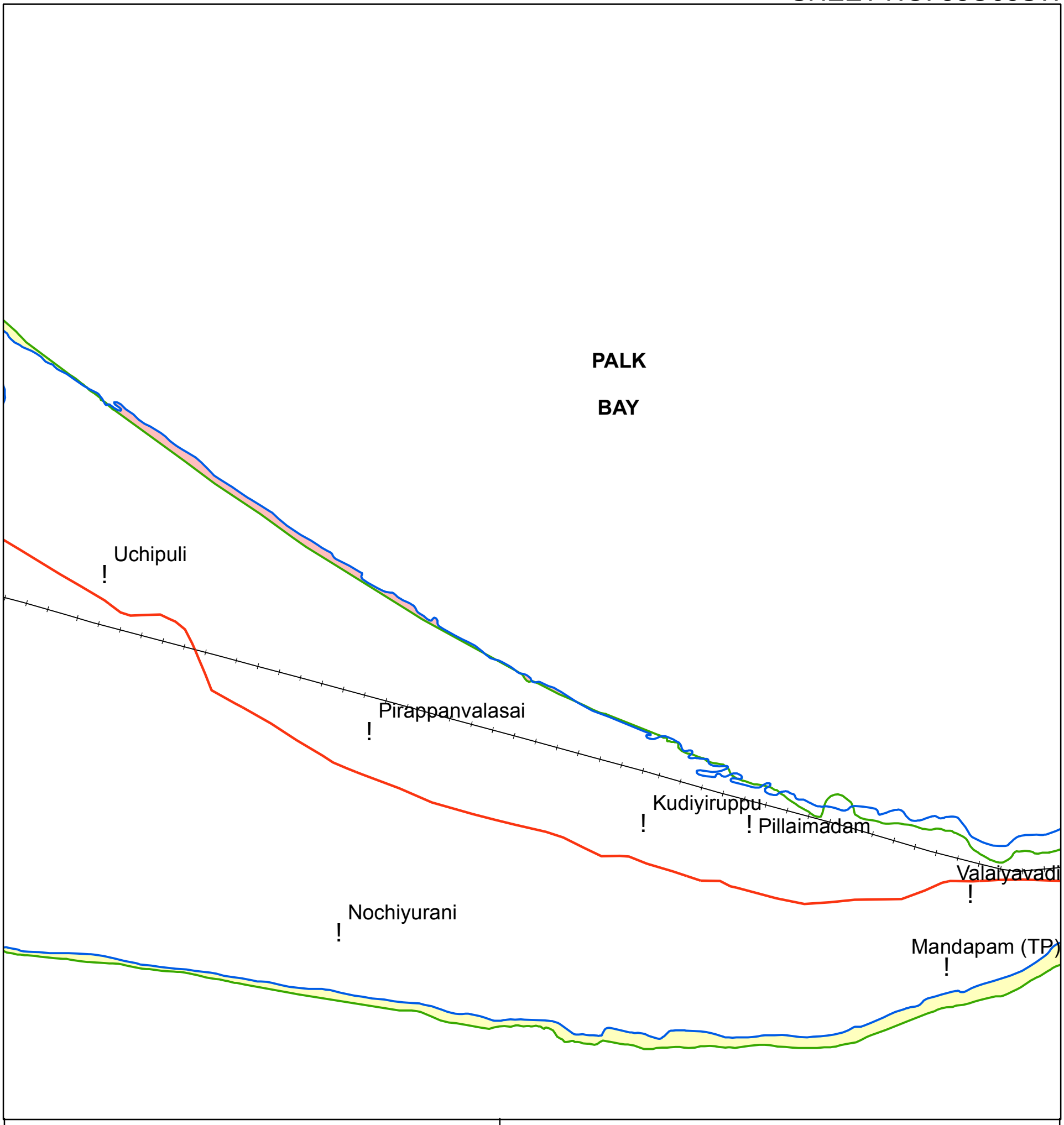
RAMANATHAPURAM DISTRICT

SHEET NO. 58O03SW



Legend

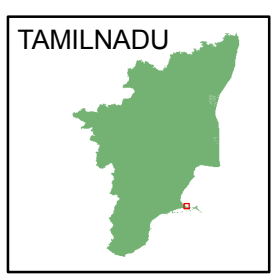
- EROSION
- ACCRETION
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K15 NE	58O03 NW	58O03 NE
58K15 SE		58O03 SE
58K16 NE	58O04 NW	58O04 NE



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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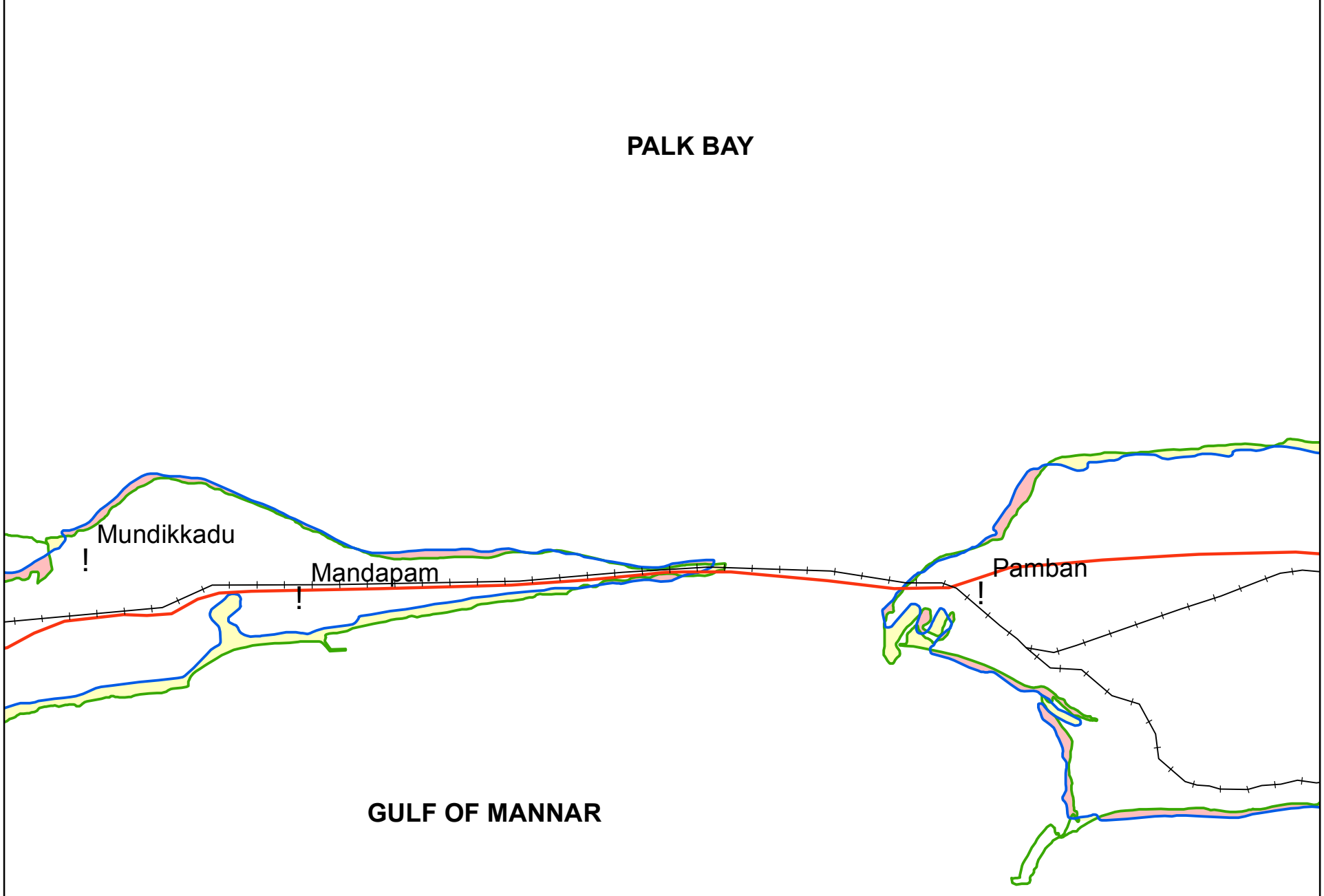
RAMANATHAPURAM DISTRICT

SHEET NO. 58O03SE



Legend

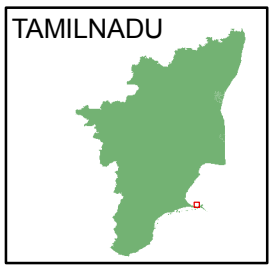
- EROSION
- ACCRETION
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

SEA	SEA	SEA
58O03 SW		58O07 SW
58O04 NW	58O04 NE	58O08 NW



DATA SOURCE:
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SHORELINE CHANGE MAP

TAMILNADU

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RAMANATHAPURAM DISTRICT

SHEET NO. 58O07SW

PALK BAY

Vadakadu

Sumumai

Ganansmanayarvalasai

Rameswaram

Ramaknthanam

Legend

- EROSION
- ACCRETION
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

SEA	SEA	SEA
58O03 SE		SEA
58O04 NE	58O08 NW	58O08 NE

INDIA

TAMILNADU

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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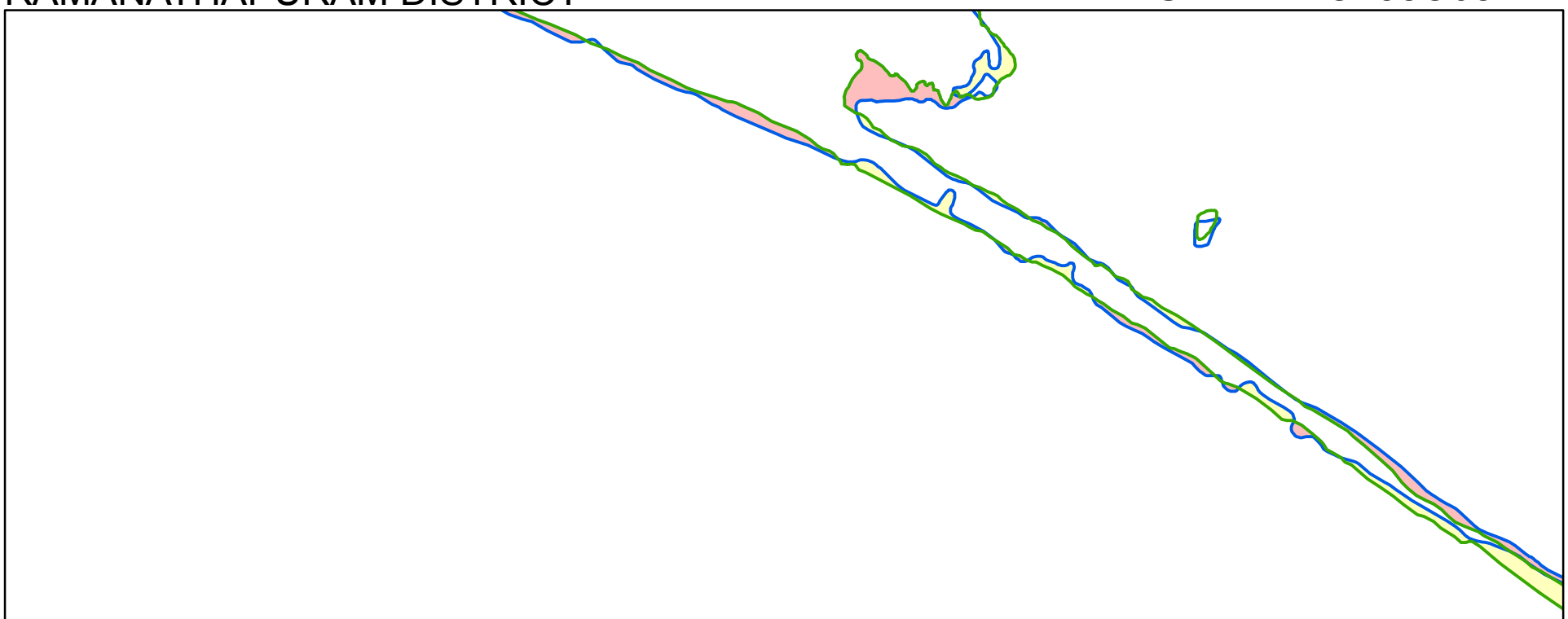
RAMANATHAPURAM DISTRICT

SHEET NO. 58O08NW



GULF

OF

MANNAR

Legend

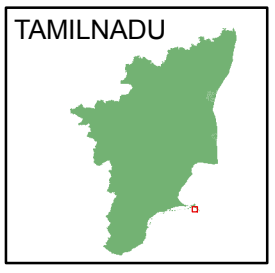
- EROSION
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91

0 2

Scale in Km

INDEX TO SHEETS

58O03 SE	58O07 SW	SEA
58O04 NE		58O08 NE
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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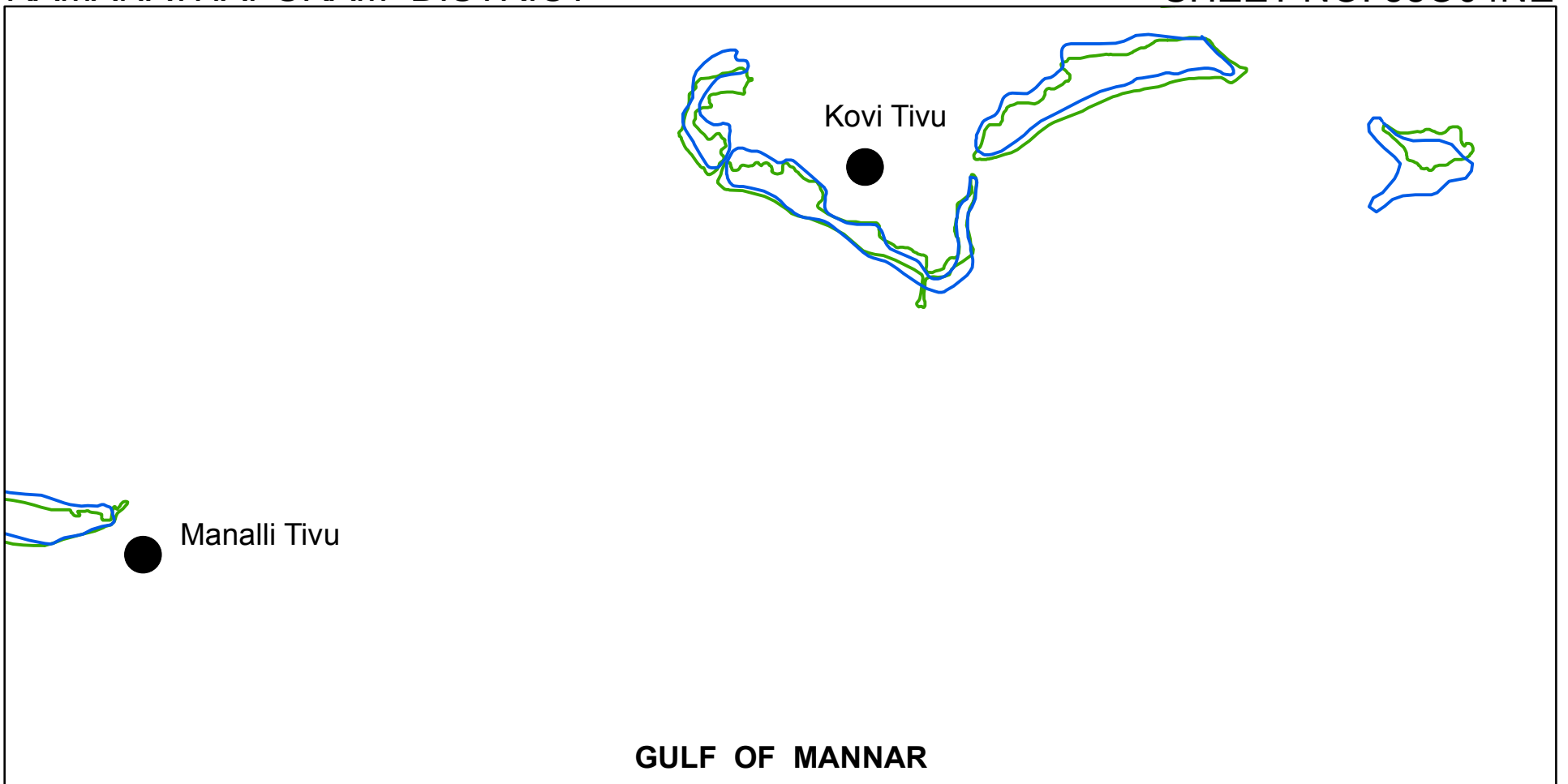
RAMANATHAPURAM DISTRICT

SHEET NO. 58O04NE



Legend

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

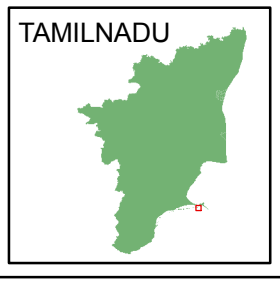
! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58O03 SW	58O03 SE	58O07 SW
58O04 NW		58O08 NW
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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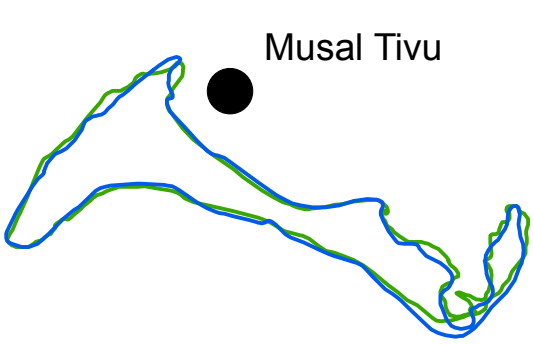
RAMANATHAPURAM DISTRICT

SHEET NO. 58O04NW



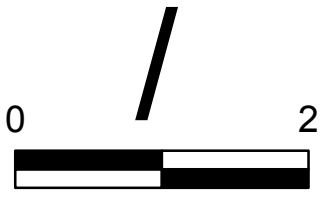
GULF OF MANNAR

Legend

HIGH-TIDE LINE 2004-06

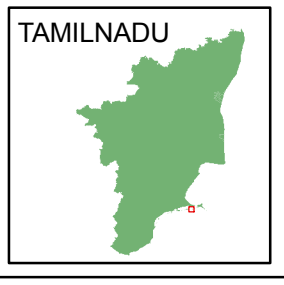
HIGH-TIDE LINE 1989-91

! HABITATION



INDEX TO SHEETS

58K15 SE	58O03 SW	58O03 SE
58K16 NE		58O04 NE
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

TAMILNADU

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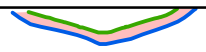
RAMANATHAPURAM DISTRICT

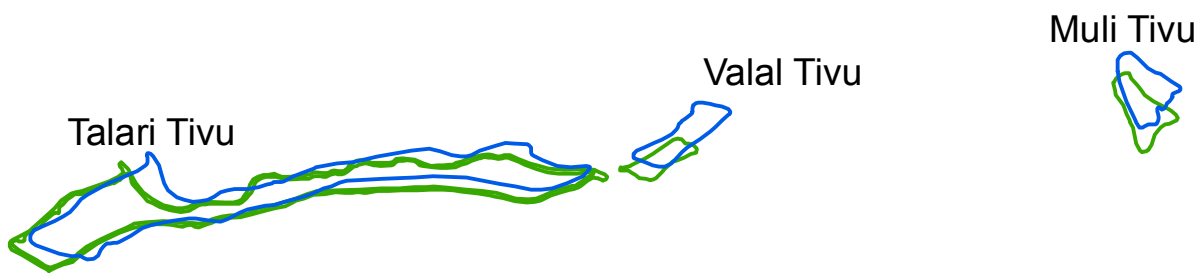
SHEET NO. 58K16NE



GULF

OF

MANNAR

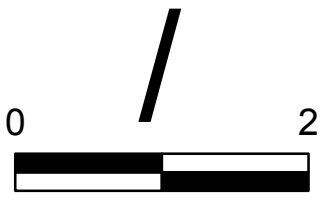


Legend

EROSION

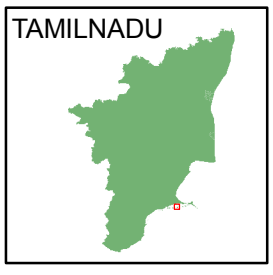
HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91



INDEX TO SHEETS

58K15 SW	58K15 SE	58O03 SW
58K16 NE		58O04 NW
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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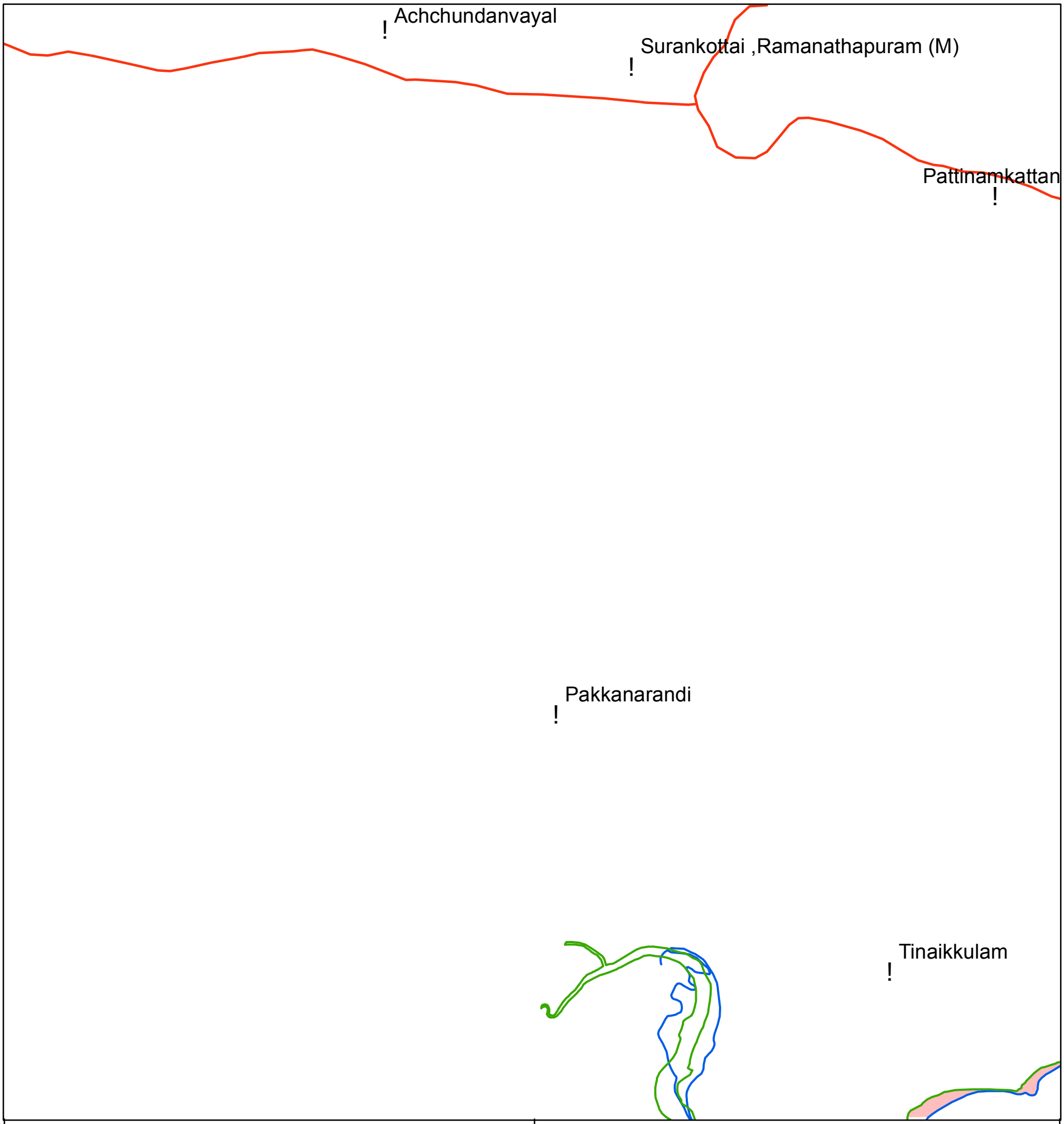
RAMANATHAPURAM DISTRICT

SHEET NO. 58K15SW



Legend

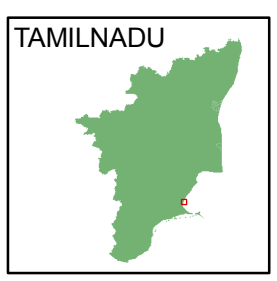
- EROSION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K11 NE	58K15 NW	58K15 NE
58K11 SE		58K15 SE
58K12 NE	58K16 NW	58K16 NE



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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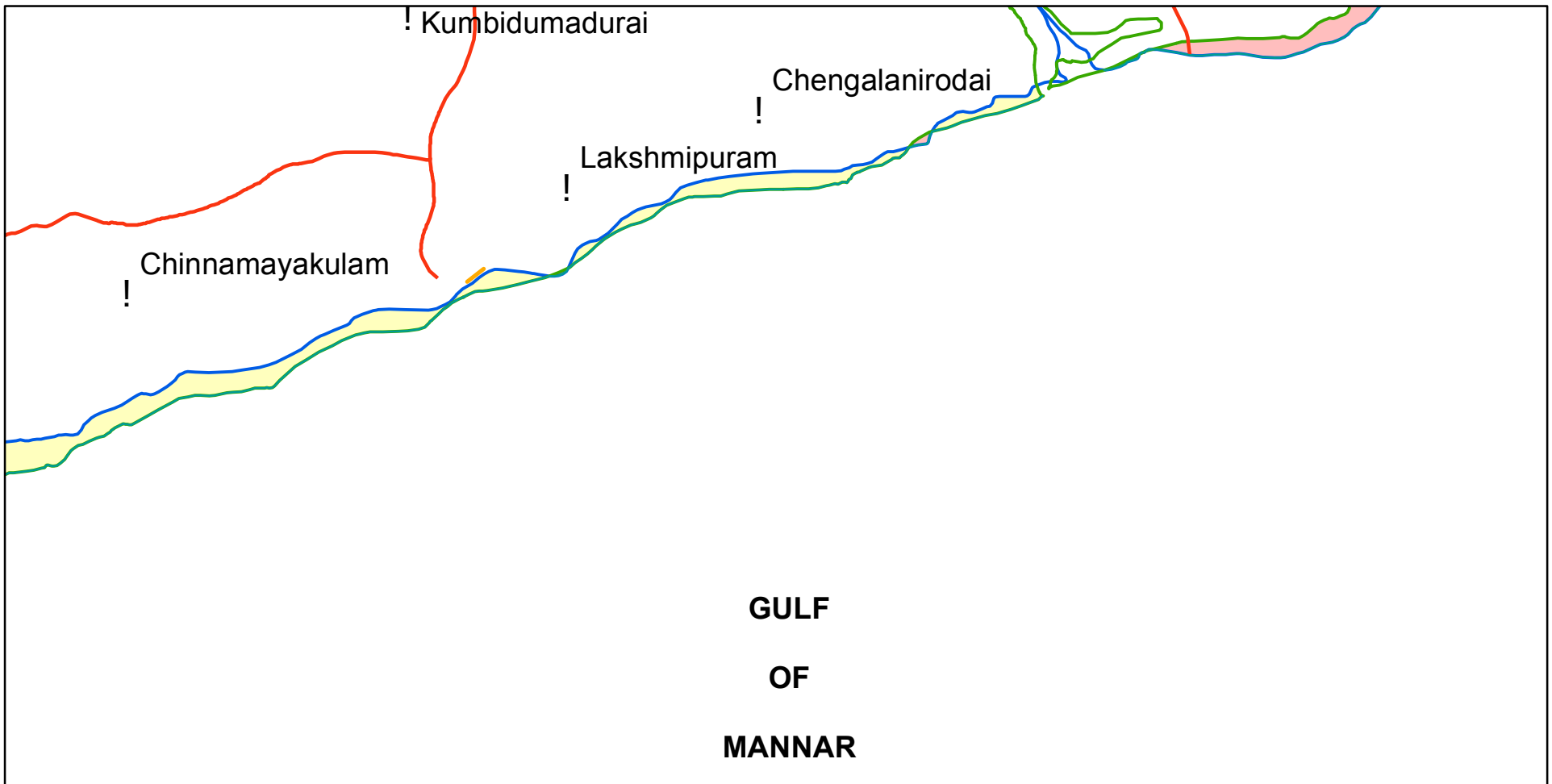
RAMANATHAPURAM DISTRICT

SHEET NO. 58K16NW



Legend

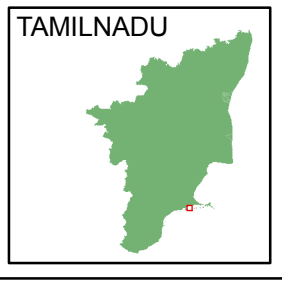
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

