

WATER OUTLETS (MOUTHS) OF THE COASTAL ZONES OF SRI LANKA: A COMPOSITE INVENTORY

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ABSTRACT : Along the coastal belt of Sri Lanka, there are different water outlets from land to sea. The present study found 431 such water outlets (mouths) in perennial, seasonal, and ephemeral conditions. Depending on the location, these water outlets are subjected to changes in geological, and geomorphological performances, short-term and long-term conditions, human behavior, activities, and faunal and floral conditions. Therefore, to understand the true importance and value of these water bodies they should be assessed individually on the merits of their environmental, economic, social, and cultural values. By understanding such values of river estuaries, lagoon mouths, canal outlets, stream outlets, and tidal outlets, it is possible to utilize them efficiently in the aspects of food production, the development of coastal infrastructures, and income generation for society. Hence the current study has compiled all the water outlets in the coastal belt of Sri Lanka while providing the present and potential uses of them individually. The information in this report is very useful for different disciplines, students, and the public. In conclusion, every type of water outlet surrounding the coastal belt of Sri Lanka has enormous value for the nation, if the proper utilization practices and the managing practices have applied.

KEY WORDS: Water outlets, Cardinal and inter-cardinal, Coastal zones, Geomorphic features, Inventory.

INTRODUCTION

As a tropical island, the Sri Lankan coastline edge shows different sizes by geomorphological features, e.g. river estuaries, lagoon mouths, bays, harbors, manmade canals and natural streams, tidal flow ways, etc. All these features are connected with the land and sea by water at different levels. Through these means, a large number of water entrances exist along the coastal zone of Sri Lanka. All these geographically have outstandingly remarkable values such as scenic and recreational, geologic, fisheries, wildlife, cultural, historic, botanical, hydrological, ecological, commercial, paleontological, etc. The existence of these depends on local geology, the configuration of the coastal belt, climatological behavior and

climate change, sedimentation patterns around the coast, and associated human activities.

The prime purpose of this paper is to prepare a composite inventory of water outlets surrounding the coastal zone of Sri Lanka. Google images, topographic sheets (1:63,360 and 1:50,000), Survey Department GIS Map series, and field experience were applied to identify and categorize the water mouths or outlets. Any person can find out the exact locations of the mentioned water bodies by just using the given longitudes and latitudes. Identified water outlets could be categorized into 08 (eight) sectors viz; western, southwestern, southern, southeastern, eastern, northeastern northern, and northwestern establishing cardinal and inter-cardinal or ordinal directions taking Pidurutalagala as the

midpoint of the island (Survey Department of Sri Lanka 2007). Angles between each cardinal and inter-cardinal direction were bisected establishing eight secondary inter-cardinal directions (Figure 1). The coastal boundaries between two corresponding points intercepted by the secondary inter-cardinal directions were considered a coastal sector for respective cardinal or inter-cardinal directions within 45° (Silva *et al.*, 2013). Accordingly, from Maha Oya estuary (Serial No 1) to Thalpitiya Canal (Serial No 13), there are 13 water outlets exhibited along the western coastal sector (Table 1). The water outlets from the Waskaduwa Canal (Serial No. 14) to the Koggala Lagoon outlet (Serial No. 51) belong to the southwestern inter-cardinal sector (Table 2). As well, from Ahangama Stream (Serial No. 52) to Malala Lagoon outlet (Serial No. 91), the water entrances are located along the southern coastal zone (Table 3) Cardinal sector. The water outlets

from Bundala Lewaya (Serial No 92) to Bagura Lagoon outlet (Serial No. 119) are included in the southeastern inter-cardinal sector (Table 4), and Kirigal Lagoon outlet (Serial No. 120) to Periya Lagoon outlet II (Sinnamuhattuvaram) [Serial No. 143], the water outlets are located along the eastern coastal zone (Table 5). Table 6 - Northeastern coastal zone extends from Addalaichenai Konawathai Aru Serial No. 144) to Kalkudah Small Lagoon (Serial No.172), As well, the Northern Coastal zone (Table VII) is divided into 2, as Part A (from Kalkudah Stream (small) 2 (Serial No. 173) to Ponnaitthodduvai Kulam (Serial No. 249), and Northern Coastal Zone Part B belonging from Nagarkovil East small lagoon (Serial No. 250 to Vankalai Tidal Canal mouth (serial No. 372). The last namely as Northwestern Coastal Zone (Table VIII) extends from the Vankalai tidal water pool canal (Serial No. 373) to the Gin Oya outlet III (Serial No. 431).