58K11 SE	58K15 SW	58K15 SE
58K12 NE		58K16 NE
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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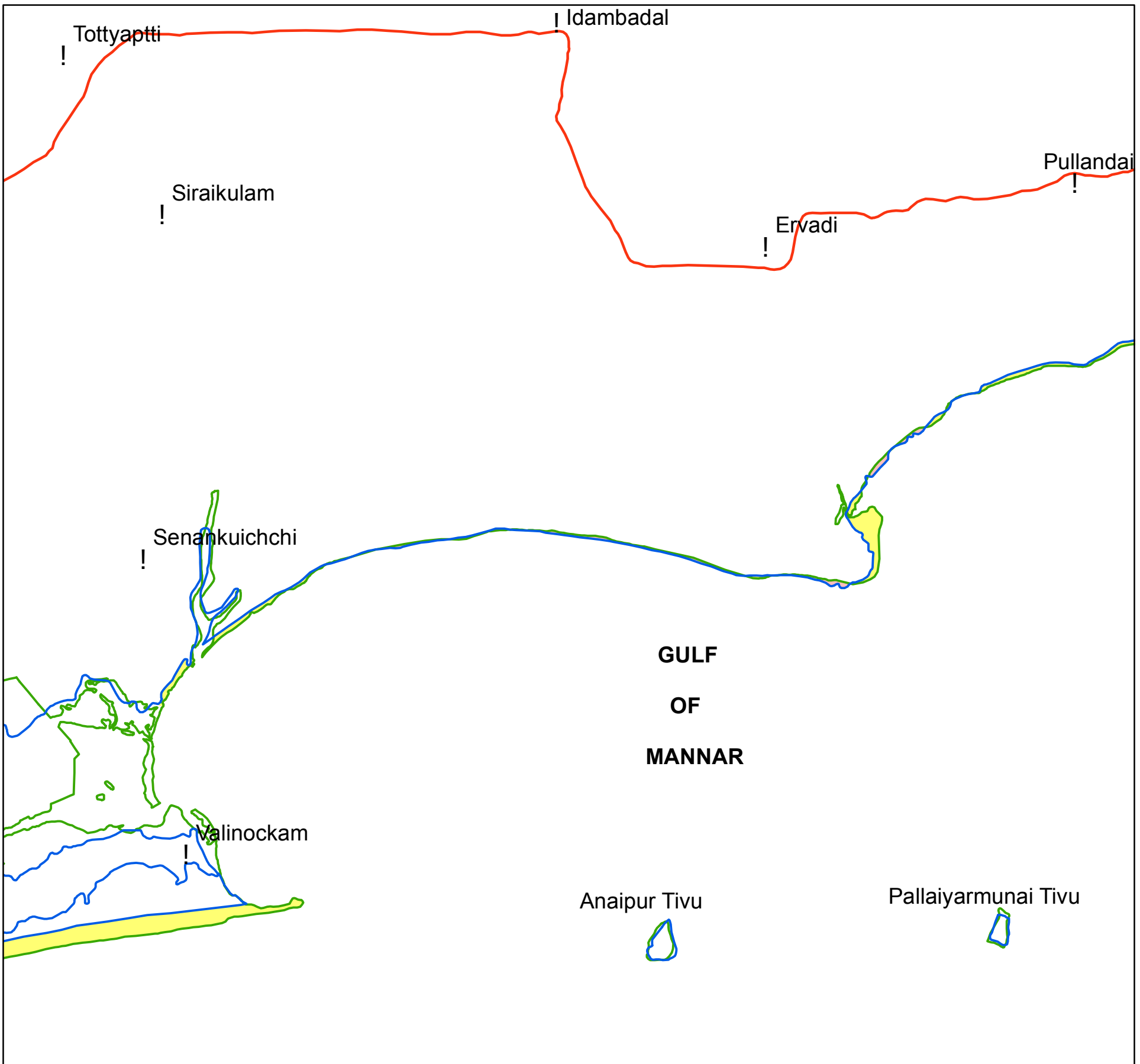
RAMANATHAPURAM DISTRICT

SHEET NO. 58K12NE



Legend

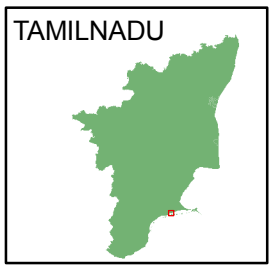
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K11 SW	58K11 SE	58K15 SW
58K12 NW		58K16 NW
58K12 SW	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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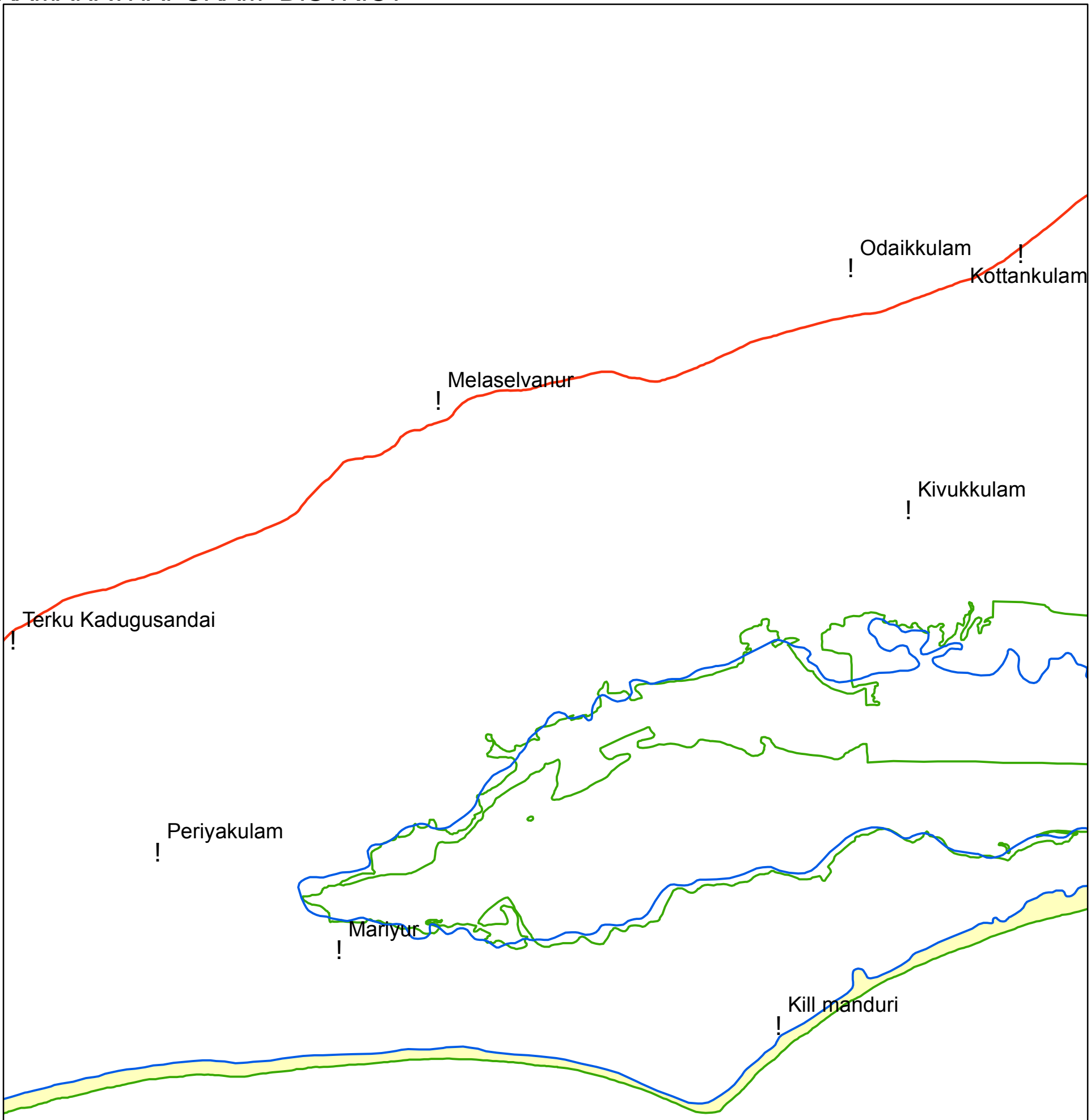
RAMANATHAPURAM DISTRICT

SHEET NO. 58K12NW



Legend

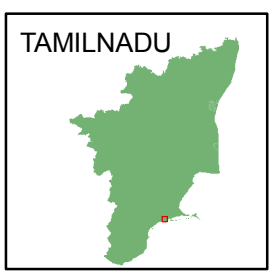
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K07 SE	58K11 SW	58K11 SE
58K08 NE		58K12 NE
58K08 SE	58K12 SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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RAMANATHAPURAM DISTRICT

SHEET NO. 58K12SW

GULF

OF

MANNAR

Legend

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

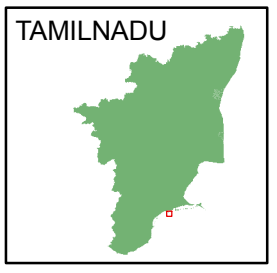
! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K08 NE	58K12 NW	58K12 NE
58K08 SE		SEA
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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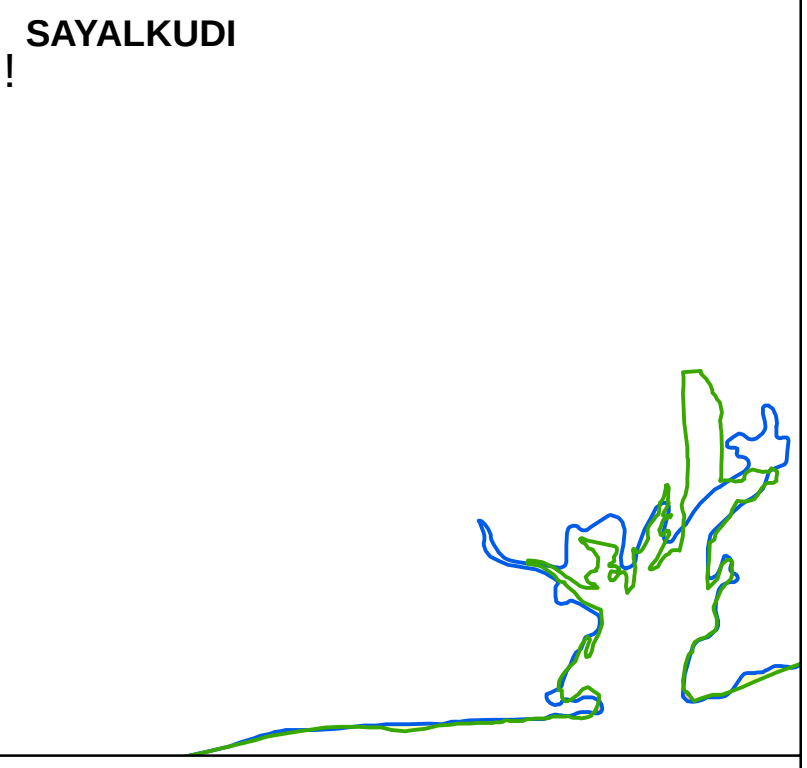
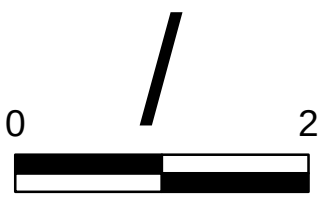
RAMANATHAPURAM DISTRICT

SHEET NO. 58K08NE



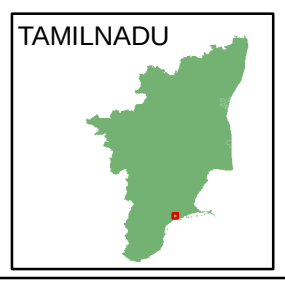
Legend

- EROSION
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION



INDEX TO SHEETS

58K07 SW	58K07 SE	58K11 SW
58K08 NW		58K12 NW
58K08 SW	58K08 SE	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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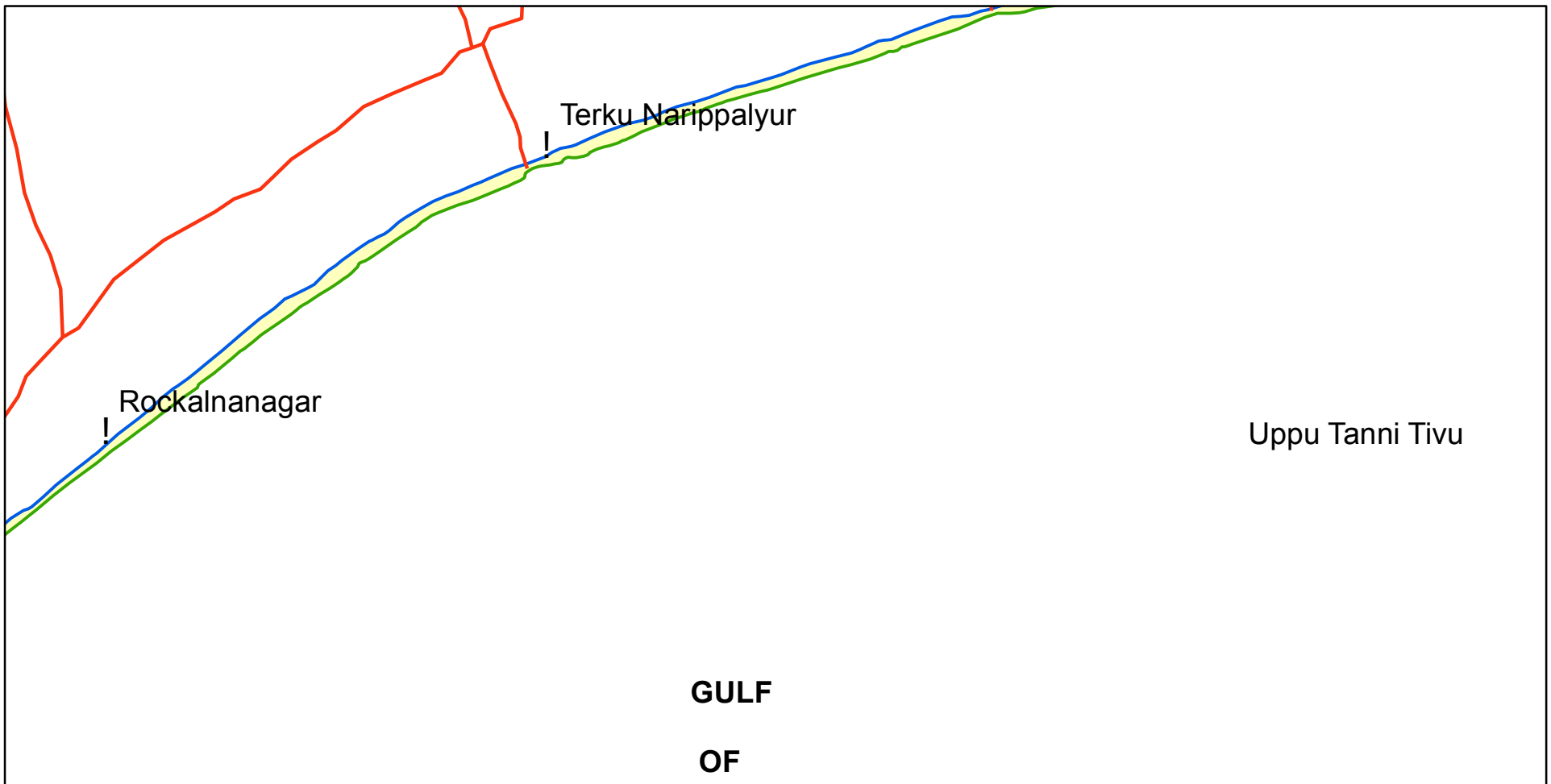
RAMANATHAPURAM DISTRICT

SHEET NO. 58K08SE



Legend

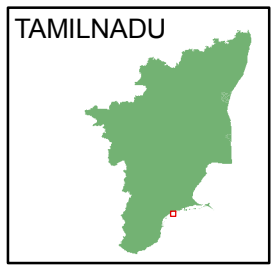
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K08 NW	58K08 NE	58K12 NW
58K08 SW		SEA
58L05 NW	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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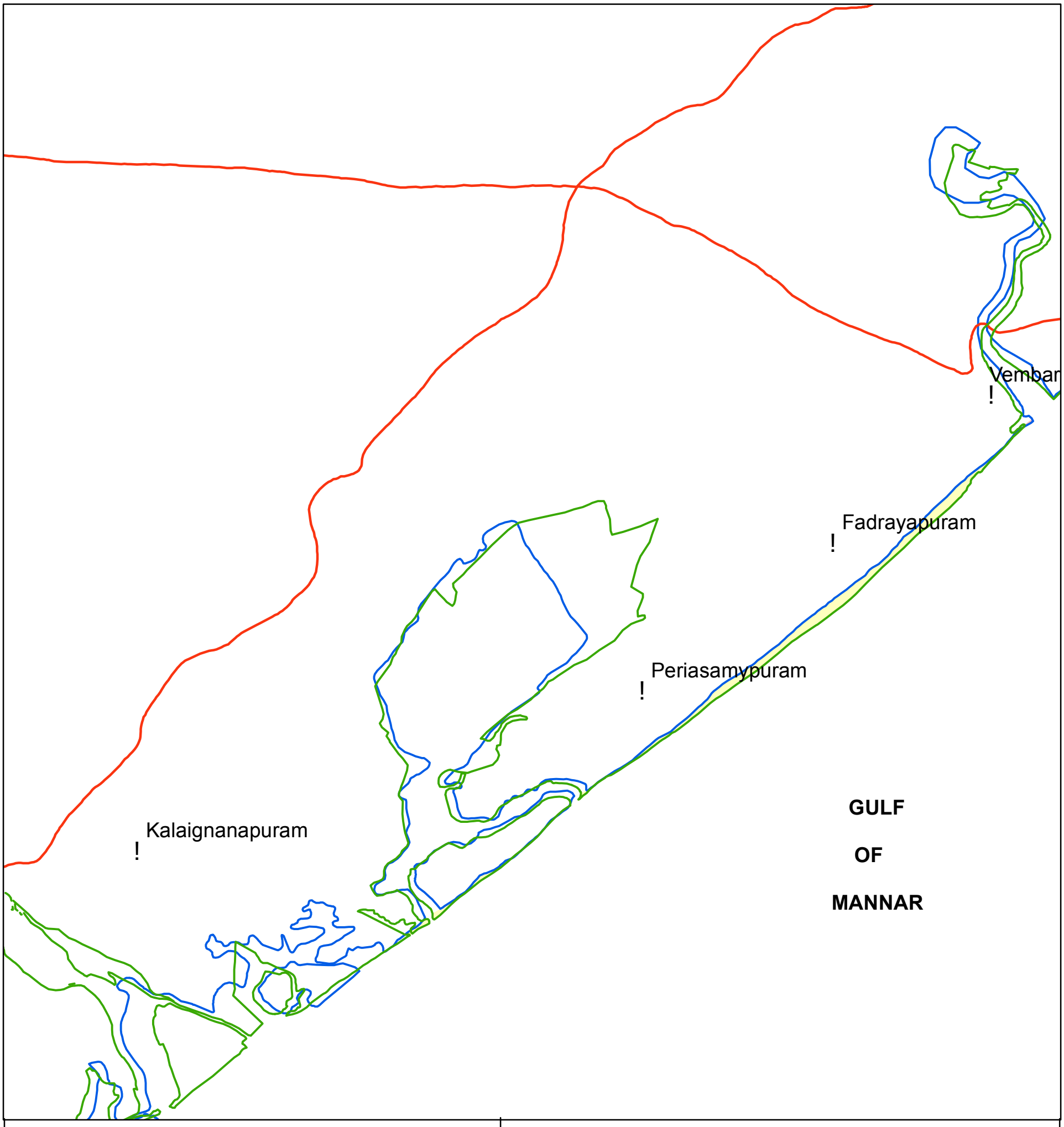
THOOTHUKKUDI DISTRICT

SHEET NO. 58K08SW



Legend

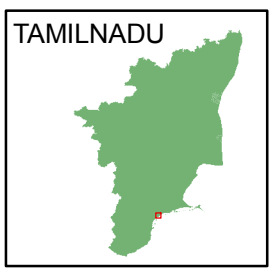
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K04 NE	58K08 NW	58N08 NE
58K04 SE		58K08 SE
58L01 NE	58L05 NW	58L05 NE



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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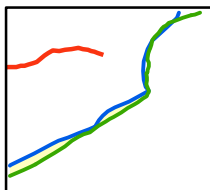
THOOTHUKKUDI DISTRICT

SHEET NO. 58L05NW



GULF

OF

MANNAR

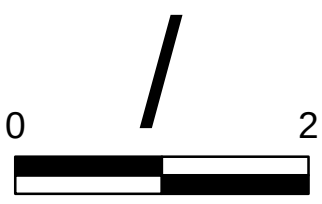
Legend

ACCRETION

ROAD

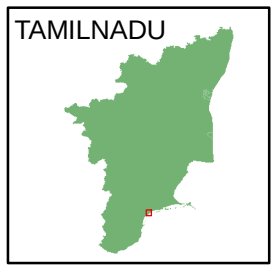
HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91



INDEX TO SHEETS

58K04 NE	58K08 NW	SEA
58K04 SE		SEA
58L01 NE	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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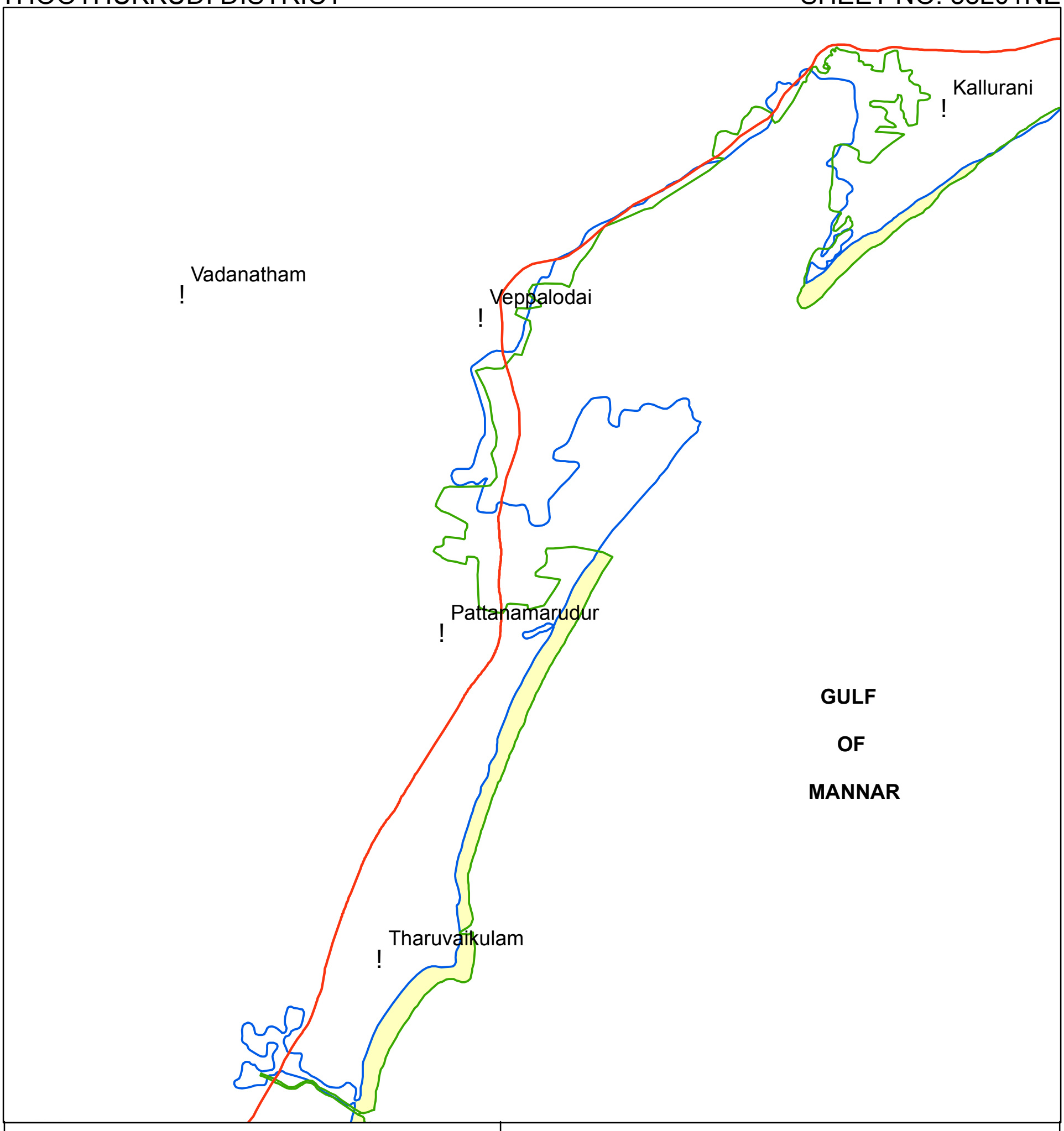
THOOTHUKKUDI DISTRICT

SHEET NO. 58L01NE



Legend

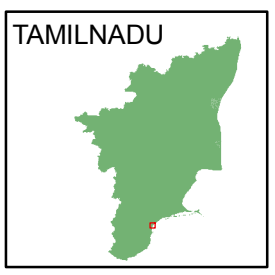
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58K04 SW	58K04 SE	58K08 SW
58L01 NW		58L05 NW
58L01 SW	58L01 SE	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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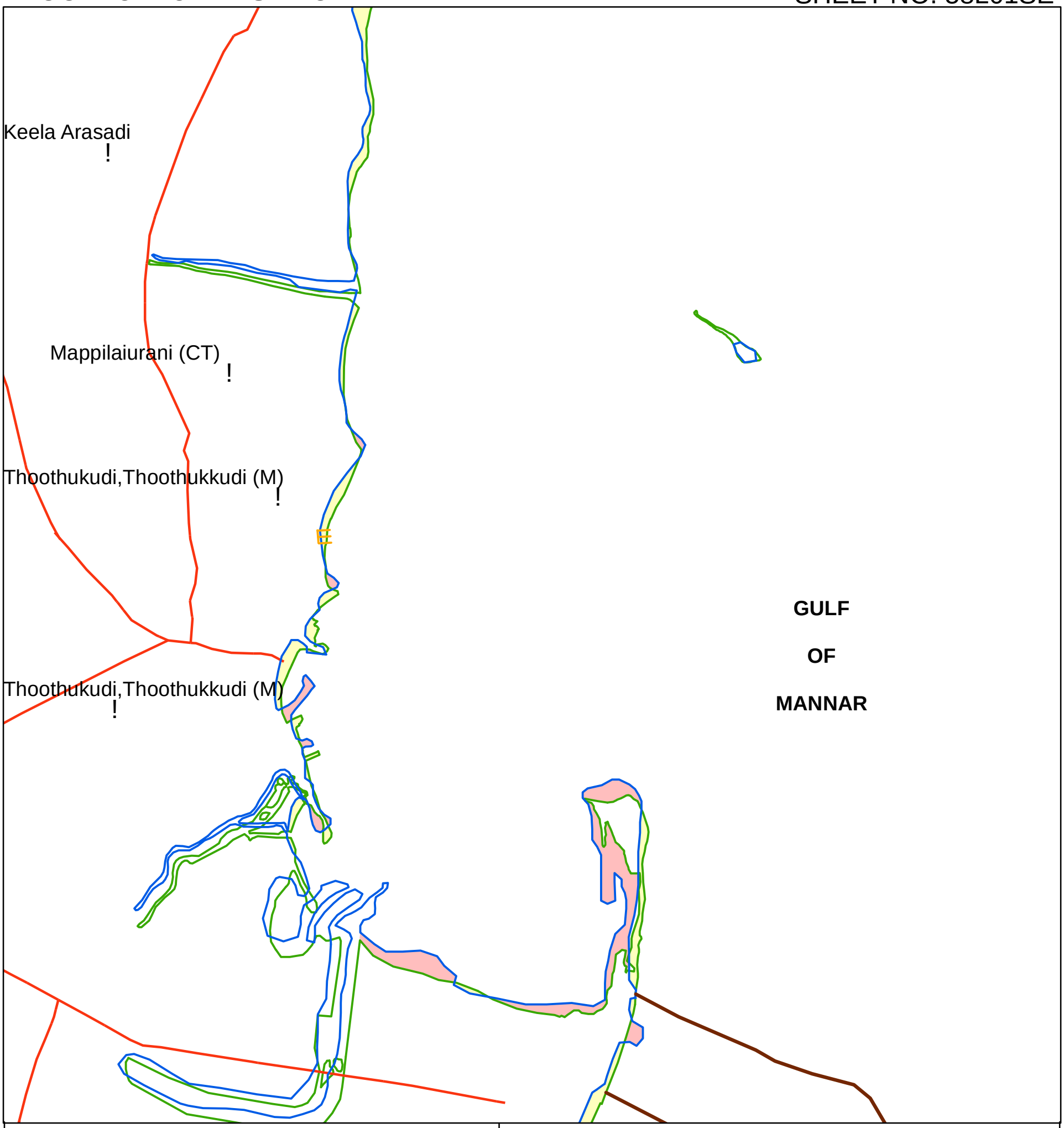
THOOTHUKKUDI DISTRICT

SHEET NO. 58L01SE



Legend

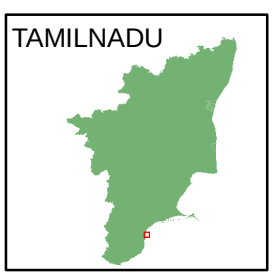
- EROSION
- ACCRETION
- ROAD
- JETTY
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- GROYNE

0 2

Scale in Km

INDEX TO SHEETS

58L01 NW	58L01 NE	SEA
58L01 SW		SEA
58L02 NW	58L02 NE	SEA



DATA SOURCE:
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SHORELINE CHANGE MAP

TAMILNADU

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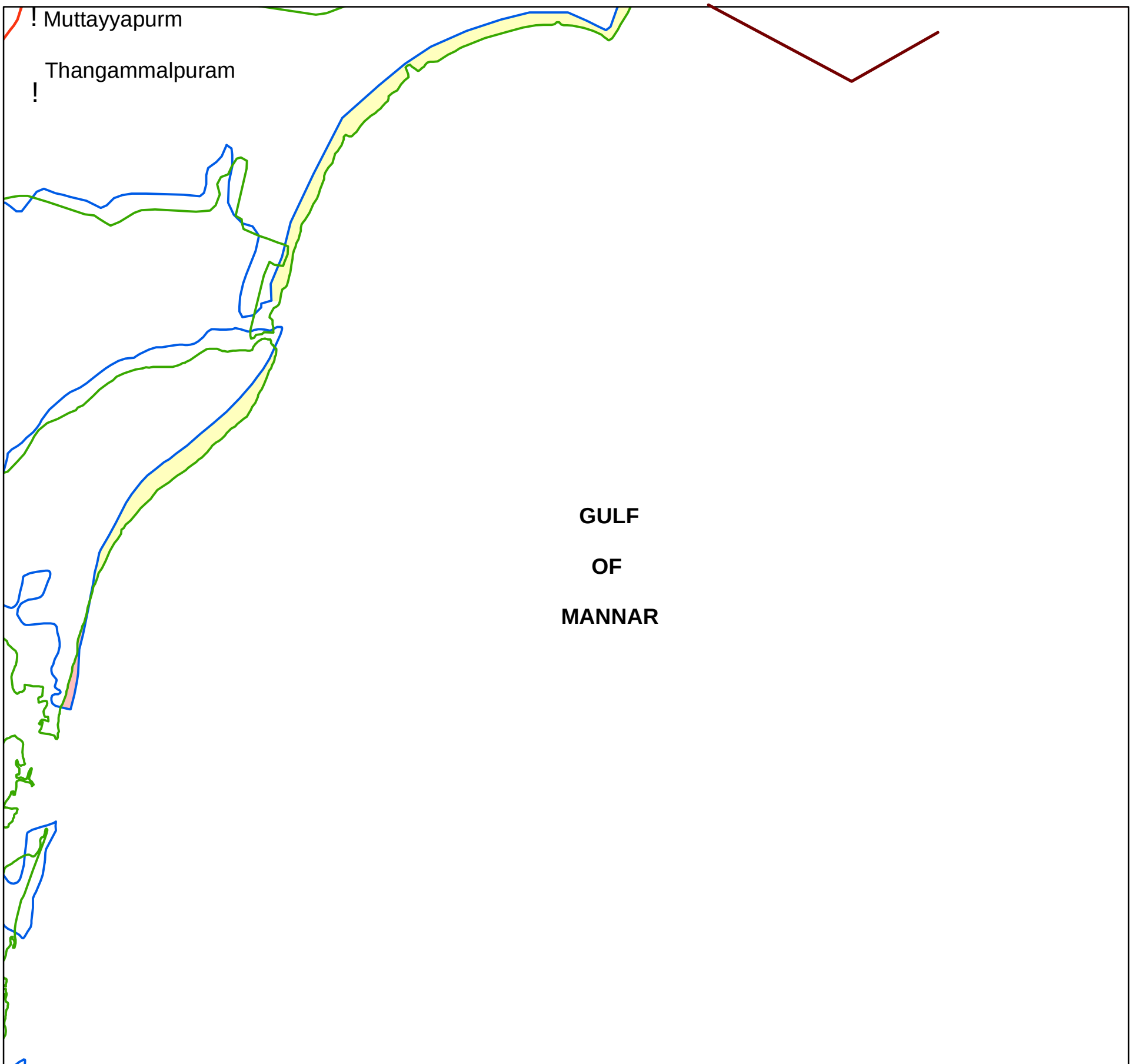
THOOTHUKKUDI DISTRICT

SHEET NO. 58L02NE



Legend

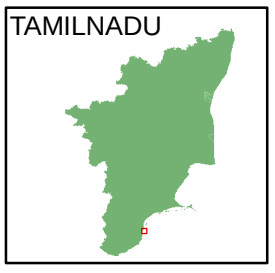
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- JETTY

0 2

Scale in Km

INDEX TO SHEETS

58L01 SW	58L01 SE	SEA
58L02 NW		SEA
58L02 SW	58L02 SE	SEA



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SHORELINE CHANGE MAP

TAMILNADU

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THOOTHUKKUDI DISTRICT

SHEET NO. 58L02NW

PUDUKKOTTAI

KUTTAMPULI

MULLAKKADU

PALAYAKAYAL

ARUMUGAMANGALAM

MUKKANI

Legend

- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58H13 SE	58L01 SW	58L01 SE
58H14 NE		58L02 NE
58H14 SE	58L02 SW	SEA

INDIA

TAMILNADU

DATA SOURCE:
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SHORELINE CHANGE MAP

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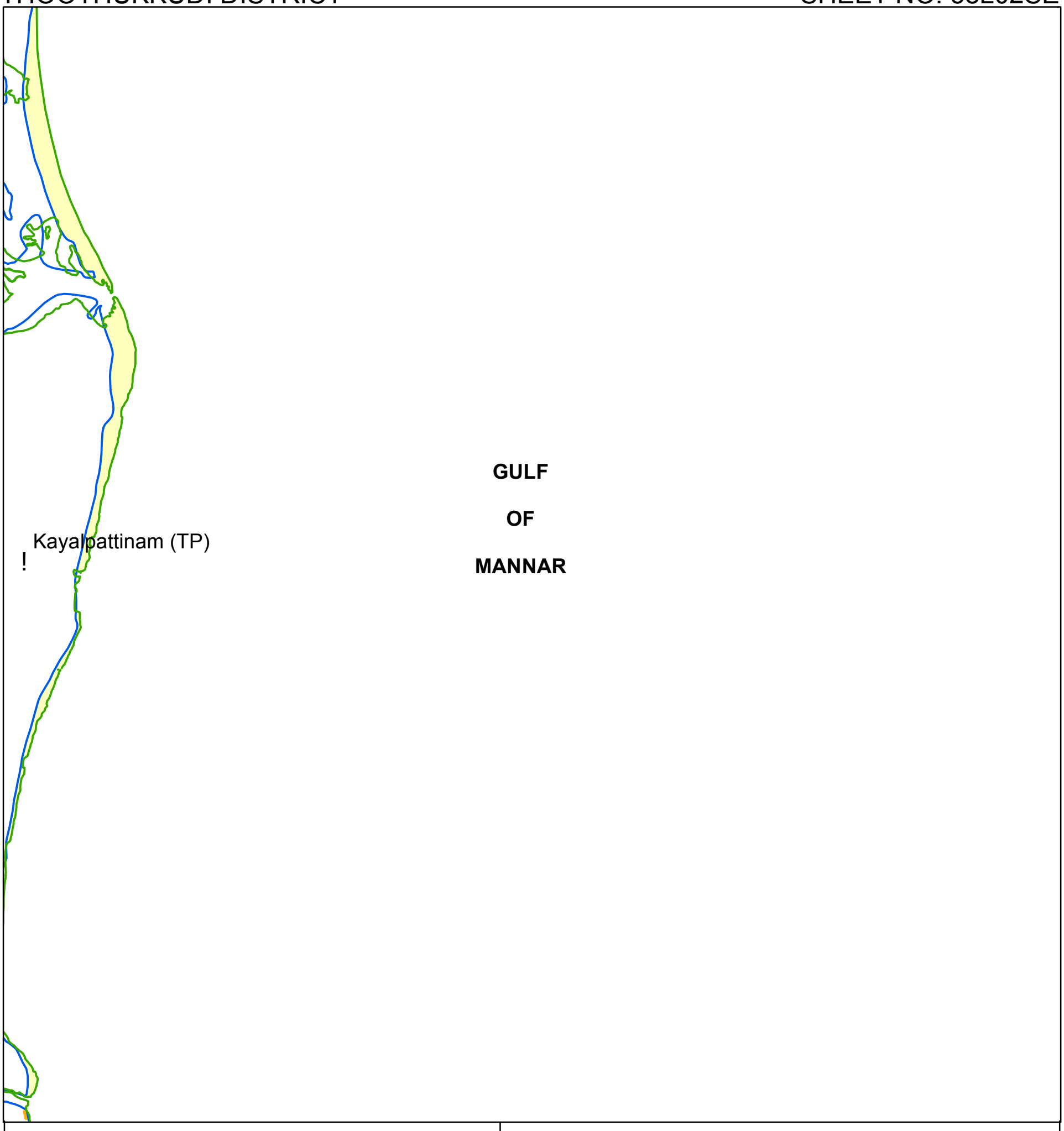
THOOTHUKKUDI DISTRICT

SHEET NO. 58L02SE



Legend

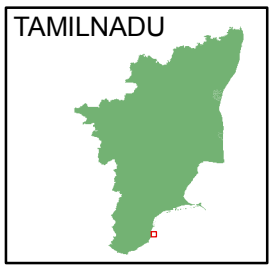
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

58L02 NW	58L02 NE	SEA
58L02 SW		SEA
58L03 NW	58L03 NE	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

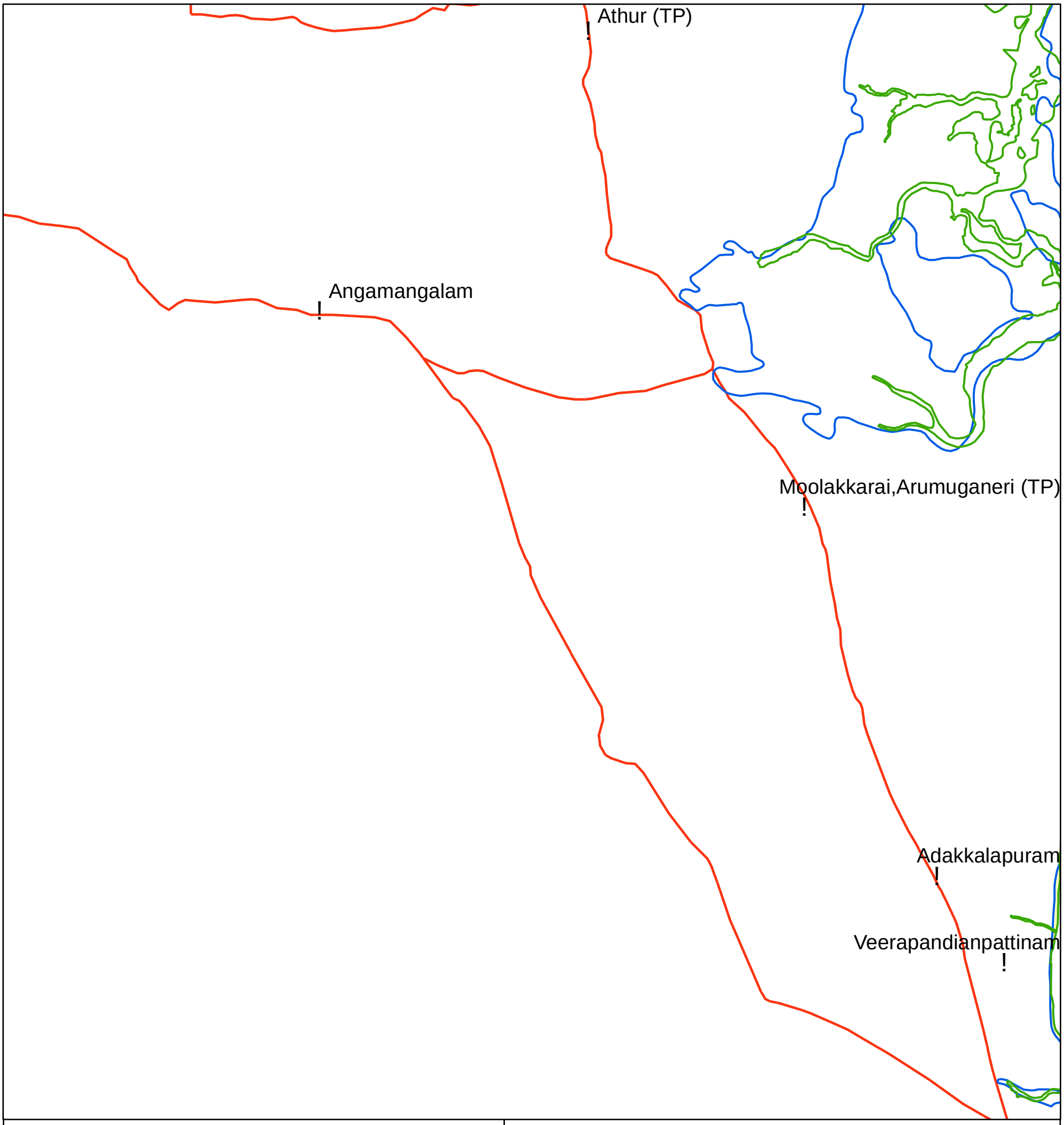
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

THOOTHUKKUDI DISTRICT

SHEET NO. 58L02SW



Legend

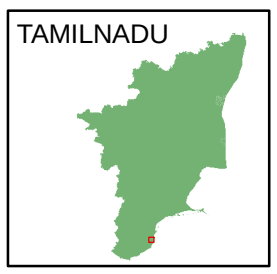
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58H14 NE	58L02 NW	58L02 NE
58H14 SE		58L02 SE
58H15 NE	58L03 NW	58L03 NE



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

THOOTHUKKUDI DISTRICT

SHEET NO. 58L03NE

! TIRUCHHENDUR

GULF

OF

MANNAR

Legend

EROSION

ACCRETION

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

! HABITATION

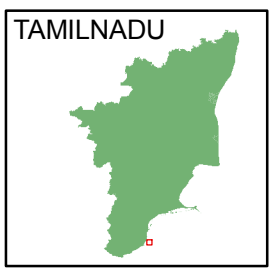
SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

58L02 SW	58L02 SE	SEA
58L03 NW		SEA
58L03 SW	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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SHORELINE CHANGE MAP

TAMILNADU

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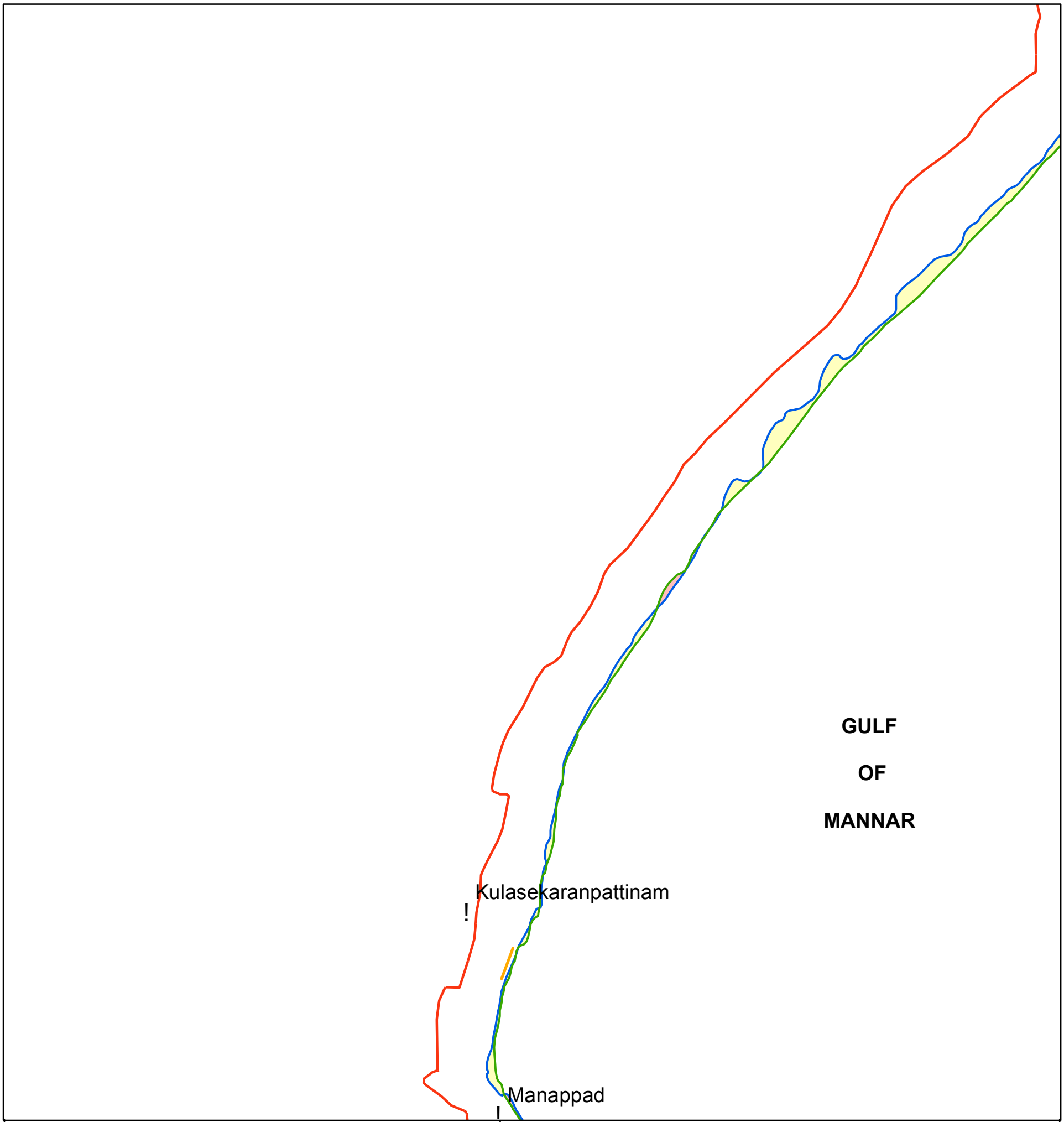
THOOTHUKKUDI DISTRICT

SHEET NO. 58L03NW



Legend

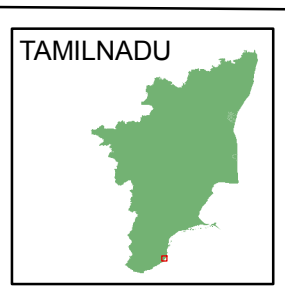
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

58H14 SE	58L02 SW	58L02 SE
58H15 NE		58L03 NE
58H15 SE	58L03 SW	58L03 SE



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

TAMILNADU

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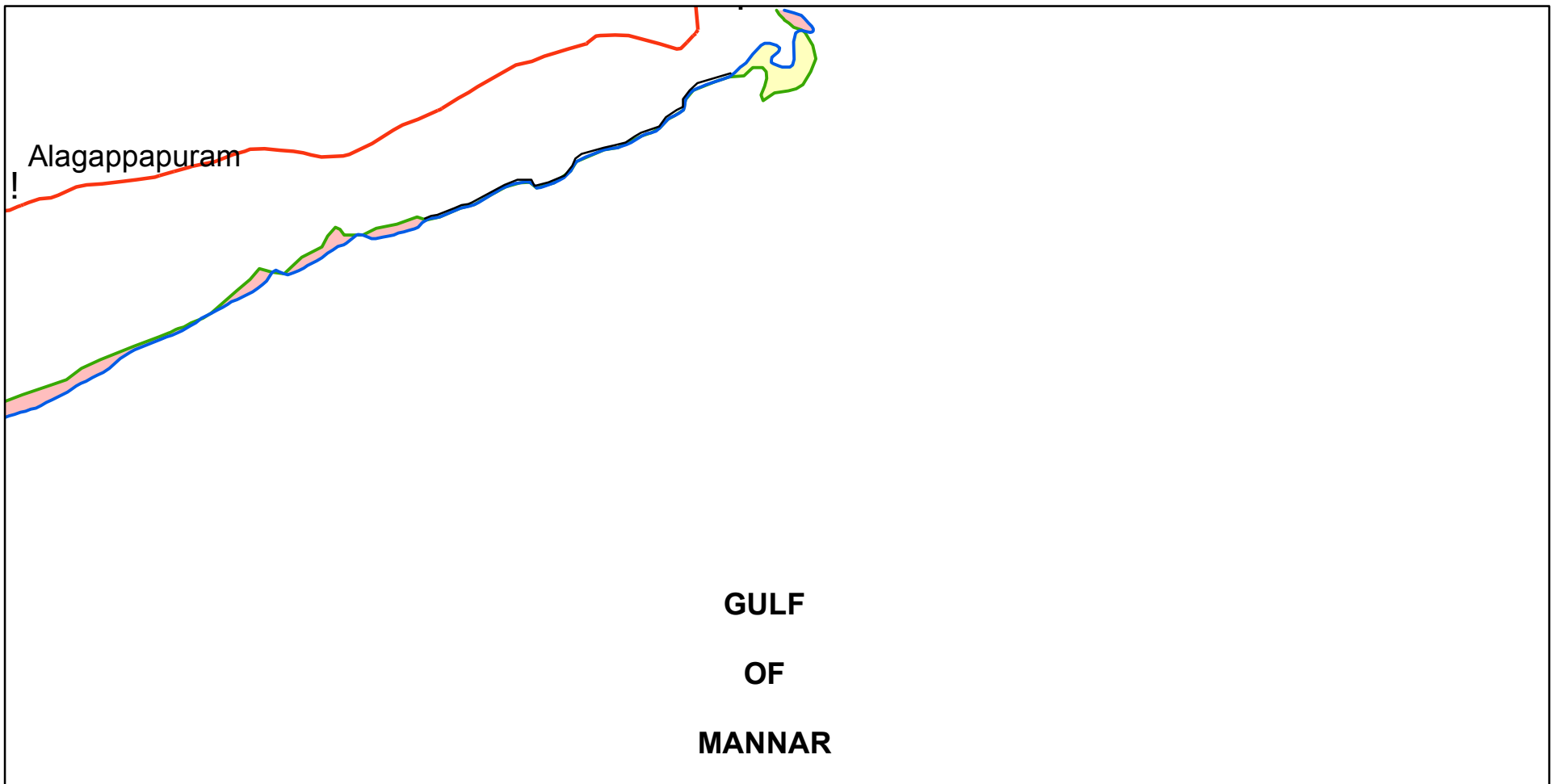
THOOTHUKKUDI DISTRICT

SHEET NO. 58L03SW



Legend

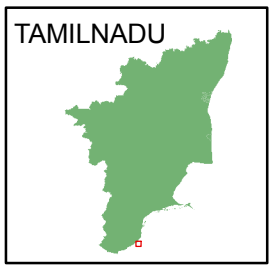
- EROSION
- ACCRETION
- STABLE
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58H15 NE	58L03 NW	SEA
58H15 SE		SEA
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

TIRUNELVELI DISTRICT

SHEET NO. 58H15SE

Padukkapathu

Sittankudi

Thiruppaniputhantharuvai

Kuttam

Kudu

Ovari

Bardar ovari

GULF

OF

MANNAR

Legend

- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58H15 NW	58M15 SW	58L03 NW
58H15 SW		58L03 SW
58H16 NW	SEA	SEA

INDIA

TAMILNADU

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

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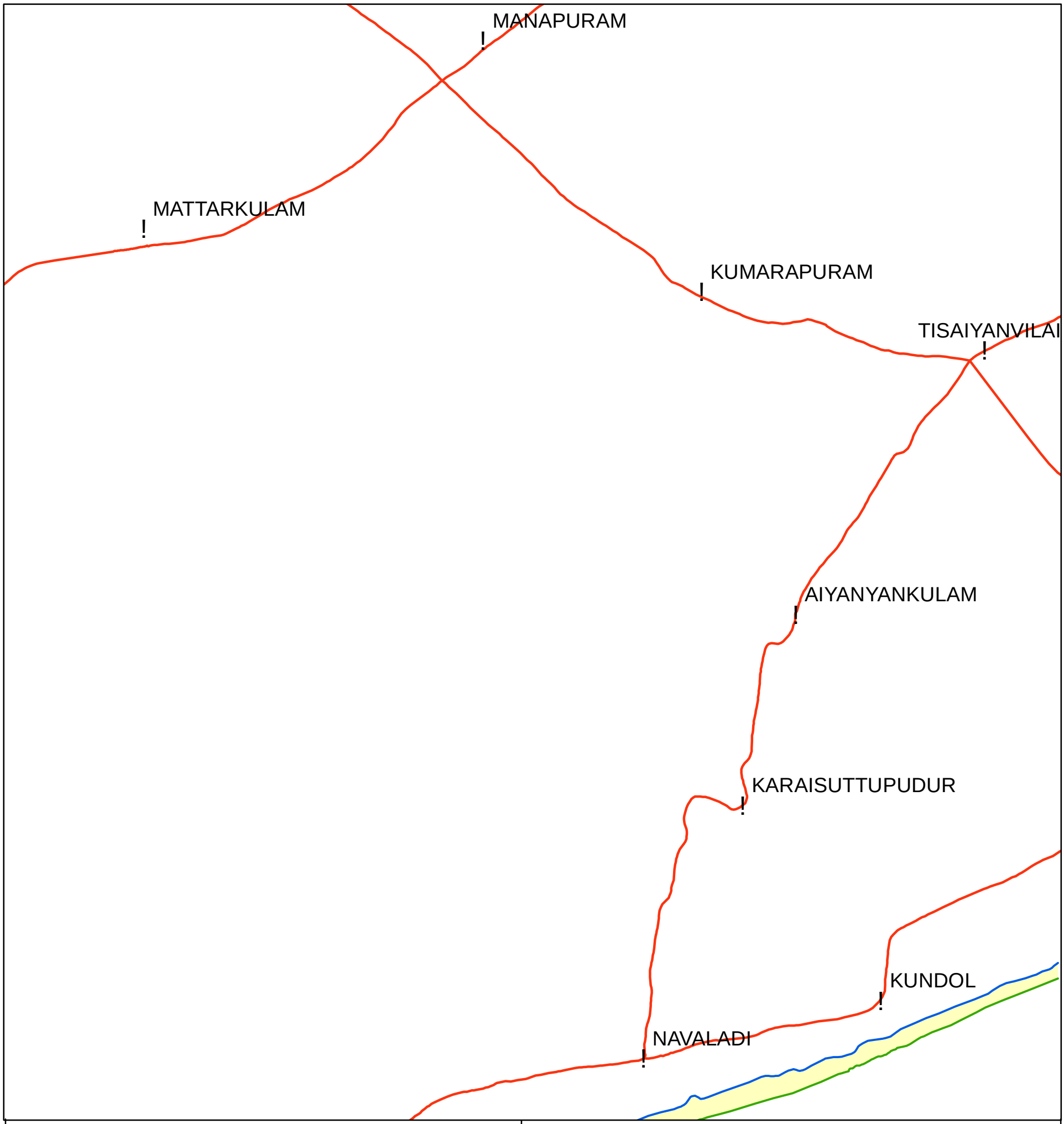
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

TIRUNELVELI DISTRICT

SHEET NO. 58H15SW



Legend

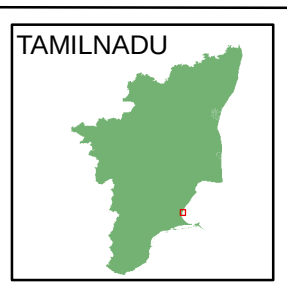
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58H11 NE	58H15 NW	58H15 NE
58H11 SE		58H15 SE
58H12 NE	58H16 NW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

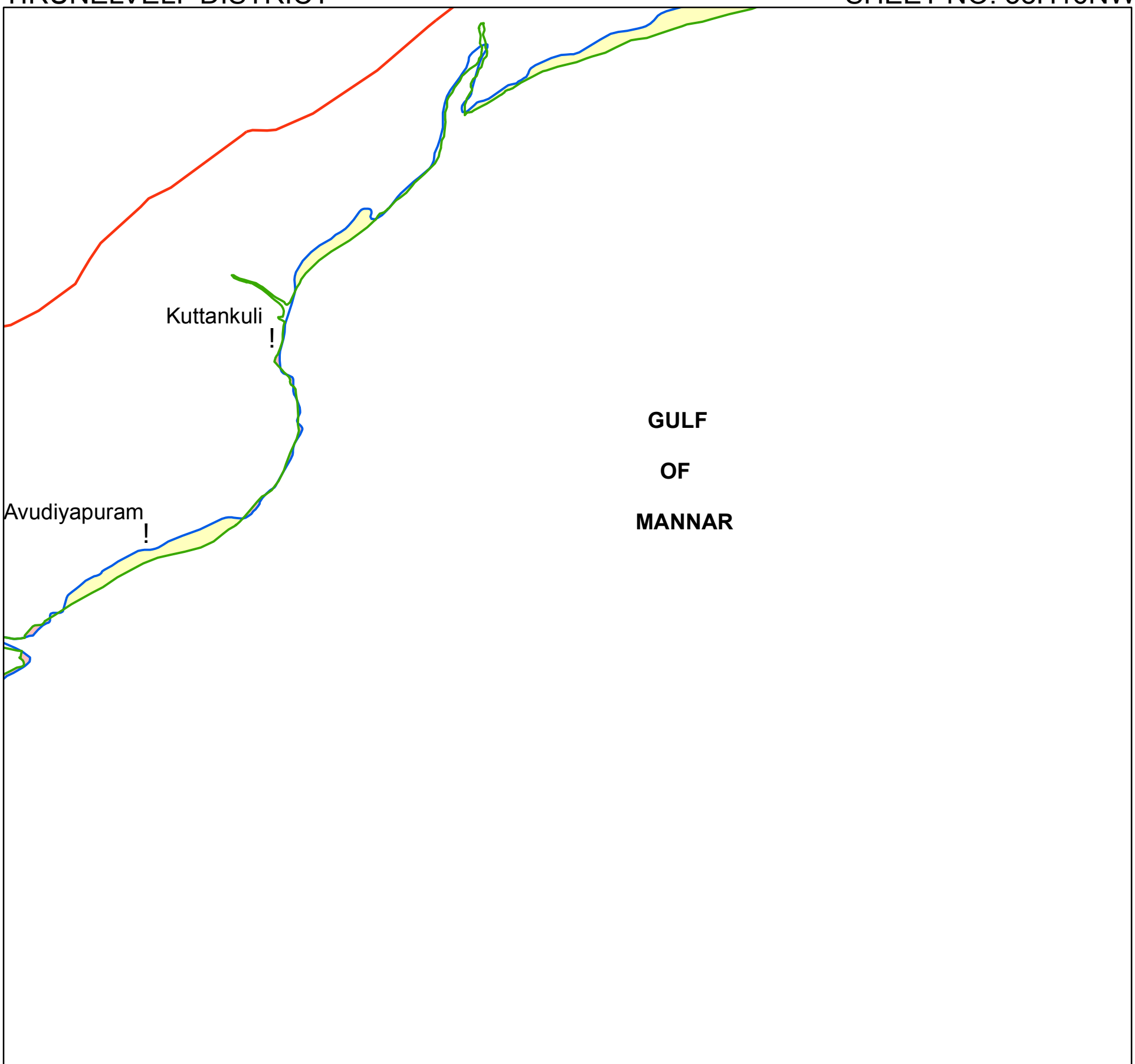
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

TIRUNELVELI DISTRICT

SHEET NO. 58H16NW



Legend

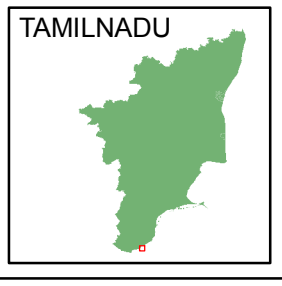
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58H11 SE	58H15 SW	58H15 SE
58H12 NE		58H16 NE
58H12 SE	58H16 SW	58H16 SE



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

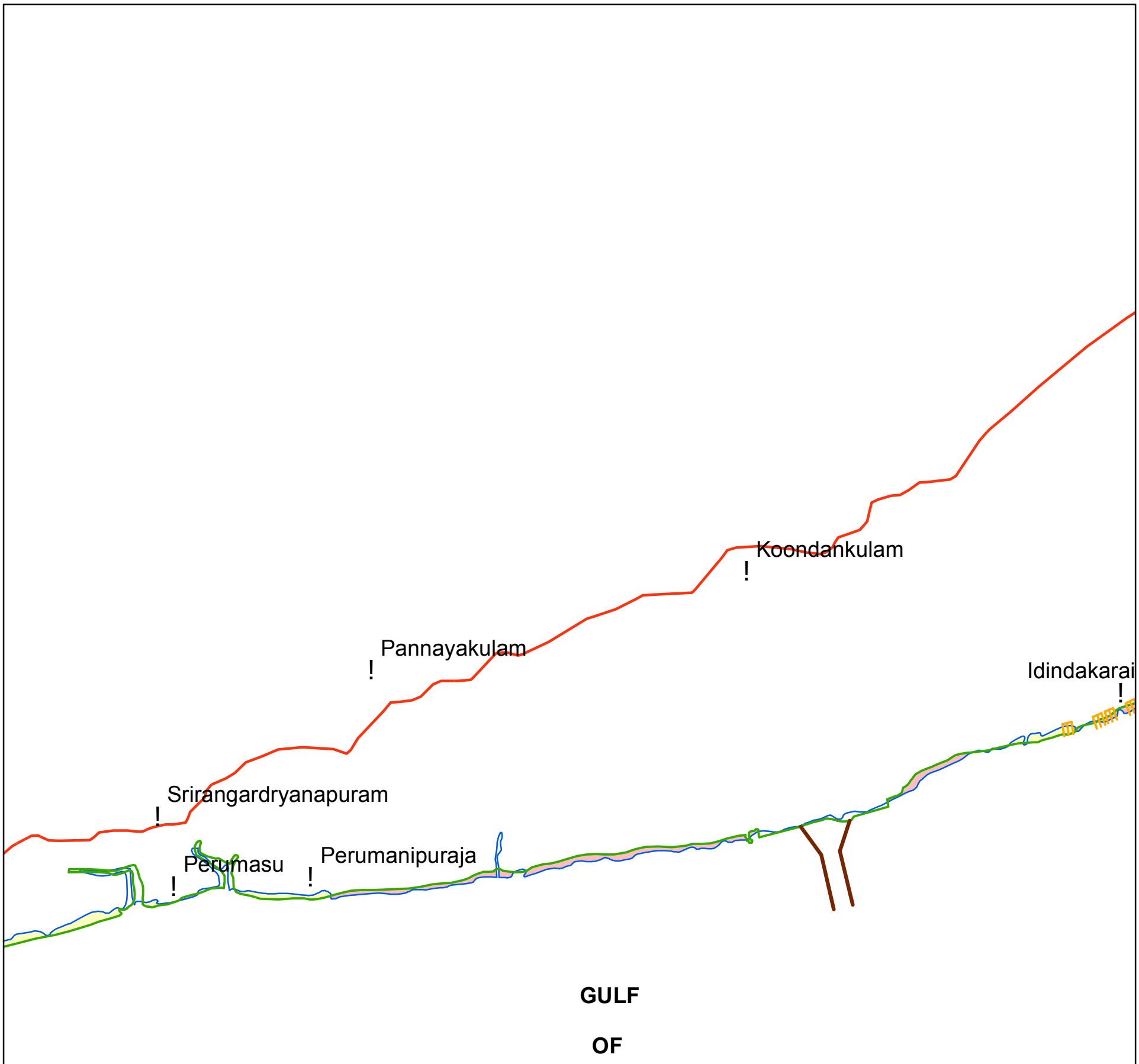
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

TIRUNELVELI DISTRICT

SHEET NO. 58H12NE



Legend

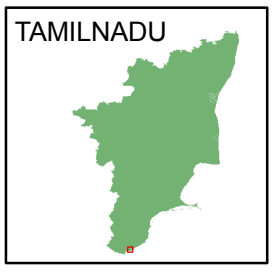
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- GROYNE
- JETTY

0 2

Scale in Km

INDEX TO SHEETS

58H11 SW	58H11 SE	58H15 SW
58H12 NW		58H16 NW
58H12 SW	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

KANNIYAKUMARI AND TIRUNELVELI DISTRICT

SHEET NO.58H12NW

Legend

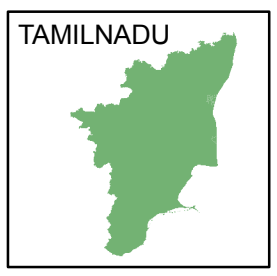
- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

58H07 SE	58H11 SW	58H11 SE
58H08 NE		58H12 NE
58H08 SE	58H12 SW	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
SPACE APPLICATIONS CENTRE, AHMEDABAD
AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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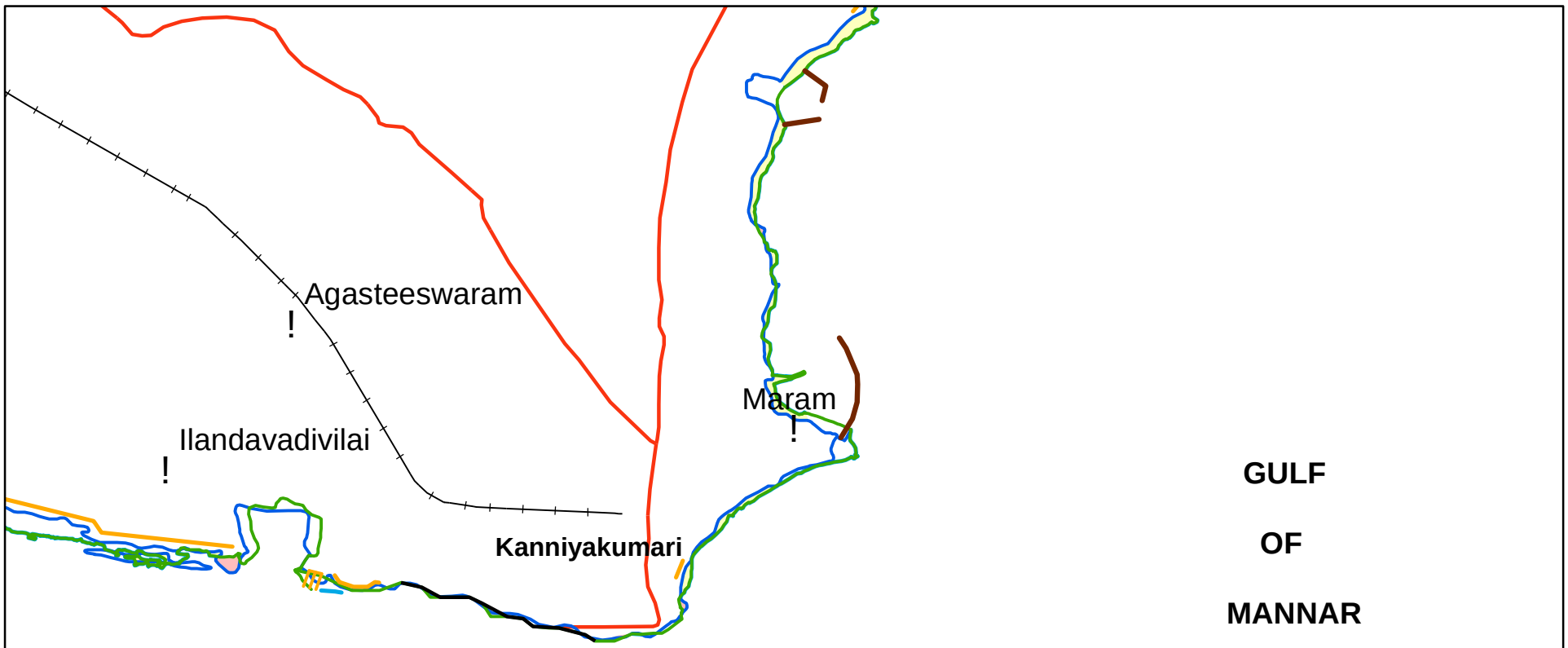
KANNIYAKUMARI DISTRICT

SHEET NO. 58H12SW



Legend

EROSION

ACCRETION

ROAD — RAIL

HIGH-TIDE LINE 2004-06

HIGH-TIDE LINE 1989-91

STABLE ! HABITATION

JETTY

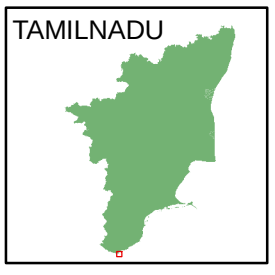
SEA WALL — GROYNE

0 2

Scale in Km

INDEX TO SHEETS

58H08 NE	58H12 NW	58H12 NE
58H08 SE		58H12 SE
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

SHORELINE CHANGE MAP

TAMILNADU

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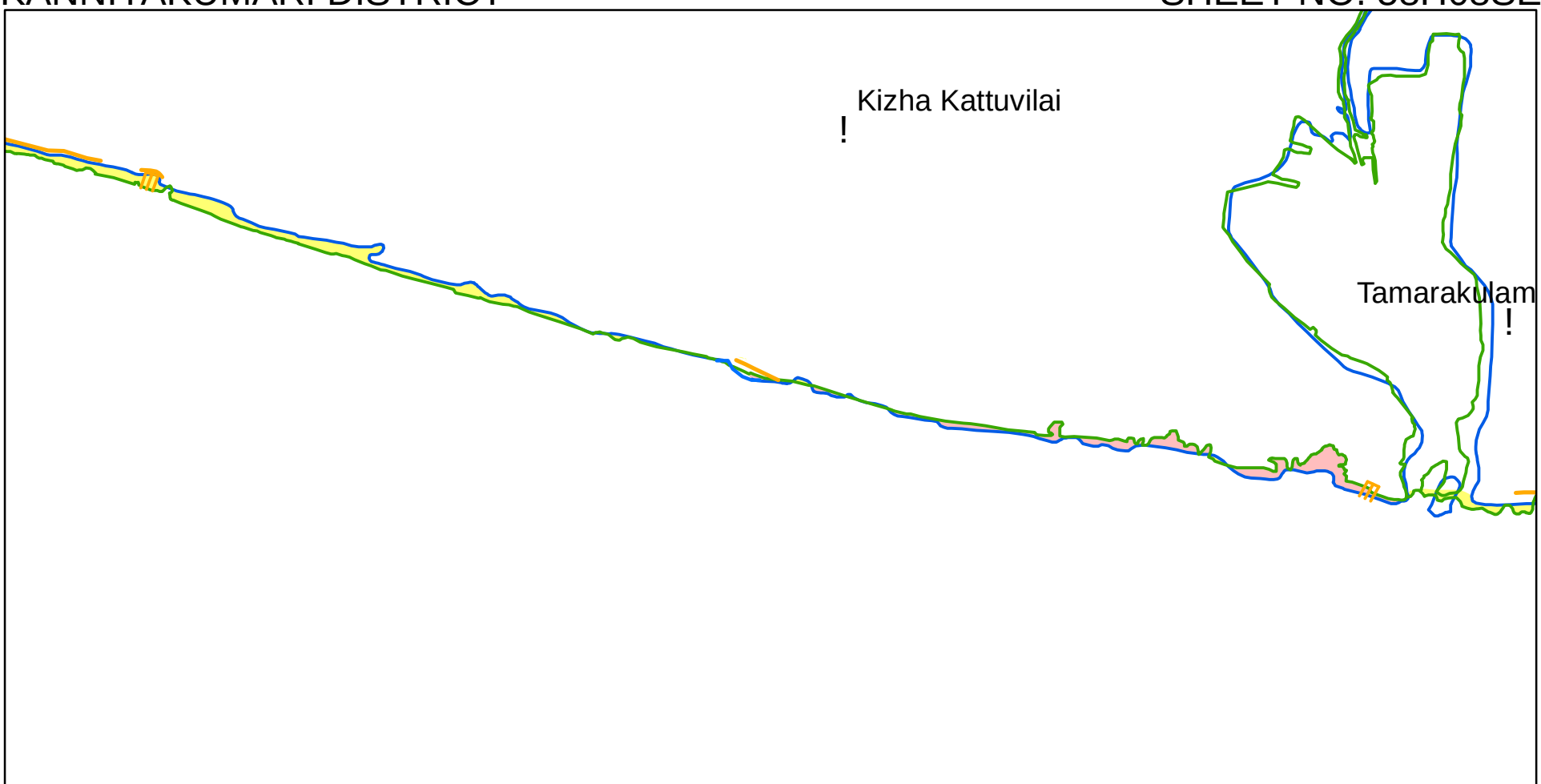
KANNIYAKUMARI DISTRICT

SHEET NO. 58H08SE



ARABIAN

SEA

Legend

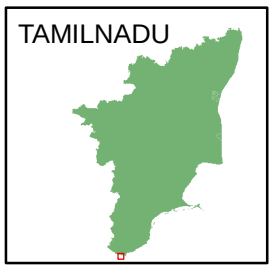
- EROSION
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- GROYNE
- SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

58H08 NW	58H08 NE	58H12 NW
58H08 SW		58H12 SW
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

TAMILNADU

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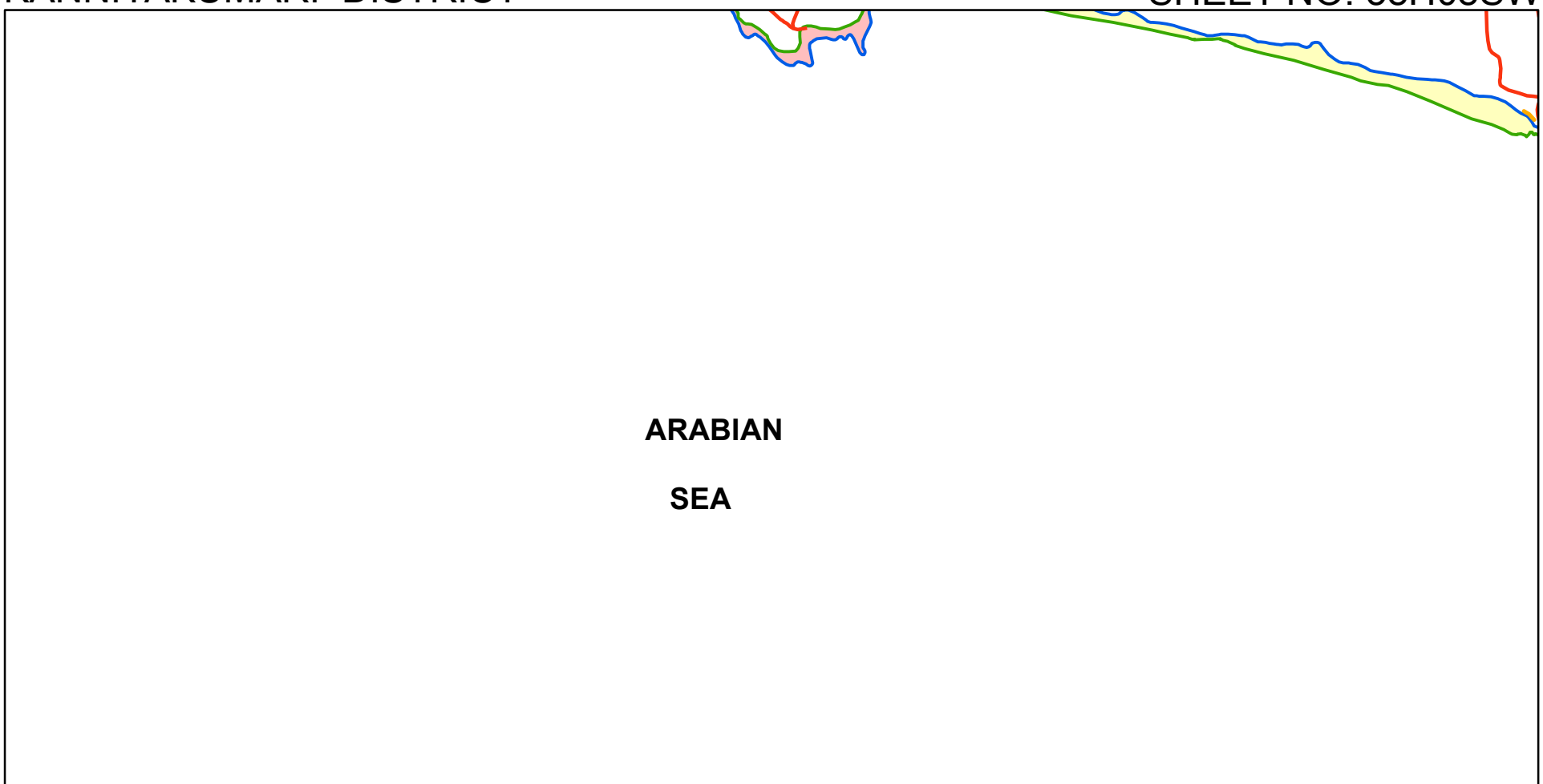
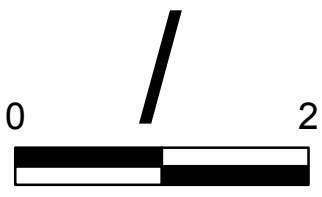
KANNIYAKUMARI DISTRICT

SHEET NO. 58H08SW



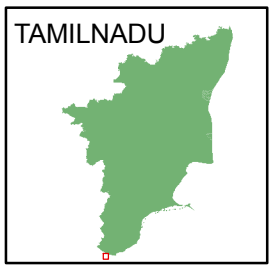
Legend

- EROSION
- ACCRETION
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- SEA WALL



INDEX TO SHEETS

58H04 NE	58H08 NW	58H08 NE
58H04 SE		58H08 SE
SEA	SEA	SEA



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

TAMILNADU

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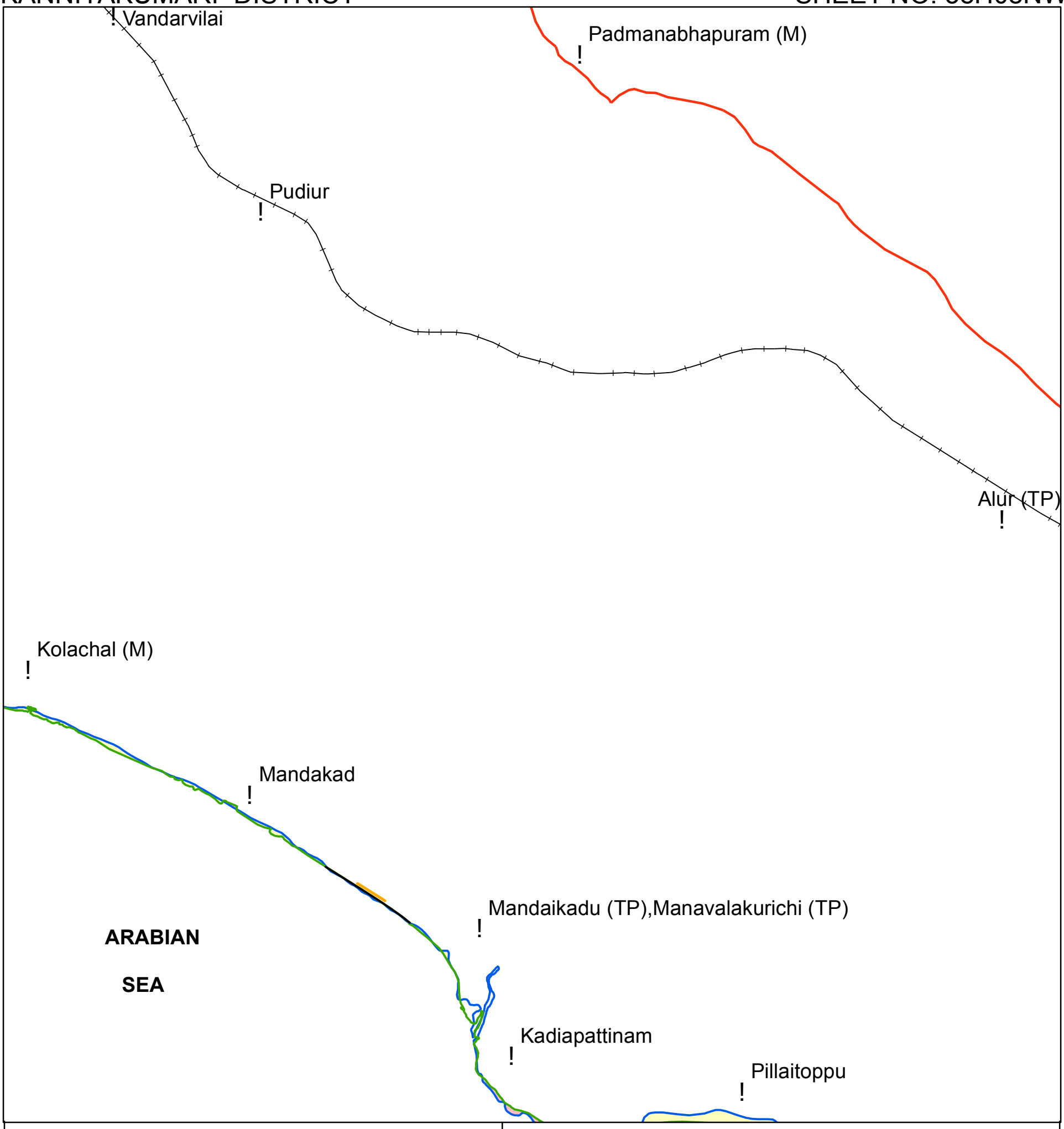
KANNIYAKUMARI DISTRICT

SHEET NO. 58H08NW



Legend

- EROSION
- ACCRETION
- STABLE
- RAIL
- ROAD
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

58H03 SE	58H07 SW	58H07 SE
58H04 NE		58H08 NE
SEA	58H08 SW	58H08 SE

INDIA

TAMILNADU

DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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SHORELINE CHANGE MAP

TAMILNADU

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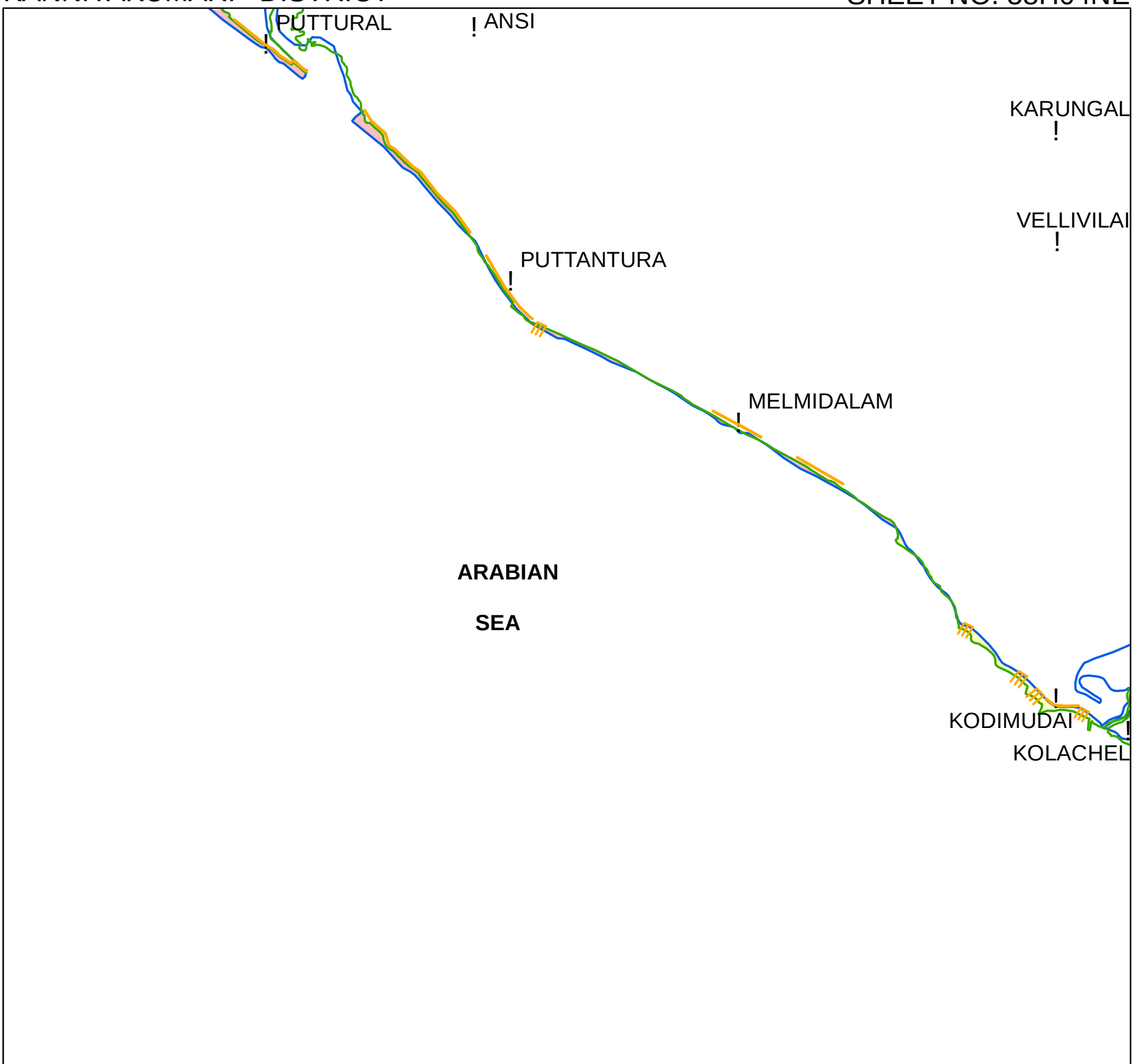
KANNIYAKUMARI DISTRICT

SHEET NO. 58H04NE



Legend

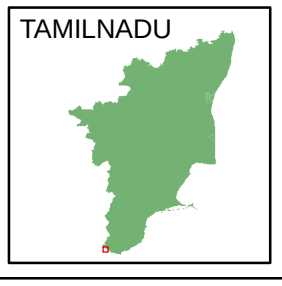
- EROSION
- ACCRETION
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- GROYNE
- SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

58H03 SW	58H03 SE	58H07 SW
SEA		58H08 NW
SEA	SEA	58H08 SW



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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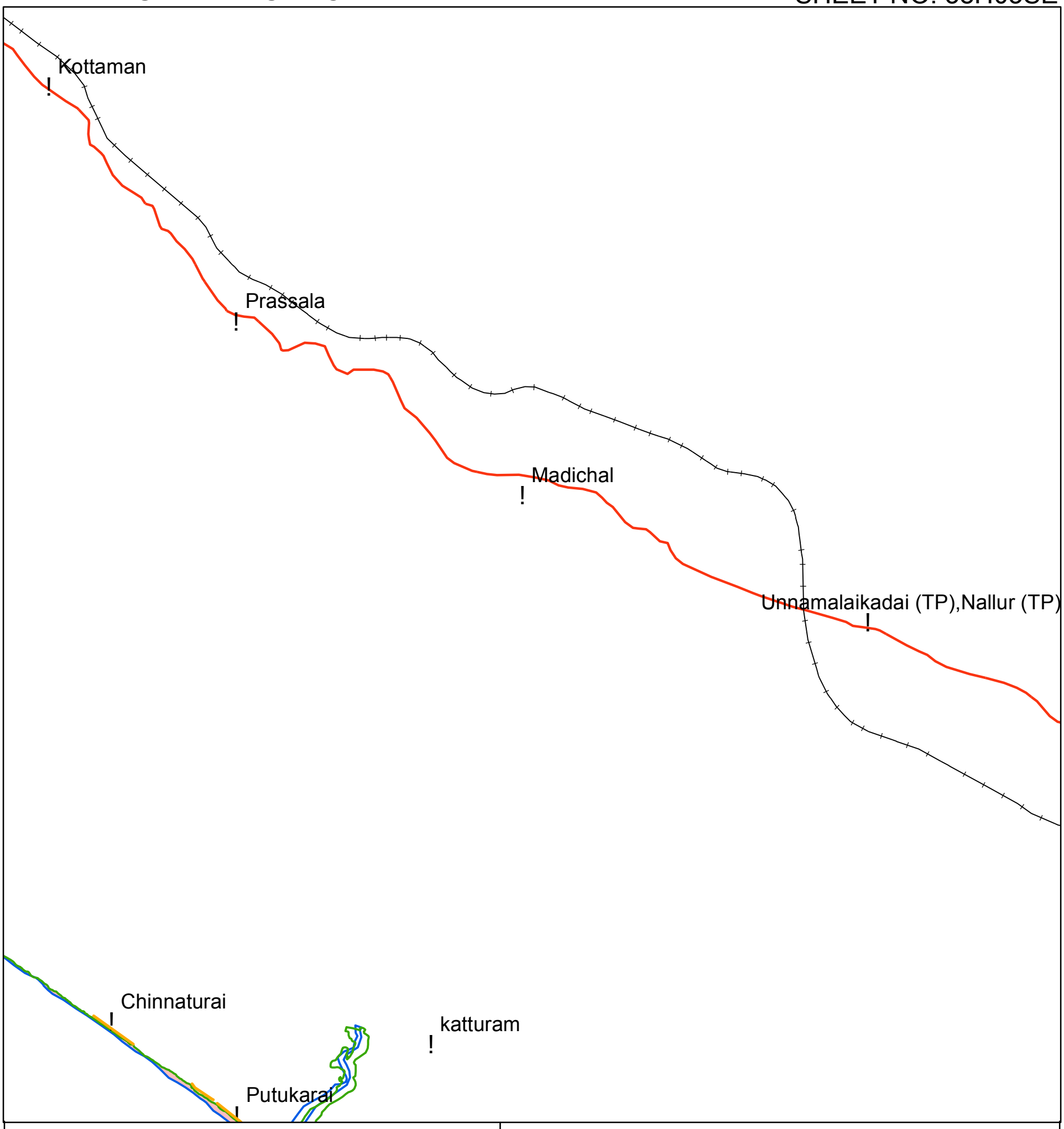
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

KANNIYAKUMARI DISTRICT

SHEET NO. 58H03SE



Legend

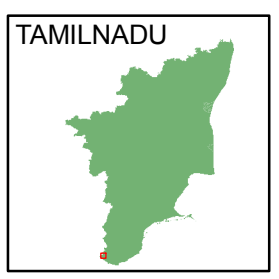
- EROSION
- ROAD
- RAIL
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION
- SEA WALL

0 2

Scale in Km

INDEX TO SHEETS

58H03 NW	58H03 NE	58H07 NW
58H03 SW		58H07 SW
58H04 NW	58H04 NE	58H08 NW



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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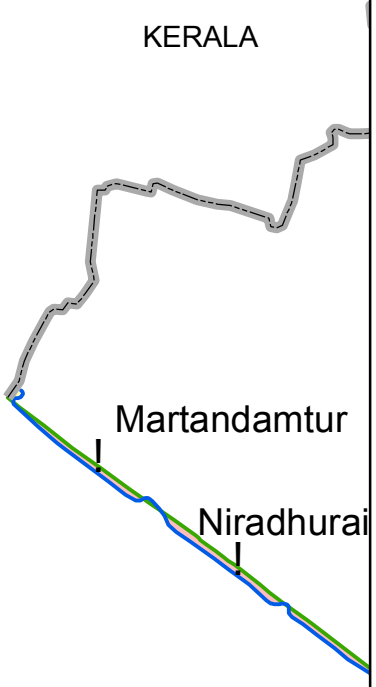
SHORELINE CHANGE MAP

TAMILNADU

FOR OFFICIAL USE ONLY

KANNIYAKUMARI DISTRICT

SHEET NO. 58H03SW



ARABIAN SEA

Legend

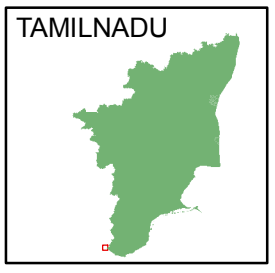
- EROSION
- ACCRETION
- STATE BOUNDARY
- HIGH-TIDE LINE 2004-06
- HIGH-TIDE LINE 1989-91
- ! HABITATION

0 2

Scale in Km

INDEX TO SHEETS

57P15 SW	58H03 NE	58H07 NW
57P16 NW		58H07 SW
SEA	58H04 NE	58H08 NW



DATA SOURCE:
SATELLITE IMAGES OF 1989-91 & 2004-06

PREPARED BY:
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AND CENTRAL WATER COMMISSION, NEW DELHI

Annexure-II

(Plates)

ANDHRA PRADESH

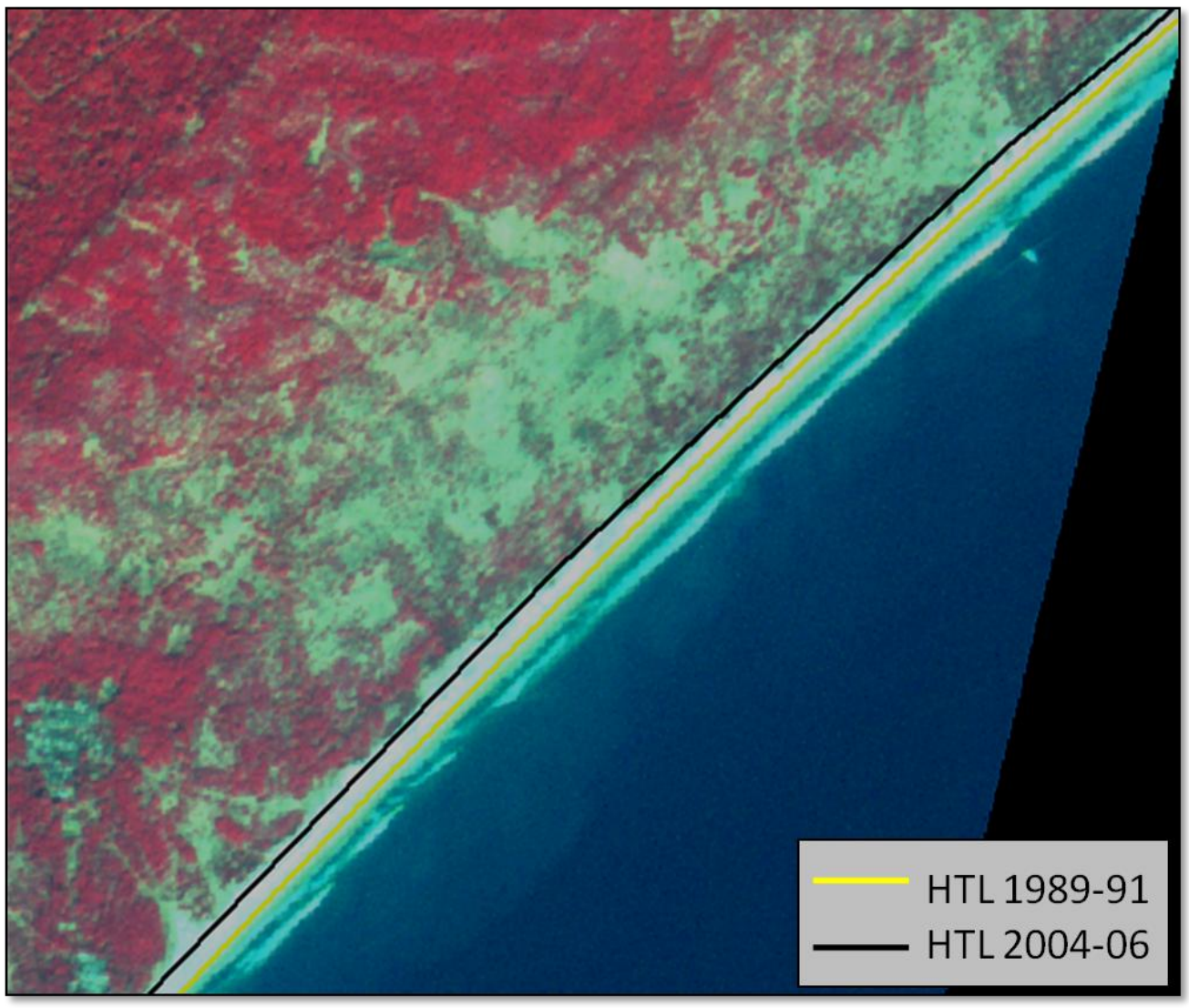

Plate 1: Eroding Coastal stretch of Ramakrishnapuram, Srikakulam district, Northern Andhra Pradesh coast, map sheet number 74B06SE (Image: 2011 LISS-IV)

Plate 2: Coastal stretch around Karavaku Sunnapalli, Srikakulam district, Northern Andhra Pradesh coast showing erosion, map sheet number 74B06SW (Image: 2011 LISS-IV)

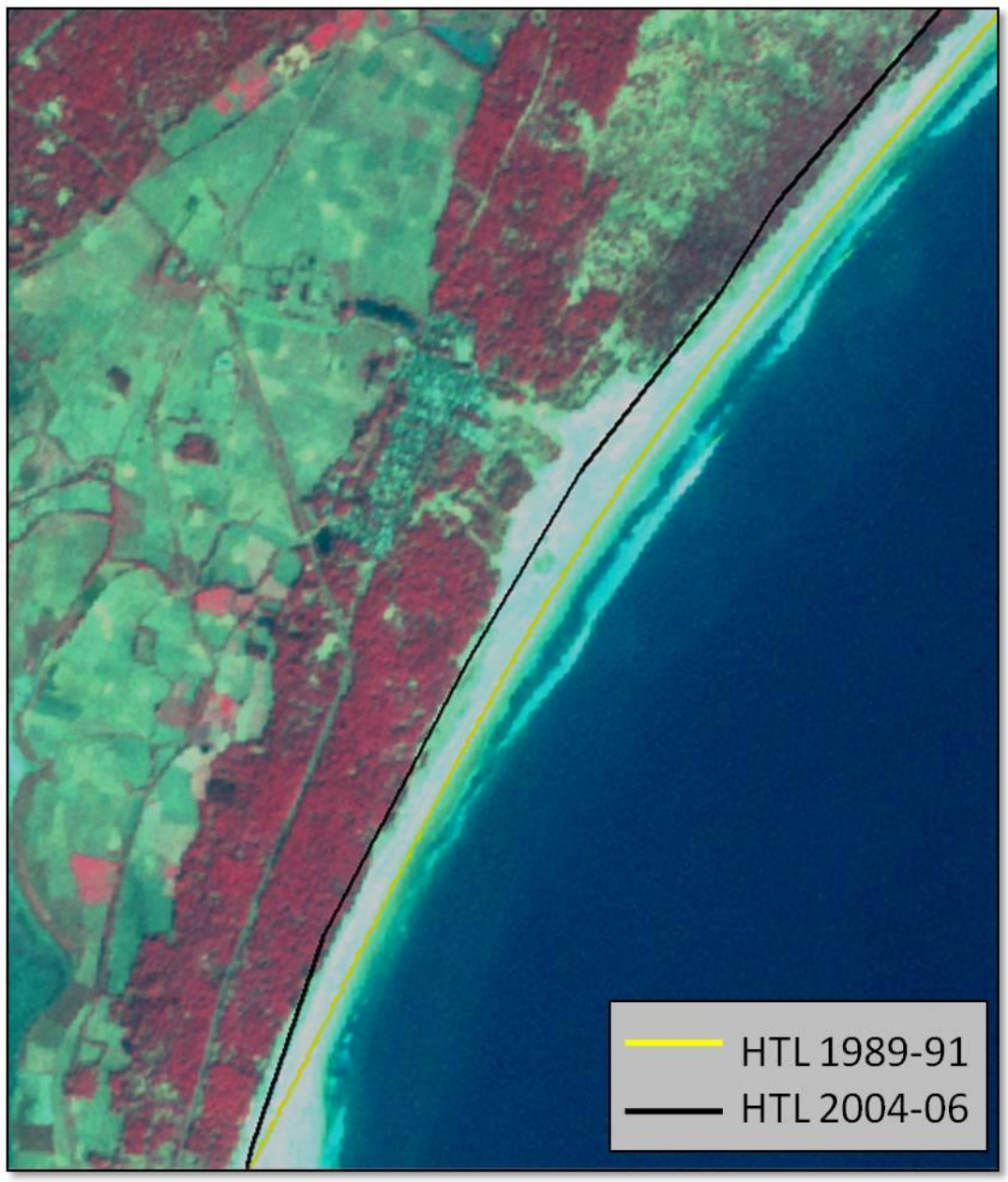

Plate 3: Eroding coastal stretch around Devunaltada Srikakulam district, Northern Andhra Pradesh coast, map sheet number 74B06SW (Image: 2011 LISS-IV)

Plate 4: Coastal stretch of southern-eastern side of Bavanapadu, Srikakulam district, Northern Andhra Pradesh coast showing erosion, map sheet number 74B06SW (Image: 2011 LISS-IV)

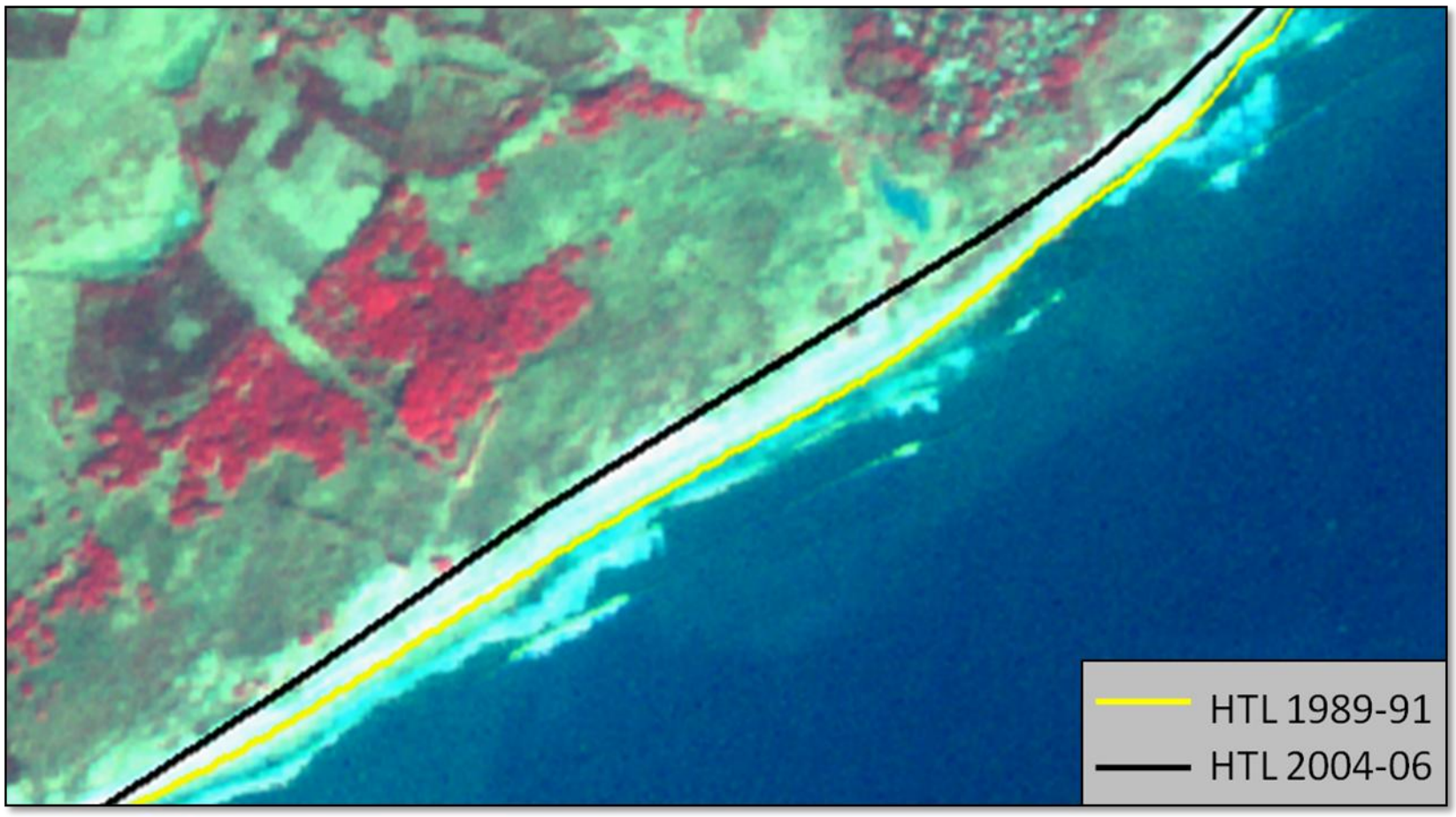

Plate 5: Eroding coastal stretch of Pedduru, Srikakulam district, Northern Andhra Pradesh coast map sheet number 65N16NW (Image: 2011 LISS-IV)

Plate 6: Coastal stretch of Chintapalli, Mentada, Kothapale, Srikakulam district, Northern Andhra Pradesh coast showing eroding areas, map sheet number 65N12SE (Image: 2011 LISS-IV)

Plate 7: Severe erosion from Avulamanda to Shamvanipakalu coastal stretch in East Godavari district (65K08NE, 65K08SE)

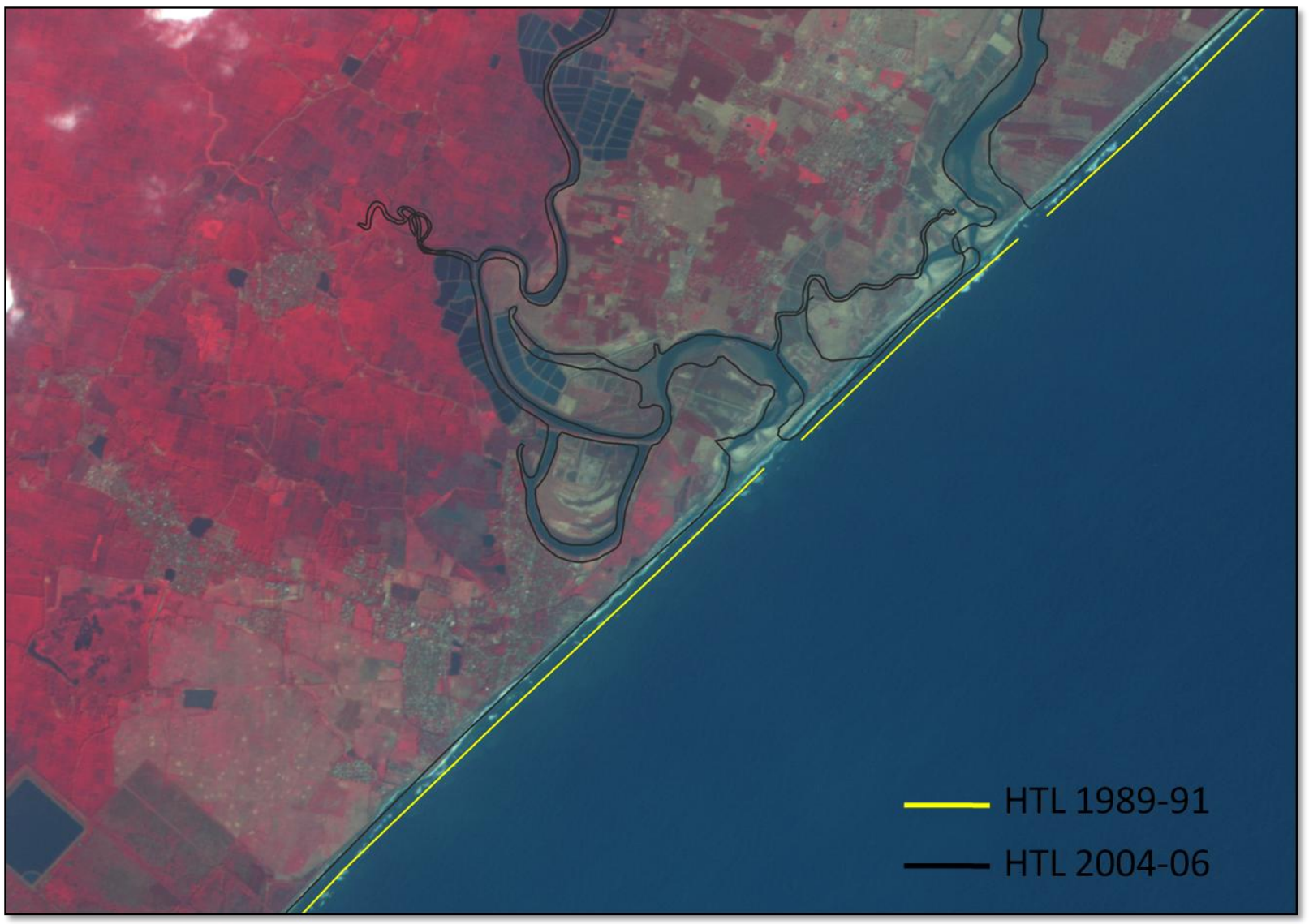

Plate 8: Severe erosion along Uppada coastal segment in East Godavari district (65K08SW)

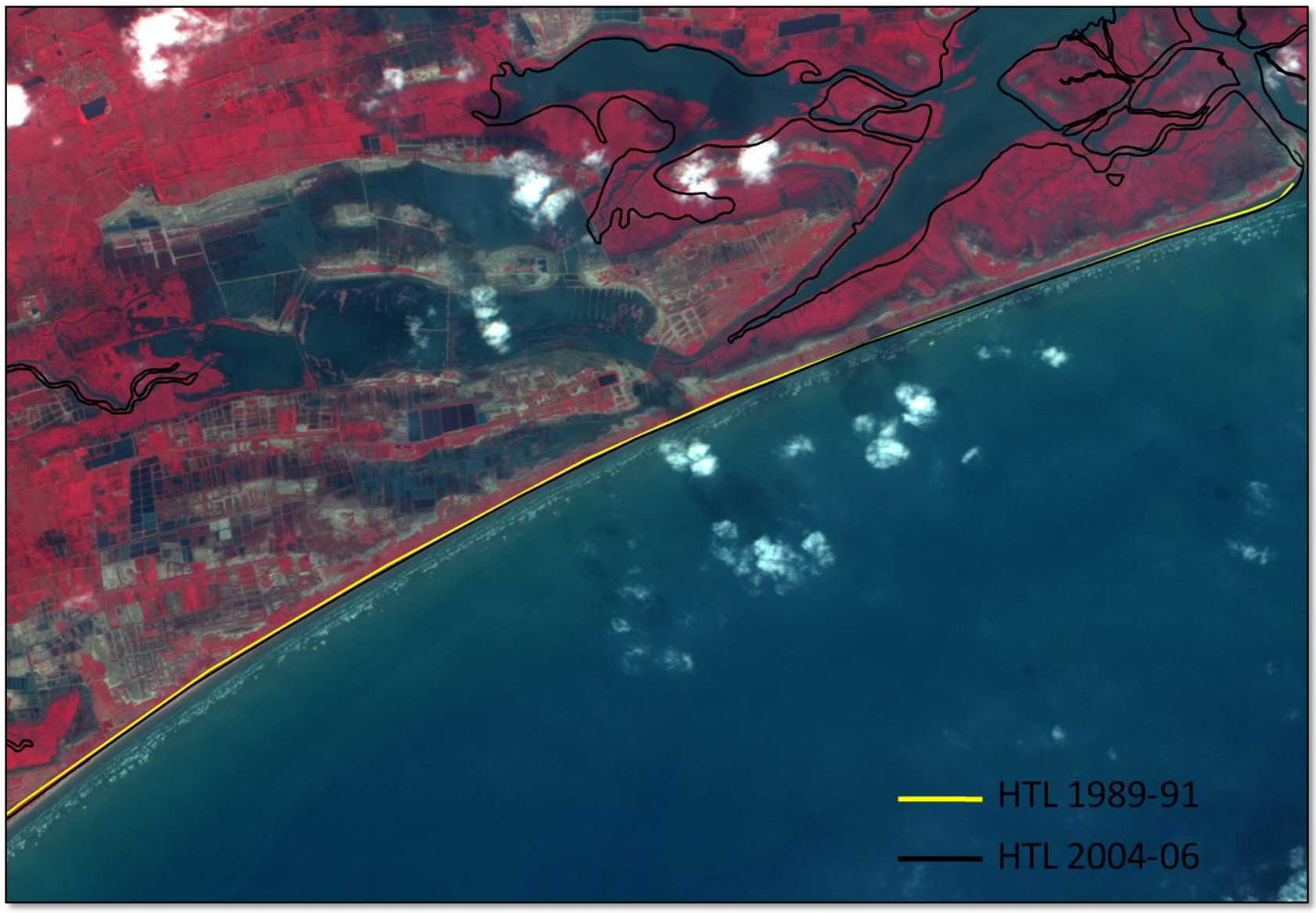

Plate 9: Stable coast from Uralagonditippa, around Parvatipuram to Peddapatnam in Krishna district (65H07SE, 65H07SW)

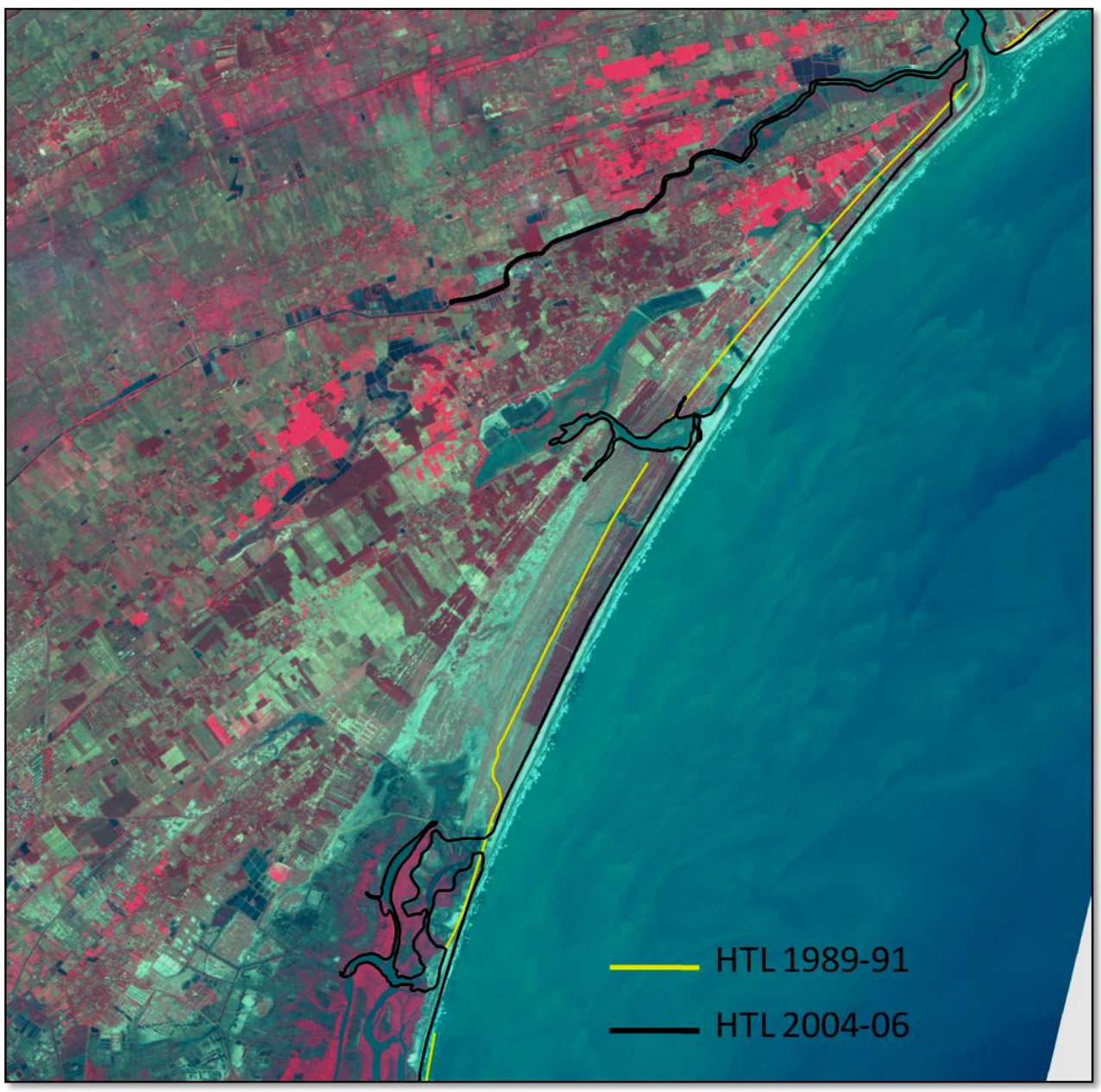

Plate 10: Accreting coast from Pallepalem and Peddaredipalem in Krishna district (65H03SE, 65H04NE)

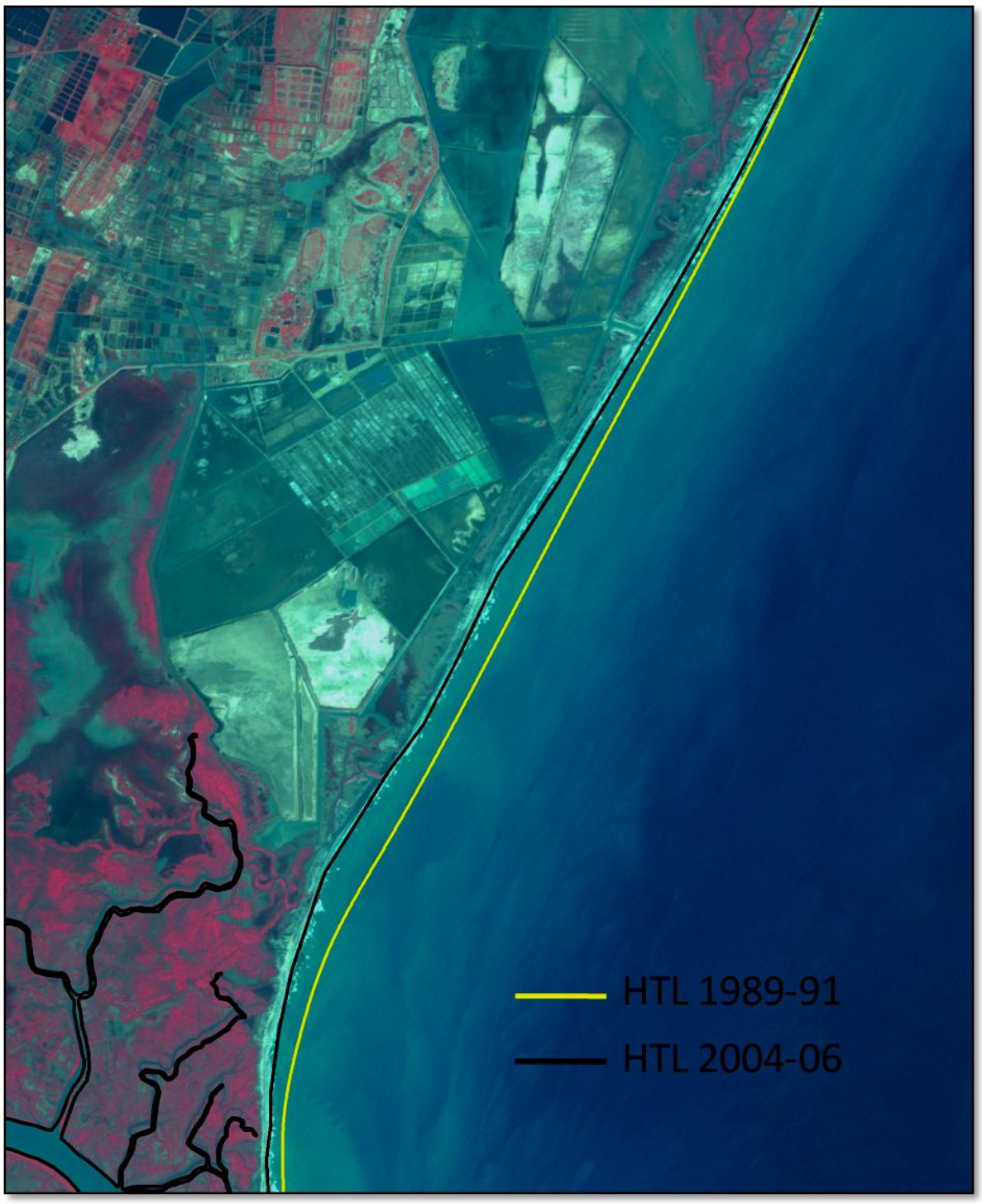

Plate 11: Eroding coast around coastal stretches of Palletummalapalem in Krishna district (65H04SE)

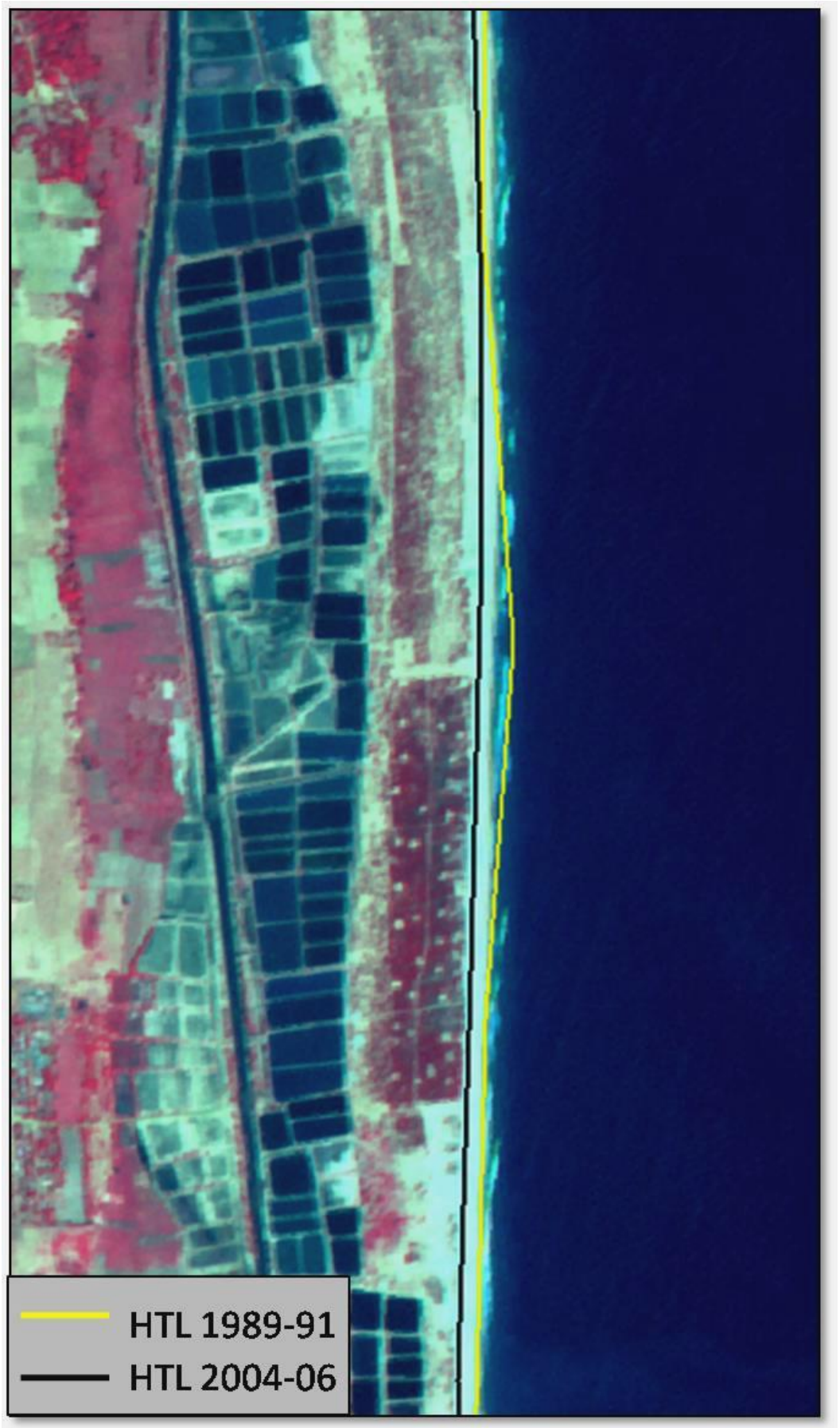

Plate 12: Coastal stretch around Nadumpalli showing erosion, map sheet number 66B01SW (Image: 2011 LISS-IV)

Plate 13: Eroding coastal stretch south-east of Yenatipalem, map sheet number 66B03NE (Image: 2011 LISS-IV)

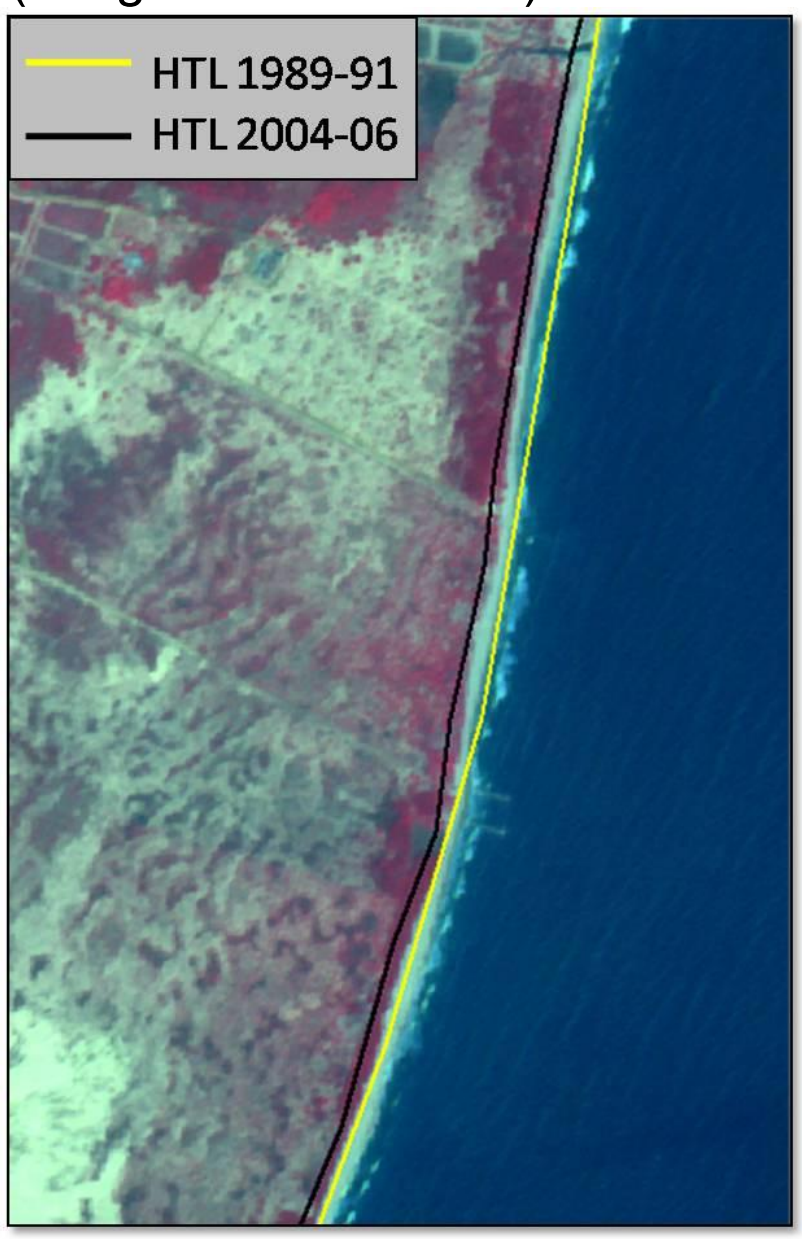

Plate 14: Eroding coastal stretch north of Pattapupalem, Nellore district, map sheet number 66B03SE (Image: 2011 LISS-IV).

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Plate 15: Eroding coastal stretch around Kottappattanam, Pudukkottai district, map sheet number 58O01NE (Image: October 2011 LISS IV)

Plate 16: Eroding coastal stretch, Ramanathapuram district, map sheet number 58K15NE (Image: October 2011 LISS IV)

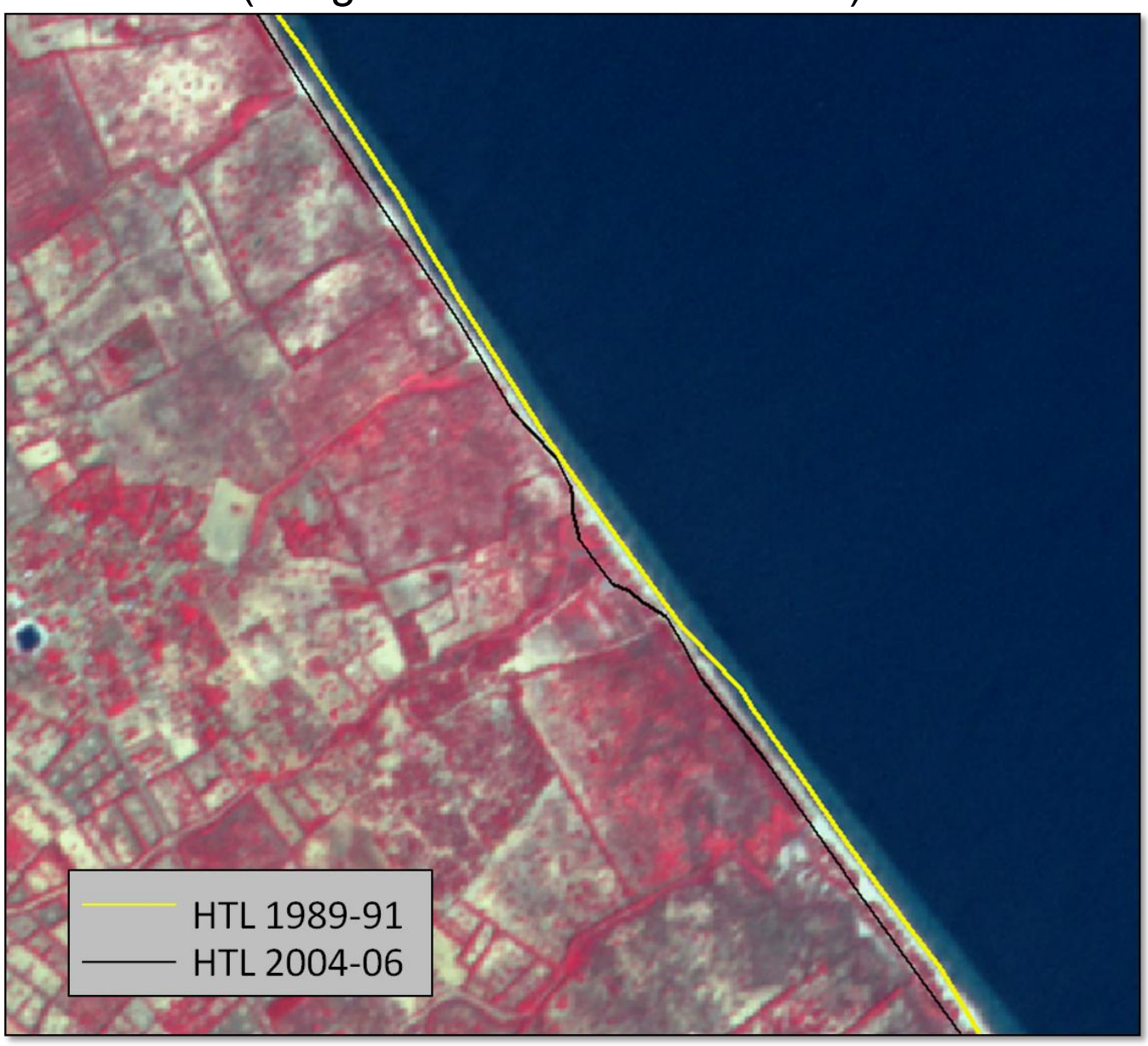

Plate 17: Eroding coastal stretch, Ramanathapuram district, map sheet number 58K15NE (Image: October 2011 LISS IV)

Plate 18: Eroding coastal stretch around Melmidalam, Kanniyakumari district, map sheet number 58H04NE (Image: November 2011 LISS-IV)

Plate 19: Eroding coastal stretch around Puttantura, Kanniyakumari district, map sheet number 58H04NE (Image: November 2011 LISS-IV)

Plate 20: Eroding coastal stretch near Chinnaturai, Kanniyakumari district, map sheet number 58H03SE (Image: November 2011 LISS-IV)

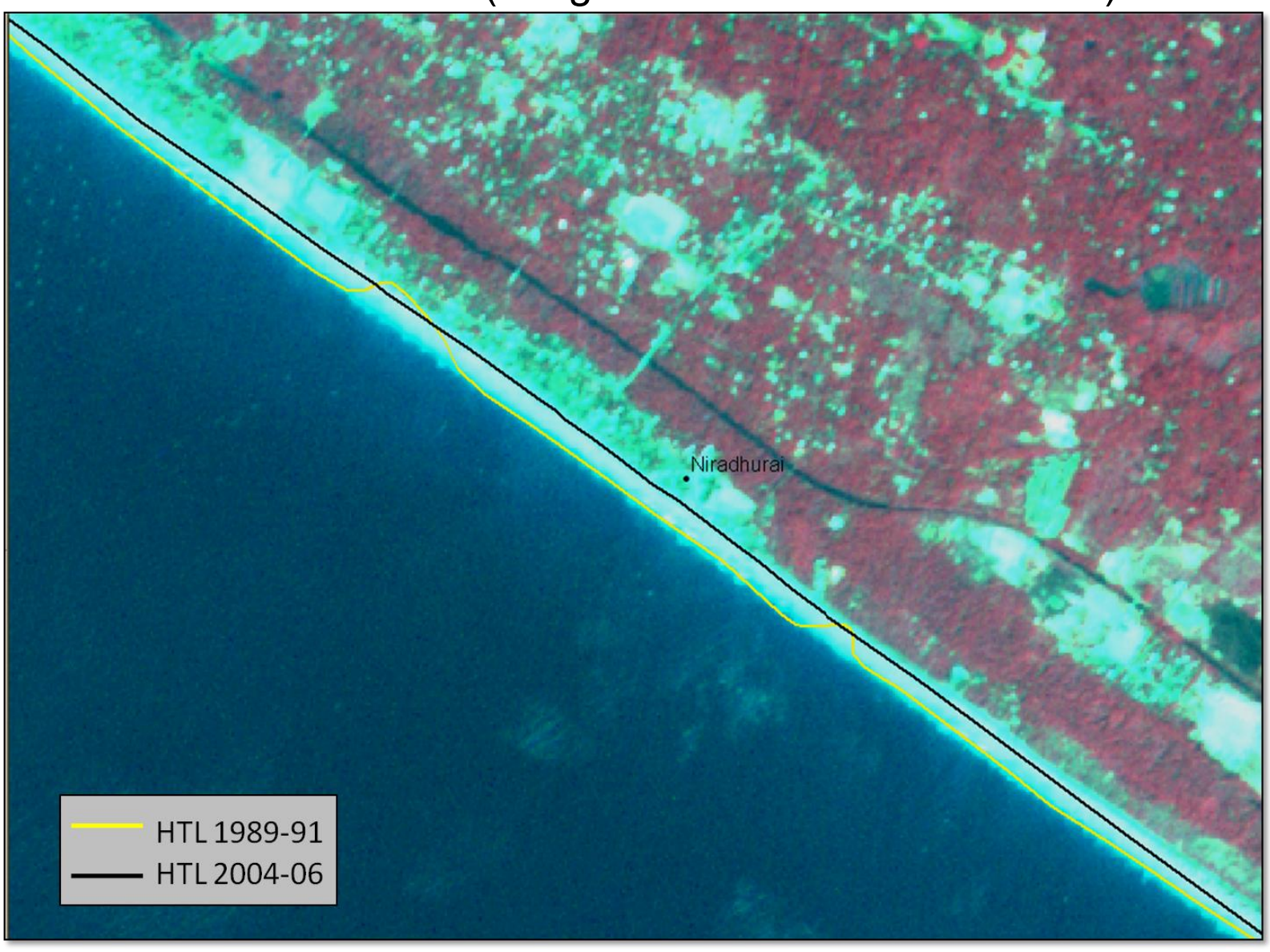

Plate 21: Eroding coastal stretch near Niradhurai, Kanniyakumari district, map sheet number 58H03SW (Image: November 2011 LISS-IV)

FIELD PHOTOGRAPHS: ANDHRA PRADESH

Plate 22: Hatcheries destroyed due to coastal erosion near Shamvanipakalu (65K08SE)

Plate 23: Hatcheries destroyed due to coastal erosion near Shamvanipakalu (65K08SE)

Plate 24: Hatcheries destroyed due to coastal erosion near Shamvanipakalu (65K08SE

Plate 25: Steep scarp and uprooting of coconut plantation showing coastal erosion near Shamvaipakalu (65K08SE)

Plate 26: Steep scarp and uprooting of coconut plantation due to coastal erosion near Shamvanipakalu (65K08SE)

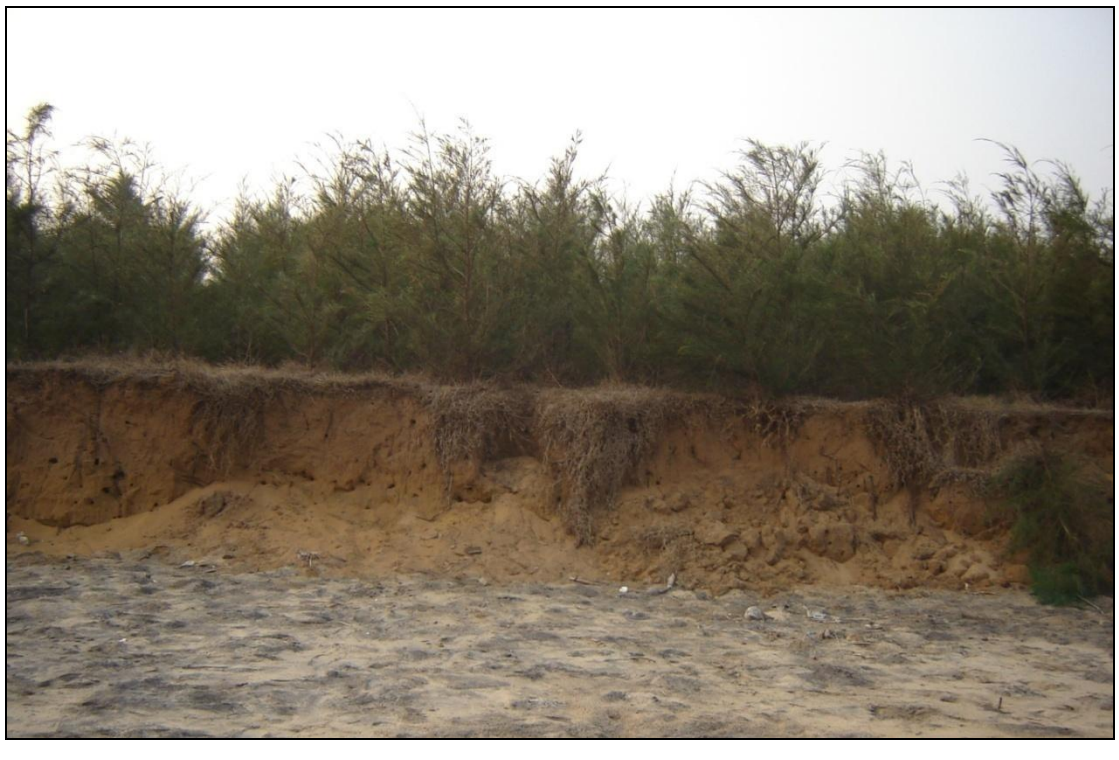

Plate 27: Steep scarp and uprooting of Casuarina plantation showing coastal erosion near Shamvaipakalu (65K08SE)

Plate 28: Steep scarp and uprooting of Casuarina plantation showing coastal erosion near Shamvaipakalu (65K08SE)

Plate 29: Sea wall constructed near Uppada (65K08SW)

Plate 30: Road between Uppada – Kakinada marks the sea limit and is exposed to coastal erosion (65K08SW)

Plate 31: Road between Uppada – Kakinada marks the sea limit and is exposed to coastal erosion (65K08SW)

Plate 32: Casuarina plantation uprooted due to coastal erosion near Chirrayanam (65L02SE)

Plate 33: Coastal accretion seen as well developed beach near Kesavadasupalem (65H15SW)

Plate 34: Coastal accretion seen as well developed beach near Kesavadasupalem (65H15SW)

Plate 35: Severe coastal erosion near Antarvedi, east of Vasishta Godavari river mouth (65H11SE)

Plate 36: Severe erosion, west of Vasishta Godavari river mouth, sand dune ridge in front of cyclone shelter totally eroded (65H11SE)

Plate 37: Severe erosion, west of Vasishta Godavari river mouth, coconut tree plantation uprooted (65H11SE)

Plate 38: Severe erosion, west of Vasishta Godavari river mouth, Casuarina plantation and sand dune ridge near cyclone shelter eroded (65H11SE)

Plate 39: Stable coast, eastern side of Uralagonditippa (65H07SE)

Plate 40: Manginapudi beach near Peddareddipalem, Krishna district (65H04NE)

Plate 41: Mangroves near creek at Pallepalem, Krishna district (65H04NE)

Plate 42: Mouth of small distributary of the Krishna river, Krishna district (66E01NE)

Plate 43: Eroding coast on southern bank of the small distributary of the Krishna river mouth, Krishna district (66E01NE)

Plate 44: Embankment parallel to coast near Paramhamsapuram, Krishna district (66E01NE)

Plate 45: Eroding coast near Vedarevu, SE of Papayapalem (66A05SE)

FIELD PHOTOGRAPHS: TAMIL NADU & PUDUCHERRY

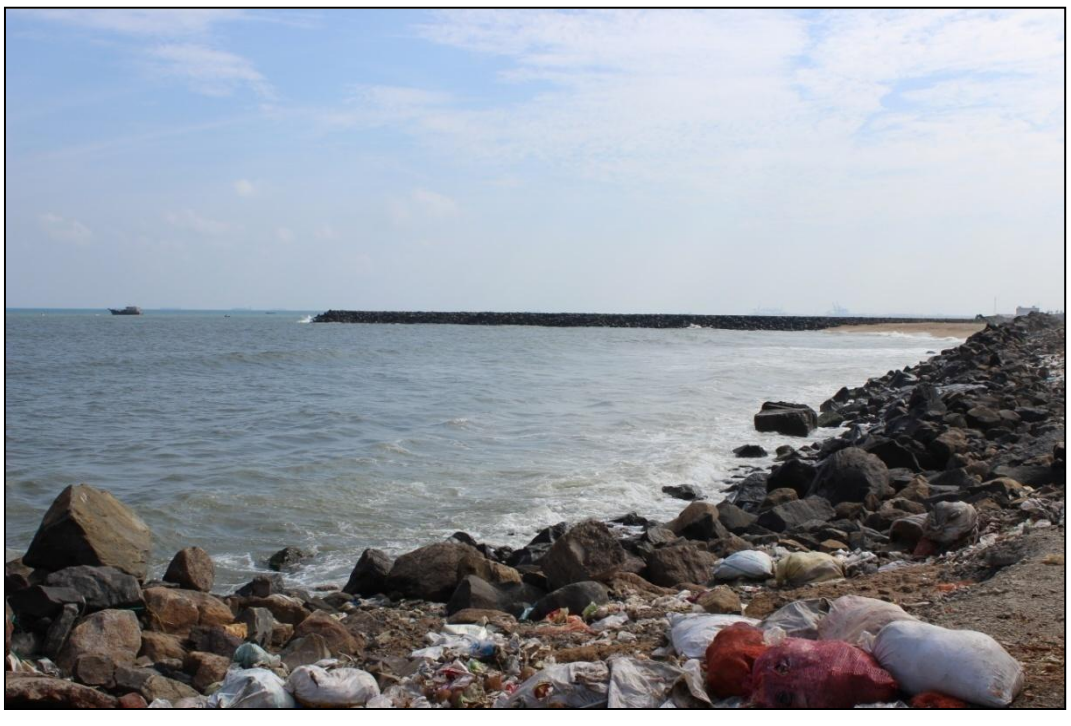

Plate 46: Severe erosion roadside, north of Royapuram Harbour, Chennai (66C08NW)

Plate 47: Groynes and sea wall, between Sattangadu and Tiruvettiyur (66C08NW)

Plate 48: Mahabalipuram shore temple, Mammalapuram, Kancheepuram district (66D02SE)

Plate 49: Sea wall at Mahabalipuram shore temple, Mammalapuram, Kancheepuram district (66D02SE)

Plate 50: Coast north of Mahabalipuram shore temple, Mammalapuram Kancheepuram district (66D02SE)

Plate 51: Coast south of Mahabalipuram shore temple, Mammalapuram Kancheepuram district (66D02SE)

Plate 52: Coast south of Mahabalipuram shore temple, Mammalapuram Kancheepuram district (66D02SE)

Plate 53: Sea wall at Puducherry (58M13NW)

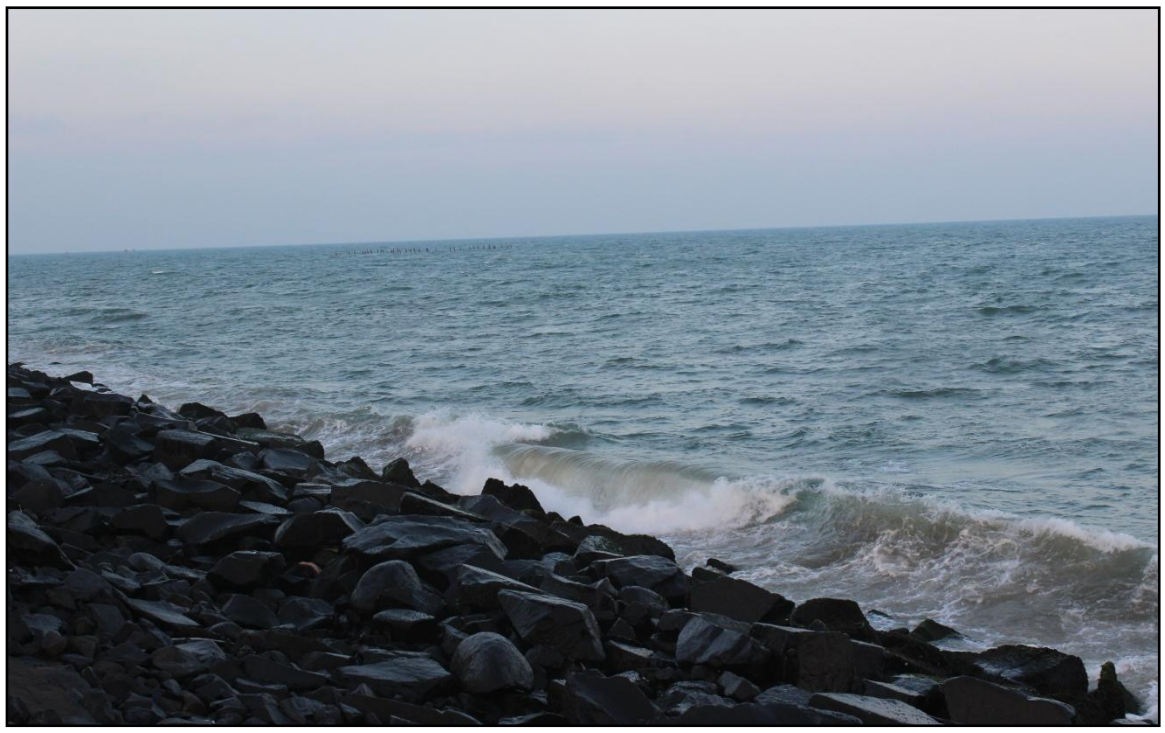

Plate 54: Sea wall at Puducherry (58M13NW)

Plate 55: Nagapattinam coast (58N13SW)

Plate 56: Sea wall at Nagapattinam coast (58N13SW)

Plate 57: Breakwater at Nagapattinam coast (58N13SW)

Plate 58: Area south of Kodiakkadu, near Vedaranniyam swamp (58N15SW)

Plate 59: Mudflats along creek, south of Kodiakkadu, near Vedaranniyam swamp (58N15SW)

Plate 60: Stable coast around Chorantoppu, Chittarturai (near Mudiveerpatnam) (58K15NE)

Plate 61: Accreting beach at Mandapam (58O03SE)

Plate 62: Sand dunes around coastal segment between Pamban and Rameswaram (58O07SW)

Plate 63: Area near Dhanushkodi (58O08NW)

Plate 64: Dhanushkodi Sea wall, Ramanathapuram district (58O08NW)

Plate 65: Accreting area south of Tuticorin Port (58L01SE)

Plate 66: Accreting area south of Tuticorin Port (58L01SE)

Plate 67: Mangroves along creek west of Tuticorin Port (58L01SE)

Plate 68: RMS wall, Kanniyakumari (58H12SW)

Plate 69: Eroding coast SW of Tamarakulam (58H08SE)

Plate 70: Accreting coast WSW of Kizha Kattuvilai (58H08SE)

Plate 71: Accreting coast west of Kizha Kattuvilai (near Kanniyakumari) (58H08SE)

Plate 72: Stabilised sand dunes west of Kizha Kattuvilai (near Kanniyakumari) (58H08SE)

Plate 73: Steep slope of coast near Melmidalam (58H04NE)

Plate 74: Sea wall at Melmidalam, Kanniyakumari district (58H04NE)

Plate 75: Severe erosion along roadside NW of Melmidalam, Kanniyakumari district (58H04NE)

Plate 76: Severe erosion at Puttantura, Kanniyakumari district (58H04NE)

Plate 77: Sea wall at Puttantura, Kanniyakumari district (58H04NE)

Plate 78: Sea wall at Puttantura, Kanniyakumari district (58H04NE)

Annexure-III

(List of Data Used)

Table-3: Satellite data used for Andhra Pradesh Coast (1989-91 time-frame).

S.No	Map Number	Satellite	Sensor	Date
1	65H/11NE	SPOT-1	HRV1-MLA	23-12-1992
2	65H/11NE	SPOT-1	HRV1-MLA	3-3-1989
3	65H/11SE	SPOT-1	HRV1-MLA	3-3-1989
4	65K/08NE	SPOT-1	HRV1-MLA	10-2-1989
5	65K/08EW	SPOT-1	HRV1-MLA	10-2-1989
6	65K/12NW	SPOT-1	HRV1-MLA	10-2-1989
7	65L/01NE	SPOT-1	HRV1-MLA	3-4-1989
8	65L/01SE	SPOT-1	HRV1-MLA	3-4-1989
9	65L/02NE	SPOT-1	HRV1-MLA	3-3-1989
10	65L/02NW	SPOT-1	HRV1-MLA	3-3-1989
11	65L/02SE	SPOT-1	HRV1-MLA	10-3-1989
12	65L/03NW	SPOT-1	HRV1-MLA	10-3-1989
13	65L/05SW	SPOT-1	HRV1-MLA	10-3-1989
14	65H/11NW	SPOT-1	HRV1-MLA	23-12-1992
15	65H/11SE	SPOT-1	HRV1-MLA	23-12-1992
16	65H/11SW	SPOT-1. IRS	HRV1-MLA, LISS-II	03-03-1989, 23-12-1992
17	65H/15NE	SPOT-1	HRV1-MLA	03-031989
18	65H/15NW	SPOT-1	HRV1-MLA	23-12-1992
19	65H/03SE	SPOT-1	HRV1-MLA	10-5-1989
20	65H/04NE	SPOT-1	HRV1-MLA	10-5-1989
21	65H/04NW	SPOT-1	HRV1-MLA	10-5-1989
22	65H/04SE	SPOT-1	HRV1-MLA	10-5-1989
23	65H/07NE	SPOT-1, IRS	HRV1-MLA, LISS-II	03-03-1989, 23-12-1992
24	65H/07SE	SPOT-1, IRS	HRV1-MLA, LISS-II	03-03-1989, 23-12-1992
25	65H/07SW	SPOT-1	HRV1-MLA	3-3-1989
26	65K/11SE	SPOT-1	HRV1-MLA	15-05-1989
27	65K/11SW	SPOT-1	HRV1-MLA	15-05-198
28	65K/15NE	SPOT-2, IRS	HRV1-MLA, LISS-II	15-05-1989, 26-02-1993
29	65K/15NW,SW	SPOT-1, IRS	HRV1-MLA, LISS-II	15-05-1989, 26-02-1993
30	65K/08SE	SPOT-1	HRV1-MLA	10-2-1989
31	65L/05NW	SPOT-1	HRV1-MLA	10-2-1989
32	65L/06NW	SPOT-1	HRV1-MLA	10-2-1989
33	65L/06SW	SPOT-1	HRV1-MLA	10-2-1989
34	65N/12SE	SPOT-1	HRV1-MLA	16-05-1989
35	65N/12SW	SPOT-1	HRV1-MLA	16-05-1989
36	65N/16NE	SPOT-1	HRV1-MLA	23-11-1989
37	65N/16NW	SPOT-1	HRV1-MLA	23-11-1989
38	65O/02NE	SPOT-1	HRV1-MLA	15-05-1989

39	65O/02SE	SPOT-1	HRV1-MLA	15-05-1989
40	65O/02SW&65O/03NW	SPOT-1	HRV1-MLA	15-05-1989
41	65O/05NE	SPOT-1, IRS	HRV1-MLA, LISS-II	15-05-1989,1903-1993
42	65O/05SE	SPOT-1	HRV1-MLA	15-05-1989
43	65O/05SW	SPOT-1	HRV1-MLA	15-05-1989
44	65O/06NW	SPOT-1	HRV1-MLA	15-05-1989
45	65O/09NW	SPOT-1	HRV1-MLA	15-05-1989
46	66A/13NW	SPOT-1	HRV1-MLA	10-5-1989
47	66A/13SE	SPOT-1	HRV1-MLA	10-5-1989
48	66A/13SW	SPOT-1	HRV1-MLA	10-5-1989
49	66A/14NE	SPOT-1	HRV1-MLA	10-5-1989
50	66A/14NW	SPOT-1	HRV1-MLA	10-5-1989
51	66A/02NE	SPOT-1	HRV1-MLA	29-04-1989
52	66A/02SE	SPOT-1	HRV1-MLA	29-04-1989
53	66A/03NE,SE	SPOT-1	HRV1-MLA	29-04-1989
54	66A/03SW	SPOT-1	HRV1-MLA	29-04-1989
55	66A/04NW	SPOT-1	HRV1-MLA	29-04-1989
56	66A/04SW	SPOT-1	HRV1-MLA	29-04-1989
57	66A/05SE	SPOT-1	HRV1-MLA	29-04-1989
58	66A/05SW	SPOT-1	HRV1-MLA	29-04-1989
59	66A/06NW	SPOT-1	HRV1-MLA	29-04-1989
60	66A/09NE	SPOT-1	HRV1-MLA	10-5-1989
61	66A/09SW	SPOT-1	HRV1-MLA	29-04-1989
62	66B/04SW	SPOT-1	HRV1-MLA	20-05-1990
63	66B/01NW	SPOT-1	HRV1-MLA	29-04-1989
64	66B/01SW	SPOT-1	HRV1-MLA	29-04-1989
65	66B/02NE	SPOT-1	HRV1-MLA	20-05-1989
66	66B/02SE	SPOT-1	HRV1-MLA	20-05-1989
67	66B/02NW	SPOT-1	HRV1-MLA	20-05-1989
68	66B/02SW	SPOT-1	HRV1-MLA	20-05-1989
69	66B/03NE	SPOT-1	HRV1-MLA	20-05-1989
70	66B/03SE	SPOT-1	HRV1-MLA	20-05-1990
71	66B/03SW	SPOT-1	HRV1-MLA	20-05-1990
72	66B/04SE	SPOT-1	HRV1-MLA	20-05-1990
73	66B/04NE	SPOT-1	HRV1-MLA	20-05-1990
74	66B/04NW	SPOT-1	HRV1-MLA	20-05-1990
75	66C/01NE	SPOT-1	HRV1-MLA	29-04-1989
76	66C/01SE&66C/05SW	SPOT-1	HRV1-MLA	19-04-1990
77	66C/02NE	SPOT-1	HRV1-MLA	19-04-1990
78	66C/02SE	SPOT-1	HRV1-MLA	19-04-1990
79	66C/06SW	SPOT-1	HRV1-MLA	19-04-1990
80	66E/01NE	SPOT-1	HRV1-MLA	10-5-1989
81	66E/01NW	SPOT-1	HRV1-MLA	10-5-1989
82	66E/01SW	SPOT-1	HRV1-MLA	10-5-1989
83	74A/12SE	SPOT-1	HRV1-MLA	13-10-1989
84	74B/03NE	SPOT-1	HRV1-MLA	23-11-1989
85	74B/03SE	SPOT-1	HRV1-MLA	23-11-1989

86	74B/03SW&74B/04NW	SPOT-1	HRV1-MLA	23-10-1989
87	74B/06NE&74B/10NW	SPOT-1	HRV1-MLA	13-10-1989
88	74B/06SE	SPOT-1	HRV1-MLA	13-10-1989
89	74B/06SW	SPOT-1	HRV1-MLA	13-10-1989
90	74B/07NW	SPOT-1	HRV1-MLA	23-11-1989
91	74B/09NE&NW	SPOT-1	HRV1-MLA	13-10-1989

Table-4: Satellite data used for Tamil Nadu and Puducherry Coast (1989-91 time-frame).

S.No	Map Number	Satellite	Sensor	Path	Row	Date
1	57P/16NE	SPOT	HRV1-MLA	221	326	Apr-89
2	57P/16NW	SPOT	HRV1-MLA	221	326	May-89
3	57P/16SE	SPOT	HRV1-MLA	221	326	Apr-89
4	57P/16SW	SPOT	HRV1-MLA	221	326	May-89
5	58H/03SE	IRS-1A	LISS-II	25	63	Apr-90
6	58H/03SW	IRS-1A	LISS-II	25	63	Mar-89
7	58H/04NE	IRS-1A	LISS-II	25	63	Mar-89
8	58H/08NW	IRS-1A	LISS-II	24	63	Feb-89
9	58H/08SE	IRS-1A	LISS-II	24	63	Feb-89
10	58H/08SW	IRS-1A	LISS-II	24	63	Feb-89
11	58H/12NE	SPOT	HRV1-MLA	218	334	May-88
12	58H/12NW	SPOT	HRV1-MLA	218	334	May-88
13	58H/12SW	IRS-1A	LISS-II	24	63	Feb-89
14	58H/15SE	IRS-1A	LISS-II	24	63	Feb-89
15	58H/15SW	SPOT	HRV1-MLA	218	333	May-88
16	58H/16NW	SPOT	HRV1-MLA	218	334	May-88
17	58K/08NE	SPOT	HRV1-MLA	219	332	Feb-89
18	58K/08SE	SPOT	HRV1-MLA	219	332	Feb-89
19	58K/08SW	SPOT	HRV1-MLA	219	332	Feb-89
20	58K/12NE	SPOT	HRV1-MLA	219	332	Feb-89
21	58K12NW	SPOT	HRV1-MLA	219	332	Feb-89
22	58K/14NE	SPOT	HRV1-MLA	220	331	Apr-89
23	58K/14SE	SPOT	HRV1-MLA	220	331	Apr-89
24	58K/15NE	SPOT	HRV1-MLA	220	331	Apr-89
25	58K/15SE	SPOT	HRV1-MLA	220	331	Apr-89
26	58K/15SW	SPOT	HRV1-MLA	220	331	Apr-89
27	58K/16NE	SPOT	HRV1-MLA	219	332	Feb-89
28	58K/16NW	SPOT	HRV1-MLA	219	332	Feb-89
29	58L/01NE	IRS-1A	LISS-II	24	62	Feb-89
30	58L/01SW	IRS-1A	LISS-II	24	62	Feb-89
31	58L/02NE	IRS-1A	LISS-II	24	63	Feb-89
32	58L/02NW	IRS-1A	LISS-II	24	62	Feb-89

33	58L/02SE	IRS-1A	LISS-II	24	63	Sep-93
34	58L/02SW	IRS-1A	LISS-II	24	63	Sep-93
35	58L/03NE	IRS-1A	LISS-II	24	63	Sep-93
36	58L/03NW	IRS-1A	LISS-II	24	63	Sep-93
37	58L/03SW	IRS-1A	LISS-II	24	63	Sep-93
38	58M/13NW	SPOT	HRV1-MLA	221	326	May-89
39	58M/13SW	SPOT	HRV1-MLA	221	326	May-89
40	58M/15NW	SPOT	HRV1-MLA	221	327	May-89
41	58M/15SW	SPOT	HRV1-MLA	221	327	May-89
42	58M/16NW	SPOT	HRV1-MLA	221	328	May-89
43	58M/16SW	SPOT	HRV1-MLA	221	328	May-89
44	58N/04NE	SPOT	HRV1-MLA	220	330	Apr-89
45	58N/04SE	SPOT	HRV1-MLA			Apr-89
46	58N/07NE	SPOT	HRV1-MLA	220	329	May-89
47	58N/07SE	SPOT	HRV1-MLA	220	329	Apr-89
48	58N/07SW	SPOT	HRV1-MLA	220	329	Apr-89
49	58N/11NE	SPOT	HRV1-MLA	221	329	Mar-89
50	58N/11NW	SPOT	HRV1-MLA	221	329	Mar-89
51	58N/11SE	SPOT	HRV1-MLA	221	329	Mar-89
52	58N/11SW	SPOT	HRV1-MLA	221	329	Mar-89
53	58N/13NW	SPOT	HRV1-MLA	221	328	May-89
54	58N/13SW	SPOT	HRV1-MLA	221	328	May-89
55	58N/14NW	SPOT	HRV1-MLA	221	329	Mar-89
56	58N/14SW	SPOT	HRV1-MLA	221	329	Mar-89
57	58N/15NW	SPOT	HRV1-MLA	221	329	Mar-89
58	58N/15SW	SPOT	HRV1-MLA	221	329	Mar-89
59	58O/01NE	SPOT	HRV1-MLA	220	330	Apr-89
60	58O/01NW & 58O/02NW	SPOT	HRV1-MLA	220	330	Apr-89
61	58O/01SW	SPOT	HRV1-MLA	220	330	Apr-89
62	58O/04NW	SPOT	HRV1-MLA	220	331	Apr-89
63	58O/03SE	SPOT	HRV1-MLA	220	331	Apr-89
64	58O/03SW	SPOT	HRV1-MLA	220	331	Apr-89
65	58O/08NW	IRS-1A	LISS-II	23	62	Jan-90
66	58O/07SW	IRS-1A	LISS-II	23	62	Apr-89
67	66C/03NE	SPOT	HRV1-MLA	221	323	Apr-89
68	66C/07NW	SPOT	HRV1-MLA	221	323	Apr-89
69	66C/07SW	SPOT	HRV1-MLA	221	323	Apr-89
70	66C/08NW	SPOT	HRV1-MLA	221	324	Apr-89
71	66C/08SW	SPOT	HRV1-MLA	221	324	Apr-89
72	66D/01SE	SPOT	HRV1-MLA	221	325	May-89
73	66D/02NE	SPOT	HRV1-MLA	221	325	May-89
74	66D/02SE	SPOT	HRV1-MLA	221	325	May-89
75	66D03NE	SPOT	HRV1-MLA	221	325	May-89

76	66D03NW & 66D/04NW	SPOT	HRV1-MLA	221	325	May-89
77	66D03SW	SPOT	HRV1-MLA	221	325	May-89

Table-5: Satellite data used for Andhra Pradesh Coast (2004-06 time-frame).

Sr. No.	Map number.	Satellite	Sensor	Orbit	Scene	Date
1	74 A/12 SE	IRS-P6	LISS IV	6977	80,81	19-2-2005
2	74 B/9 NE	IRS-P6	LISS IV	6977	81	19-2-2005
3	74 B/9 NW	IRS-P6	LISS IV	6977	81	19-2-2005
4	74 B/9 SW	IRS-P6	LISS IV	6977	82	19-2-2005
5	74 B/10 NW	IRS-P6	LISS IV	6977	82	19-2-2005
6	74 B/6 NE	IRS-P6	LISS IV	6977	82	19-2-2005
7	74 B/6 SW	IRS-P6	LISS IV	8071	78	07-05-05
8	74 B/7 NE	IRS-P6	LISS IV	8071	79	07-05-05
9	74 B/3 SE	IRS-P6	LISS IV	8071	79	07-05-05
10	74 B/3 SW	IRS-P6	LISS IV	8071	80	07-05-05
11	65 N/16 NE	IRS-P6	LISS IV	6906	84	14-2-2005
12	65 N/16 NW	IRS-P6	LISS IV	6906	85	14-2-2005
13	65 O/9 NW	IRS-P6	LISS IV	6835	90	09-02-05
14	65 O/5 NE	IRS-P6	LISS IV	6835	91	09-02-05
15	65 O/5 SE	IRS-P6	LISS IV	6835	91	09-02-05
16	65 O/6 NW	IRS-P6	LISS IV	6835	91	09-02-05
17	65 O/2 SE	IRS-P6	LISS IV	7588	87	03-04-05
18	65 O/2 SW	IRS-P6	LISS IV	7588	87	03-04-05
19	65 O/3 NW	IRS-P6	LISS IV	7588	88	03-04-05
20	74 B/4 NW	IRS-P6	LISS IV	6906	84	14-7-2005
21	65 K/15 SW	IRS-P6	LISS IV	8881	94	03-07-05
22	65 K/11 SE	IRS-P6	LISS IV	8881	94	03-07-05
23	65 K/11SW	IRS-P6	LISS IV	8881	94	03-07-05
24	65 K/12 SW	IRS-P6	LISS IV	12163	99	19-2-2005
25	65 K/12 NW	IRS-P6	LISS IV	12163	99	19-2-2005
26	65 K/8 NE	IRS-P6	LISS IV	12163	99	19-2-2005
27	65 K/8 SE	IRS-P6	LISS IV	12163	99	19-2-2005
28	65 K/8 SW	IRS-P6	LISS IV	12163	99	19-2-2005
29	65 L/5 NW	IRS-P6	LISS IV	12163	100	19-2-2005
30	65 L/5 SW	IRS-P6	LISS IV	12163	101	19-2-2005
31	65 L/6 NW	IRS-P6	LISS IV	12163	102	19-2-2005
32	65 L/6 SW	IRS-P6	LISS IV	12163	102	19-2-2005
33	65 L/2 SE	IRS-P6	LISS IV	12163	102	19-2-2005
34	65 L/3 NE	IRS-P6	LISS IV	12163	102	19-2-2005
35	65 L/3 NW	IRS-P6	LISS IV	9080	101	17-7-2005

36	65 H/15 NE	IRS-P6	LISS IV	9080	102	17-7-2005
37	65 H/11 SE	IRS-P6	LISS IV	10856	97	19-11-2005
38	65 H/11 SW	IRS-P6	LISS IV	10856	97	19-11-2005
39	65 H/7 SW	IRS-P6	LISS IV	11808	107	25-1-2006
40	65 H/3 SE	IRS-P6	LISS IV	11808	107	25-1-2006
41	65 H/4 NE	IRS-P6	LISS IV	11808	107	25-1-2006
42	65 H/4 NE	IRS-P6	LISS IV	11808	108	25-1-2006
43	65 H/4 SE	IRS-P6	LISS IV	11808	108	25-1-2006
44	65 H/4 SE	IRS-P6	LISS IV	11808	108	25-1-2006
45	66 E/1 NE	IRS-P6	LISS IV	11808	109	25-1-2006
46	66 E/1 NW	IRS-P6	LISS IV	11808	109	25-1-2006
47	66 E/1 SW	IRS-P6	LISS IV	11808	109	25-1-2006
48	66 E/1 SW	IRS-P6	LISS IV	11808	110	25-1-2006
49	66 A/3 SE	IRS-P6	LISS IV	11808	109	25-1-2006
50	66 A/3 SE	IRS-P6	LISS IV	11808	110	25-1-2006
51	66 E/2 NW	IRS-P6	LISS IV	11808	110	25-1-2006
52	66 A/14 NE	IRS-P6	LISS IV	11808	110	25-1-2006
53	66 A/13 SW	IRS-P6	LISS IV	7375	100	19-3-2005
54	66 A/9 SW	IRS-P6	LISS IV	6423	101	11-01-05
55	66 A/5 SE	IRS-P6	LISS IV	6423	101	11-01-05
56	66 A/5 SW	IRS-P6	LISS IV	6423	101	11-01-05
57	66 A/6 NW	IRS-P6	LISS IV	6423	101	11-01-05
58	66 A/6 NW	IRS-P6	LISS IV	7427	98	10-01-05
59	66 A/9 NE	IRS-P6	LISS IV	10032	126	22-9-2005
60	66 A/5 SE	IRS-P6	LISS IV	12149	85	18-2-2005
61	66 A/5 SW	IRS-P6	LISS IV	12149	85	18-2-2005
62	66 A/6 NW	IRS-P6	LISS IV	12149	85	18-2-2005
63	66 A/9 NE	IRS-P6	LISS IV	12703	87	29-3-2006
64	66 A/9 NW	IRS-P6	LISS IV	12703	87	29-3-2006
65	66 A/9 SW	IRS-P6	LISS IV	12703	87	29-3-2006
66	66 A/9 SE	IRS-P6	LISS IV	12703	87	29-3-2006
67	66 A/2 SE	IRS-P6	LISS IV	12362	126	05-03-06
68	66 A/3 NE	IRS-P6	LISS IV	12362	127	05-03-06
69	66 A/3 SW	IRS-P6	LISS IV	12362	128	05-03-06
70	66 A/4 NW	IRS-P6	LISS IV	12362	128	05-03-06
71	66 A/4 SW	IRS-P6	LISS IV	12362	129	05-03-06
72	66 B/2 NE	IRS-P6	LISS IV	6423	106	11-01-05
73	66 B/2 SE	IRS-P6	LISS IV	12149	90	18-2-2006
74	66 B/1 SW	IRS-P6	LISS IV	12362	130	05-03-06
75	66 B/3 NE	IRS-P6	LISS IV	6423	107	11-01-05
76	66 B/3 SE	IRS-P6	LISS IV	6423	107	11-01-05
77	66 B/3 SE	IRS-P6	LISS IV	6423	108	11-01-05
78	66 B/4 NE	IRS-P6	LISS IV	6423	108	11-01-05
79	66 B/4 NW	IRS-P6	LISS IV	6423	108	11-01-05

80	66 B/3 SE	IRS-P6	LISS IV	7034	107	23-2-2005
81	66 B/3 NE	IRS-P6	LISS IV	12149	91	18-2-2006
82	66 B/4 SE	IRS-P6	LISS IV	6423	109	11-01-05
83	66 C/7 NW	IRS-P6	LISS IV	7375	111	19-3-2005
84	66 C/1 SE	IRS-P6	LISS IV	10174	110	02-10-05
85	66 C/6 SW	IRS-P6	LISS IV	7375	110	19-3-2005
86	66 C/6 SW	IRS-P6	LISS IV	7375	111	19-3-2005

Table-6: Satellite data used for Tamil Nadu and Puducherry coast (2004-06 time-frame).

Sr. No.	Map Sheet No.	Satellite	Sensor	Orbit No.	Scene No.	Date
1	66C06NW, SW, SE	IRS P6	LISS IV	7375	111	3-19-2004
2	66C07NE, SE	IRS P6	LISS IV	7375	112	3-19-2004
3	66C08NE, SE	IRS P6	LISS IV	7375	113	3-19-2004
4	66D01NE, SE	IRS P6	LISS IV	7375	114	3-19-2004
5	66D02NE, SE	IRS P6	LISS IV	7376	115	3-19-2004
6	66D03NE, SE, SW	IRS P6	LISS IV	7376	116	3-19-2004
7	66D04NW, SW	IRS P6	LISS IV	7375	118	3-19-2004
8	57P16NW, SW	IRS P6	LISS IV	7375	117	3-19-2004
9	58M13NW, SW	IRS P6	LISS IV	7375	119	3-19-2004
10	58M10NW, SW	IRS P6	LISS IV	7375	120	3-19-2004
11	58M11NW, NE, SW, SE	IRS P6	LISS IV	7376	121	3-19-2004
12	58N4NE, SE	IRS P6	LISS IV	7034	126	2-23-2005
13	58K14SW, SE	IRS P6	LISS IV	7247	127	3-10-2005
14	58K15SW, NW, NE	IRS P6	LISS IV	6423	131	1-11-2005
15	58K16NW	IRS P6	LISS IV	5798	133	11-28-2004
16	58K08NW, NE, SW	IRS P6	LISS IV	7176	134	11-28-2004
17	58L01NE, SE	IRS P6	LISS IV	7162	136	3-4-2005
18	58L02NE, SE	IRS P6	LISS IV	7162	137	3-4-2005
19	58H04NE	IRS P6	LISS IV	6551	140	1-20-2005

20	58H08SW	IRS P6	LISS IV	6892	12	2-13-2005
21	58L01NE, SW	IRS P6	LISS IV	6963	23	2-18-2005
22	66C06NW, SW	IRS P6	LISS IV	11808	121	1-25-2006
23	66C04NW, SW	IRS P6	LISS IV	11808	122	1-25-2006
24	66D01 & 66D05 NE, SE	IRS P6	LISS IV	11467	117	1-1-2006
25	66C07NW	IRS P6	LISS IV	7375	111	3-19-2005
26	66C07SW	IRS P6	LISS IV	7375	111, 112	3-19-2005
27	66C08NW	IRS P6	LISS IV	7375	112	3-19-2005
28	66C08SW	IRS P6	LISS IV	7929	111	4-27-2005
29	66D05NW	IRS P6	LISS IV	7375	113	3-19-2005
30	66D05SW	IRS P6	LISS IV	11808	123	1-25-2006
31	66D01SE	IRS P6	LISS IV	7375	114	3-19-2005
32	66D02NE	IRS P6	LISS IV	7375	114, 115	3-19-2005
33	66D03NW	IRS P6	LISS IV	7375	115, 116	3-19-2005
34	66D03SW	IRS P6	LISS IV	14337	141	7-22-2006
35	57P15SE	IRS P6	LISS IV	11467	122	1-1-2006
36	66D04NW	IRS P6	LISS IV	13044	141	4-22-2006
37	57P16NE, SE	IRS P6	LISS IV	7375	117	3-19-2005
38	57P16SW	IRS P6	LISS IV	11467	123	1-1-2006
39	58M13NW	IRS P6	LISS IV	11879	92	1-30-2006
40	58M13SW	IRS P6	LISS IV	11467	124	1-1-2006
41	58M10NE	IRS P6	LISS IV	11467	125	1-1-2006
42	58M10NE	IRS P6	LISS IV	12703	106	3-29-2006
43	58M14NW	IRS P6	LISS IV	11467	125	1-1-2006
44	58M10SE	IRS P6	LISS IV	10032	146	1-22-2005
45	58M14SW	IRS P6	LISS IV	11467	125, 126	1-1-2006
46	58M15NW	IRS P6	LISS IV	7375	120	3-19-2005
47	58M15SW	IRS P6	LISS IV	7375	121	3-19-2005
48	58M16NW	IRS P6	LISS IV	14337	146, 147	7-22-2006
49	58M16SW	IRS P6	LISS IV	14337	147	7-22-2006
50	58N13NW	IRS P6	LISS IV	11808	132	1-25-2006
51	58N13NW	IRS P6	LISS IV	13044	147	4-22-2006
52	58N13SW	IRS P6	LISS IV	1237	144	1-12-2004
53	58N14NW	IRS P6	LISS IV	11808	133	1-25-2006
54	58N14SW	IRS P6	LISS IV	11808	133,134	1-25-2006
56	58N15NW	IRS P6	LISS IV	11808	134	1-25-2006
57	58N15SW	IRS P6	LISS IV	11808	134,135	1-25-2006
58	58N15SE	IRS P6	LISS IV	3695	136,137	3-7-2004
60	58N11SE	IRS P6	LISS IV	1237	146	12-1-2004
61	58N11SW	IRS P6	LISS IV	14337	150	22-07-2006
62	58N07SE	IRS P6	LISS IV	11879	7	30-01-2006
63	58N07SW	IRS P6	LISS IV	12703	112,113	29-Mar-06
64	58N07SW	IRS P6	LISS IV	12703	113	29-Mar-06

65	58N08NW, SW	IRS P6	LISS IV	12703	113, 114	29-Mar-06
66	58O01NE	IRS P6	LISS IV	12703	153	29-Mar-06
67	58O01NW, SW	IRS P6	LISS IV	12703	154	12-Apr-06
68	58O02NW, 58K14NE	IRS P6	LISS IV	12149	113	18-Feb-06
69	58K14SE	IRS P6	LISS IV	12632	112	24-Mar-06
70	58K15NE, SE	IRS P6	LISS IV	12149	114, 115	18-Feb-06
71	58O03SW	IRS P6	LISS IV	7929	9	27-04-2005
72	58O03SE	IRS P6	LISS IV	11467	136	1-Jan-06
73	58O07SW	IRS P6	LISS IV	3283	146	6-Apr-04
74	58O08NE, NW	IRS P6	LISS IV	14337	155,156	22-07-2006
75	58O04NE	IRS P6	LISS IV	11467	136	1-Jan-06
76	58O04NW	IRS P6	LISS IV	7247	128	10-3-2005
77	58K16NE	IRS P6	LISS IV	6423	131	11-1-2006
78	58K15SW	IRS P6	LISS IV	12632	113,114	24-03-2006
79	58K12NE	IRS P6	LISS IV	8270, 12632	14,114	24-05-2006, 21-05-2005
80	58K12NW, SW	IRS P6	LISS IV	8270	14	21-05-2005
81	58K08NE	IRS P6	LISS IV	9293	129	1-8-2005
82	58K08SE, SW	IRS P6	LISS IV	12206	120	22-02-2006
83	58L05NW	IRS P6	LISS IV	12206	120	22-02-2006
84	58K04SE	IRS P6	LISS IV	7162, 12206, 7162	134,120,135	04-03-2005, 22-02-2006
85	58L01NE	IRS P6	LISS IV	7162	135,134	4-3-2005
86	58L01SE	IRS P6	LISS IV	7176	135	5-3-2005
87	58L02NE	IRS P6	LISS IV	12206	122	22-02-2006
88	58L02SE	IRS P6	LISS IV	7787	132	17-04-2005
89	58L02NW	IRS P6	LISS IV	7162	136	4-3-2005
90	58L02SW	IRS P6	LISS IV	7162, 7162, 7787	136,137,132	4-3-2005
91	58L03NW	IRS P6	LISS IV	3553, 12206	13,123	23-06-2004, 22-02-2006
92	58L03SW	IRS P6	LISS IV	7787, 7162	133,138	17-04-2005, 04-03-2005
93	58H15SE	IRS P6	LISS IV	7162	138	4-3-2005
94	58H15SW	IRS P6	LISS IV	13101, 7162	162, 138	26-04-2006, 04-03-2005
95	58H16NW	IRS P6	LISS IV	13101	162, 163	26-04-2006
96	58H12NE	IRS P6	LISS IV	9350	141	5-8-2005
97	58H12NW	IRS P6	LISS IV	8327, 9350	135, 141	25-05-2005, 05-08-2005
98	58H12SW	IRS P6	LISS IV	8327	136	25-05-2005
99	58H08NE	IRS P6	LISS IV	1507	156	31-01-2004

100	58H08SE	IRS P6	LISS IV	8327	136	25-05-2005
101	58H08NW	IRS P6	LISS IV	8128	138	11-5-2005
102	58H04NE	IRS P6	LISS IV	12888	162	11-4-2006
103	58H03SE, SW	IRS P6	LISS IV	12135	161	17-02-2006

Table-7: Protected reaches of Andhra Pradesh.

Sr No.	Location	Type of Protection work	Specification	Length (in m)	Latitude/ Longitude
1	Uppada Village, Kothapalli (M), East Godavari District.	Sea Wall	Geo Tubes, Geo Bags and Gabion filled with HBG Metal as per the approved design of CWPRS, Pune	1463	17^{o} 4’ 35’’ N 82^{o} 20’ 30’’ E

Table-8: Vulnerable reaches of Andhra Pradesh.

Sr No.	Location	Type of Protection work	Specification	Length (in m)
1	Machilipatnam/ Krishna District.	Kona Saline Embankment	As per I.S Standard	18600
2	Krithivennu/ Krishna District	Krithivennu Saline Embankment	As per I.S Standard	15000

Table-9: Protected reaches of Tamil Nadu.

Sr. No.	Location (Village/Taluk/District)	Type of Protection works	Specification (m)	Latitude/Longitude	
				From	To
1	Ennore (near Kosasthalaiyar estuary) to Royapuram Fishing Harbour, Chennai, Thiuvallur District.	RMS wall	10,617	13° 14' 03.07" N 80° 19" 59,19"' E	13° 08' 3.68" N 80° 17'53.67" E

2	Mahabalipuram (near shore temple), Kancheepuram Dt.	RMS wall	263	12° 36' 57.06" N 30° 11° 58.02" E	12° 37' 1.2" N 80° 11 57.78" E
3	Sodhanaikuppam village, Vanur taluk, Villupuram	RMS wall	946	11°57'22.73"N 79° 50' 31.54" E	11° 57' 45,99"N 79° 50' 31.54"E
4	Nadukuppam village, Vanur taluk, Villupuram	RMS wall	500	11° *57'*51.82"N 79° 50' 33.54"E	11°58'06.86"N 79° 50' 37.1.0"E
5	Devanampattinam, Cuddalore District	RMS wall	800	11°45' 12" N 79° 47'27" E	11° 44' 36" N 79° 47' 23" E
6	Ariyanattu Theru, Nagapattinam District	RMS wall	400	-	-
7	Seruthur Village, Velankanni, Nagapattinam District.	RMS wall	110	-	-
8	Poombukar, Nagapattinam District	RMS wall	750	11° 08' 45" N 79° 51' 32" E	11^0 08' 25" N 79° 51' 33"E
9	Tharangambadi, Nagapattinam District	RMS wall	1100	11° 01'58" N 79° 51'25" E	11° 01'31"N 79°51'23" E
10	Nambuthalai, Thiruvadanai Taluk	RMS wail	405	09° 17 18" N 79° 19' 14"E	09° 17' 35" N 79° 19' 30" E
11	Keezhakarai, Ramnad taluk.	RMS wall	180	09° 13'45"N 78° 47' 25" E	09° 13' 45" N 78° 47 19" E
12	Nagappattinam, Nagappattinam District,	RMS wall	470	10° 46' 07"N 79° 51' 09" E	10° 45' 54" N 79° 51'03" E
13	Nagappattinam, Nagappattinam District.	RMS wall	1550	10° 45' 30" N 79° 51' OS" E	10° 44' 48" N 79°51'09" E.
14	Kulasekarapattinam , Trichendur taluk, Thoothukudy taluk.	RMS wall	400	8° 23' 34.9" N 78° 03' 27.08" E	Mid point

15	Jeevapuram,Trichendur taluk, Thoothukudy taluk.	RMS wall	500	8° 29' 56.68" N 78° 7' 42.29"E	Mid point
16	Collector's Bungalow, Trichendurtal.uk, Thoothukudy taluk	RMS wall	410	8° 42' 24.27" N 78° 09' 42.89" E	Mid point
17	Thoothur, Kauniyakumari District	RMS wall	375	08° 15' 07" N 77° 09' 10" E	Mid point
18	Christuraja kurusady at Poothurai, Vilavancode taluk, Kanniyakumari District	RMS wall	130	08° 15.22' N 77° 09.063 E	08° 1.5.225'N 77°09.065' E
19	Meelmidalam, Vilavancode taluk, Kanniyakumari District	RMS wall	630	08° 12' 25" N 77° 12' 26" E	Mid point
20	Keezhimidalam, Vilavancode taluk, Kanniyakumari District	RMS wall	775 in	08° 13.818'N 77° 1.0.620' E	08° 13.593' N 77° 10.844'
21	Erayumanthurai East, Vilavancode taluk, Kanniyakumari District	RMS wall	675	08° 14.652' N 77° 09.726' E	08° 14.71'N 77° 09.741' E
22	Erayumanthurai West, Vilavancode taluk, Kanniyakumari District	RMS wall	950	08° 14'48"N 77° 09' 34" E	Mid point
23	Enayam, Kanniyakumari District	RMS wall	900	08° 13'13"N 77° 11'03"E	Mid point
24	Muloorthurai, Vilavancode taluk, Kanniyakumari District	RMS wall	520	08° 12.176'N 77° 12.889' E	Or 11,976' N 77° 13.157' E

25	Puthenthurai, Vilavancode taluk, Kanniyakumari District	RMS wall	570	08° 05.38' N 76° 26.35' E	08° 05.14' N 77° 25.52* E
26	Arayanthoppu, Vilavancode taluk, Kanniyakumari District.	RMS wall	250	08° 14.227'N 77° 10.276'E	08° 14.227 N ' 77° 10,358' E
27	Ramanthurai, Vilavancode taluk, Kanniyakumari District	RMS wall	310	08° 13.818'N 77° 10.620' E	08° 13.593' N 77'- 10.844' 11
28	Enayamputhanthurai, Vilavancode taluk, Kanniyakumari District	RMS wall	70	08" 10.405' N 77° 15.097' E	0S° -10.364' N 77^{n} 15.320' E
29	Poothurai, Kanniyakumari District	RMS wall	750	08° 14' 58" N 77° 09' 22" E	Mid point
30	Kurumpanau Kalkulam taluk, Kanniyakumari District	RMS wall	100	08° 11.405' N 77° 13.685' E	08" 1 1.367' N 77° 13.723' E
31	Vaniyakudi, Kalkulam. taluk, Kanniyakumari District	RMS wall	312	08° 3 0.878'N 77° 14.112'E	08° 10,751'N 77° 14.258' E
32	Kodimunai, Kalkulam taluk, Kanniyakumari District	RMS wall	502 & 21.8	08° 10.597' N 77° 14.524' E & 08° 10.604' N 77° 14.415' E	08° 10.563' N 77° 14.622'E & 08° 10.597' N 77° 14.524' E
33	Kottilpadu, Kalkulam taluk, Kanniyakumari District	RMS wall	460	08° 10.153' N 77°15.756' E	08° 10.047' N 77° 16.017' E
34	Mandaikattuputhoor, Kalkulam taluk, Kanniyakumari District	RMS wall	115	08° 09' 705' N 77° 16.659' E	08° 10.667' N 77° 16.718' E

35	Chinnavilaithurai, Kalkulam taluk, Kanniyakumari District	RMS wall	120	08° 08.682' 'N 77° 18.076' E	08° 08.604' 'N 77° 18.150' E
36	Periavilaithurai, Kalkulam taluk, Kanniyakumari District	RMS wall	290 & 140	08° 09.105'N 77° 17.596' E & 08° 09.156'N 77° 17.558' E	08° 09.019'N 77° 17.731' E & 08° 09.105'N 77° 17.596' E
37	Kadiyapattinam, Kalkulam taluk, Kanniyakumari District	RMS wall	300	08° 07.983' N 77° 18.241'E	08° 07.757' N 77° 18.411'E
38	Maramadi, Kalkulam taluk, Kanniyakumari district	RMS wall	430	08° 05. 840' N 77° 26.197' E	08° 05. 882' N 77° 26.001' E
39	Rajakkamangalathurai, Agasteeswaram taluk, Kanniyakumari district	RMS wall	1100	08° 06. 775'N 77° 23.023'E	08° 06. 934'N 77° 22.446'E
40	Keezhamanakudi, Agasteeswaram taluk, Kanniyakumari district	RMS wall	950	08° 05. 215'N 77° 29.627 E	08° 05. 395'N 77° 31.600 E
41	Chinnamuttam, Kanniyakumari district.	RMS wall	245	08° 05' 31" N 77° 33' 43"E	Mid point
42	Pallamdurai, Agasteeswaram taluk, Kanniyakumari district.	RMS wall	158	08° 05. 840' N 77° 26.197' E	08° 05. 882' N 77° 26.001' E
43	Melamanakudi, Agasteewaram taluk, Kanniyakumari district.	RMS wall	150	08° 05. 20' N 77° 28.38' E	08° 05. 07' N 77° 27.03' E

44	Kovalam, Agasteewaram taluk, Kanniyakumari district.	RMS wall	120	08° 04. 858' N 77° 31 . 772' E	08° 04. 897' N 77 °31.600" E
45	Vattakottai, Kanniyakumari district.	RMS wall	150	08° 07' 3O" N 77° 33' 57" E	Mid point
46	Eraviputhenthurai, Kanniyakumari district.	RMS wall	602	08° 15' 41" N 77° 08' 24" E	Mid point
47	Chinnathurai, Kanniyakumari district.	RMS wall	329	08° 15' 16" N 77° 08' 59" E	Mid point
48	Marthandamthurai, Kanniyakumari district	RMS wall	500	08° 16' 50" N 77° 06' 49" E	Mid point
49	Azhikal, Kanniyakumari District	RMS wall	560	08° 07' 19" N 77° 19' 00" E	Mid point
50	Vavathurai, Kanniyakumari district	RMS wall	149	08° 04' 55"N 77° 33' 08" E	Mid point
51	Neerodithurai, Kanniyakumari district	RMS wall	1020	08° 17' 11" 77° 6' 20" E	Mid point
52	Vallavilaithurai, Kanniyakumari district	RMS wall	820	08° 07' 10" N 77° 7' 9"	Mid point
53	Periyakadu, Kanniyakumari district	RMS wall	200	08°06' 42" N 77°23' 15"E	Mid point
54	Thiruvetriyur, Thriuvallur district	Groyne	165	13°11' 2.64"N 80° 19’ 0.6” E	Backshore
55	Thiruvetriyur, Thiruvallur district	Groyne	200	13° 10’ 53.52’ N 80° 18’ 57.24” E	Backshore
56	Thiruvetriyur, Thiruvallur district	Groyne	250	13° 10’ 40.26’ N 80° 18’ 50.82” E	Backshore

57	Thiruvetriyur, Thiruvallur district	Groyne	250	13° 10’ 24.72”N 80° 18’45.66”E	Backshore
58	Thiruvetriyur, Thiruvallur District.	Groyne	200	13° 10' 10.8" N 80° 18' 41.16" E	Backshore
59	Thiruvetriyur, Thiruvallur District.	Groyne	165	13° 10' 1.56"N 80° 18'37.5" E	Backshore
60	Royapuram., Chennai District.	Groyne	245	1.3° 09' 15.48"N 80° 1.8' 3 8,66" E	Backshore
61	Royapuram, Chennai District.	Groyne	300	13° 08' 58.56" N 80° 18' 11.16" E	Backshore
62	Royapuram, Chennai District.	Groyne	300	13° 08'41.52"N 80° 18'2.58" E	Backshore
63	Royapuram, Chennai District.	Groyne	' 245 .	13° 08' 27.42" N 80° 17' 57.24" E	Backshore
64	Cooum North, Chennai District.	Groyne	140	1.3° 04' 7.50" N 80° 17' 22.68" E	Backshore
65	Cooum South, Chennai District,	Groyne	170	13° 04' 58.50" N 80° 17' 18,42"E	Backshore
66	Thanthiriyankuppam , Villupuram District.	Groyne	50	11°58'06.77"N 79° 50' 38.04"0	11^0 58' 09.24"N 79°50'37.56"E
67	Thanthiriyankuppam , Villupuram District,	Groyne	375	1.1° 58' 09.24"N 79° 50'37.56"E	11° 58' 20.13"N 79° 5.0' 41.95"E
68	Cuddalore Fishing harbor	South Groyne	250	11° 42' 20"N 79° 46' 58"E	11° 42' 18"N 79°46'58"E
69	Dist. Between groynes		237		
70	Cuddalore Fishing harbor	North Groyne	1.90	11°42'27"N 79° 46' 57"E	11°42'22"N 79° 46' 50" E
71	Fishing jetty	Jetty	270	11°42'28"N 79° 46' 46" E	11° 42' 27;'N 79°46'55"E
72	Fishing harbour	Groyne	105	10° 45'53"N 79° 5l'05"E	10°45'53"N 79° 51' 08"E

73	Fishing harbour	Groyne	140	10° 45'52"N 79° 51'05"E	10°45' 52"N 79°51'08"E
74	Fishing jetty	Jetty	30 •	09° 13'41"N 78° 46'13 "E	Onshore end
75	Fishing jetty	Jetty	70	09° 16' 49"N 79° 1.8'56"E	09° 16' 48 "N 79° 18' 54"E
76	Mandabarm Fishing Jetty, Ramanathapuram District.	Jetty	30	09° 16'18"N 79° 07' 55"E	09° 16' 17"N 79° 07' 55"E
77	At Kaduvaiyar & Kallar river	Training wall	650	-	-
78	Idinthakarai, Radhapuram taluk, Thirunelveli District.	Groynes	G-1 351 G-150 G-1 65 G-1 125	08°10’28”N 77°44’20.8” E 08°10’32.7”N 77°44’32” E 08°10’38.3”N77°44’42.9”E 08°10’10.40”N 77°44’48”E	-
79	Idinthakarai, Radhapuram taluk, Thirunelveli District.	Groyne	25	08°10’33”N 77°44’36” E	-
80	Therespuram, Thoothukudi taluk, Thoothukudi district.	Groyne	1310	08° 48' 55.4" N 78° 09' 47.6E	-
81	Ratchagar Street, Aagasteewaram taluk, Kanniyakumari district.	Groyne	463	08° 04.997'N 77° 33.180' E	08° 05.395'N 77° 29.122' E
82	Melamanakudi, Agasteewaram taluk, Kanniyakumari district.	Groyne	138	08° 05' 16" N 77° 29' 19" E	Backshore end
83	Keeza manakkudi, Agasteewaram taluk, Kanniyakumari district.	Groyne	138	08° 05' 20" N 77° 28' 58" E	Backshore end

84	Arokyapuram, Agasteewaram taluk, Kanniyakumari district.	Groyne	G1-2 390 G2-3 296	08° 04.997' N 77° 33.180' E 08° 07.265' N 71° 33.590' E	08° 07.050' N 77° 33.770' E 08° 07.200' N 71° 33.698' E
85	Kovalam, Agasteewaram taluk, Kanniyakumari district.	Groyne	265	08° 04. 905' N 77° 31.476' E	08° 04. 794' N 77° 31.512' E
86	Periyakadu,Agasteewaram taluk, Kanniyakumari district	Groyne	G5-6 320 G7-8 79	08° 06.706' N 77" 23.258' E 08° 06.661' N 77" 23.360' E	08° 06.551' N 77" 23.248' E 08° 06.619' N 77" 23.232' E
87	Vaniyakudi, Kalkulam. taluk, Kanniyakumari District	Groyne	G5-6 130 G7-8 110	08° 11.091' N 77° 13.933' E 08° 10.751'N 77° 14.259' E	08° 10.676' N 77°14.232'E
88	Kurumbanai, Kalkulam taluk, Kanniyakumari district	Groyne	G1-2 160 G3-4 90	08° 11.367' N 77° 13.723' E 08° 11.142' N 77° 13.837' E	08° 11.101' N 77° 13.821' E 08° 11.101' N 77° 13.821' E
89	Symon Colony, Kalkulam taluk, Kanniyakumari district	Groyne	G1-2 235 G3-4 110	08° 10.642' N 77° 14.366' E 08° 10.532' N 77° 14.658' E	08° 10.531' N 77° 14.324' E 08° 10.469' N 77° 14.649' E
90	Enayam East, Vilavancode taluk, Kanniyakumari district	Groyne	216	08° 13.022'N 77° 11 .286' E	08° 12.933' N 77° 11.243' E

Table-10: Protected reaches of Karaikal region in U.T. of Puducherry.

Sr. No.	Location	Type of protection work	Length (in m)	Specification	Latitude (N)		Longitude (E)	
	Karaikal North (0 from Arasalar)				Starting Point	End Point	Starting Point	End Point

1	Groynes at LB of confluence point	Break water at fishing harbour		Rubble mound	10° 54' 53.1"		79° 51' 17.3"	
2	Chainage 0m to 3000m (Kilingelmedu)	Coastal wall	3000	PCC 1:1 1/2:3	10° 55' 08.4"	10° 56' 26.0 "	79° 51' 05.2"	79° 51' 10.30 "
3	Chainage 5000m to 5500m (Kottucherrymedu)	Coastal wall	500	PCC 1:1 1/2:3	10° 57' 36.1"	10° 57' 41.6 "	79° 51' 11.9"	79° 51' 11.5"
4	Chainage 6200m to 6500m (Akkampet)	Coastal wall	300	PCC 1:1 1/2:3	10° 58' 13.9"	10° 58' 18.6 "	79° 51' 13.10"	79° 51' 13.01 "
5	Chainage 7000m to 8000m (Kalikuppam & Mandapathur)	Coastal wall	1000	PCC 1:1 1/2:3	10° 58' 38.6"	10° 59' 04.8 "	79° 51' 11.8"	79° 51' 10.8"
	Karaikal Sorth (0 from Arasalar)							
1	Groynes at RB of confluence point	Break water at fishing harbour		Rubble mound	10° 54' 48.5"		79° 51' 15.6"	
2	Chainage 3400m to 4400m (Pattinacherry)	Coastal wall	1000	PCC 1:1 1/2:3	10° 53' 00"	10° 52' 36.7 "	79° 51' 04.8"	79° 51' 05.2"
3	Chainage 5500m to 6800m	Coastal wall	1300	PCC 1:1 1/2:3	10° 52' 04.2"	10° 51' 37.6 "	79° 51' 04.5"	79° 51' 01.3"
4	Chainage 7000m to 7500m (Vadakku Vanjore)	Coastal wall	500	PCC 1:1 1/2:3	10° 51' 11.1"	10° 51' 04.3 "	79° 50' 57.2"	79° 50' 56.9"

Table-11: Protected reaches of Puducherry region in U.T. of Puducherry.

Sr. No.	Location	Type of protection work	Length (in m)	Specification	Latitude (N)		Longitude (E)	
	From North of New Pier (0 from New Pier)				Starting Point	End Point	Starting Point	End Point

1	Ch. 0m to 1970m (from New Pier to Karuvadikuppam Drain)	Sea Wall	1970	Rubble Mound	11° 55' 23.2"	11° 56' 23.6"	79° 50' 1.2"	79° 50' 12.9"
2	Ch. 1970m to2330m (From Karuvadikuppam Drain)	Sea Wall	360	Rubble Mound	11° 56' 23.6"	11° 56' 41.2"	79° 50' 12.9"	79° 50' 15.9"
3	Ch.2330m to 2895 (Vaithikuppam)			Rubble Mound	11° 56' 41.2"	11° 56' 54.3"	79° 50' 15.9"	79° 50' 17.4"
4	Ch.2895m to 3775m (Solal Nagar to Tamil Nadu border)			Rubble Mound	11° 56' 54.3"	11° 57' 22.7"	79° 50' 17.4"	79° 50' 25.4"
	From South of New Pier (0 from New Pier)							
1	Ch. 0m to 300m (from New Pier to Vambakeera palayam)	Sea Wall	300	Rubble Mound	11° 55' 23.2"	11° 55' 14"	79° 50' 1.2"	79° 49' 58.8"
2	Ch. 300m to 1525m (from Vambakeera palayam to Dubrayapet New Light house)	Sea Wall	1225	Rubble Mound	11° 55' 14"	11° 54' 36.3"	79° 49' 58.8"	79° 49' 45.95"

Table-12: Vulnerable reaches of Tamil Nadu.

Sr. No.	Location (Village/Taluka/District)	Latitude/Longitude		
		From	To	Length (m)
1	Royapuram fishing Harbour to Ennore (near Kosasthalaiyar estuary/Chennai &	13°13' 50.28" N 80°19' 53.04" E	13° 13' 50.28 N 80° 19' 53.04" E	12500

	Thiruvallur Districts.			
2	Foreshore Estate, Chennai District	13° 02' 14.40" N 80° 16^{s} 49.32" E	13° 00' 58.92" N 80° 16' 39.60" E	3000
3	Mahabalipuram, Kancheepuram district.	12° 38' 30.48" N 80" 12' 16.92" E	12° 36' 57.06" N 80° 11' 58.02" E	2730
4	Kalpakkam (Sadras) to Oyyaiikuppam village, Kancheepuram district.	12° 37' 1.2" N 80° 11' 57.78" E	12° 29'12" N 80° 09' 29.4" E	3000
5	Chinnakuppam	12° 26' 54.8" N 80° 08' 37.4" E	12° 26' 58.26" N 80° 08'50.31" E	650
6	Devanampattinam Village/ Cuddalore District	11° 44' 40.40" N 79° 47' 16.60" E	-	420
7	Thazhanguda Village/ Cuddalore District	11° 46' 08.10" N 79° 47'37.40" E	-	1570
8	Suba Uppalavadi Village / Cuddalore District	11" 47' 10.40" N 79° 47'40.40" E	-	210
9	Devanampattinam Village / Cuddalore District	11° 44' 40.40" N 79° 47'16.60" E	-	550
10	Thazhanguda VBIage / Cuddalore District	11° 46'08.1" N 79° 47'37.4" E	-	800
11	Suba Uppalavadi Village / Cuddalore District	11° 47' 10.4" N 79° 47' 40.4" E	-	450
12	Devanampattinam Village / Cuddalore District.	11° 44' 40.4" N 79° 47' 18.6" E	-	800
13	Thazhanguda Village/Cuddalore District	11*46'08.1" N 79° 47'37.4" E	-	800
14	Thandhiriyankuppam to Chinnamudaliyar Chavadi in Vanur Taluk/Villupuram District	11° 58'20.13" N 79" 50'41.95" E	11'58'58.05" N 79° 50'54.08" E	1200
15	Chinnamudhaliyar Chavadi to Bommaiyarpalayam in Vanur Taluk/Villupuram District	11° 58' 58.05" N 79° 50'54.08" E	11° 59'52.73" N 79° 51' 16.66" E	1800
16	Sodanaikuppam, Vanur Taluk /Villupuram District	-	-	736

17	Near Poombukar. Nagapattinam District	11° 07 40" N 79° 51' 33" E	79* 51' 12" E 11° 06'48" N	1570
18	Akkaraipettai Village/ Nagapattinam District	10°74' N 79° 85' E	-	100
19	Kallar Village/ Nagapattinam District	10°74' N 79°85' E	-	700
20	Seruthur Village/ Nagapattmam District.	10°68' N 79°85' E	-	700
21	Sarnanthanpettai/ Nagapattinam District.	-	-	600
22	Palayar Village in Sirkali Taluk of Nagapattinam District.	11° 14'32" N [79*51'58" E r	-	1000
23	Thirumullaivasai Village in Sirkali Taluk, Nagapattinam District		-	1700
24	Poombuhar Village in Sirkali Taluk of Nagapattinam District.	11° 08' 17" N 79° 52'05" E	-	1810
25	Vanagirikuppam Village in Sirkali Taluk of Nagapattinam District	11° 08' 09" N 79° 52' 05" E	-	1450
26	Kuttiyandiyur Village in Tharangambadi Taluk of Nagapattinam District.	11° 03'24" N 79° 51'37" E	-	600
27	Tharangambadi Village in Tharangambadi Taluk of Nagapattinam District.	11° 03'05" N 79° 51' 35" E	-	2750
28	Chandrapadi Village in Tharangambadi Taluk of Nagapattinam District.	11° 03'00" N 79° 51' 36" E	-	800
29	Keezhamanakudy Village / Agasteeswaram Taluk of Kanyakumari District	08° 05.205' N 77° 29.676' E	08° 05.393' N 77° 29.122' E	950
30	Araiyanthoppu Village /	08° 14.227' N	08° 14.116' N	250

	Vilavancode Taluk of Kanyakumari District	77° 10.276' E	77° 10.358' E	
31	Mullorthurai Village / Vilavancode Taluk of Kanyakumari District	08° 14.116' N 77° 10.358' E	08* 13.818' N 77° 10.620' E	745
32	Helan Colony Village / Vilavancode Taluk of Kanyakumari District	08° 12.859' N 77° 11.682' E	08° 12.822' N 77° 11.745' E	165
33	Kadiyapattinam Village / Kalkulam Taluk of Kanyakumari District	08° 07.660' N 77° 18.540' E	08° 07.647' N 77° 18.605' E	100
34	Neerodithurai to Erayumanthur River Mouth/Vilavancode Taluk of Kanyakumari District	08° 14.69' N 77° 9.726' E	08° 17.513' N 77° 05.905' E	4800
35	Kovalam Village / Agasteeswaram Taluk of Kanyakumari District	08° 04.905' N 77° 31.476' E	08° 04.794' N 77° 31.476 E	136.2
36	Keezhamanakudy Village / Agasteeswaram Taluk of Kanyakumari District	08° 05.306' N 77° 29.161' E	08° 05.232' N 77° 29.136' E	136.2
37	Melamanakudy Village/Agasteewaram Taluk of Kanyakumari district	08° 05.242' N 77° 28.416' E	08° 05.374' N 77° 29.316' E	136.2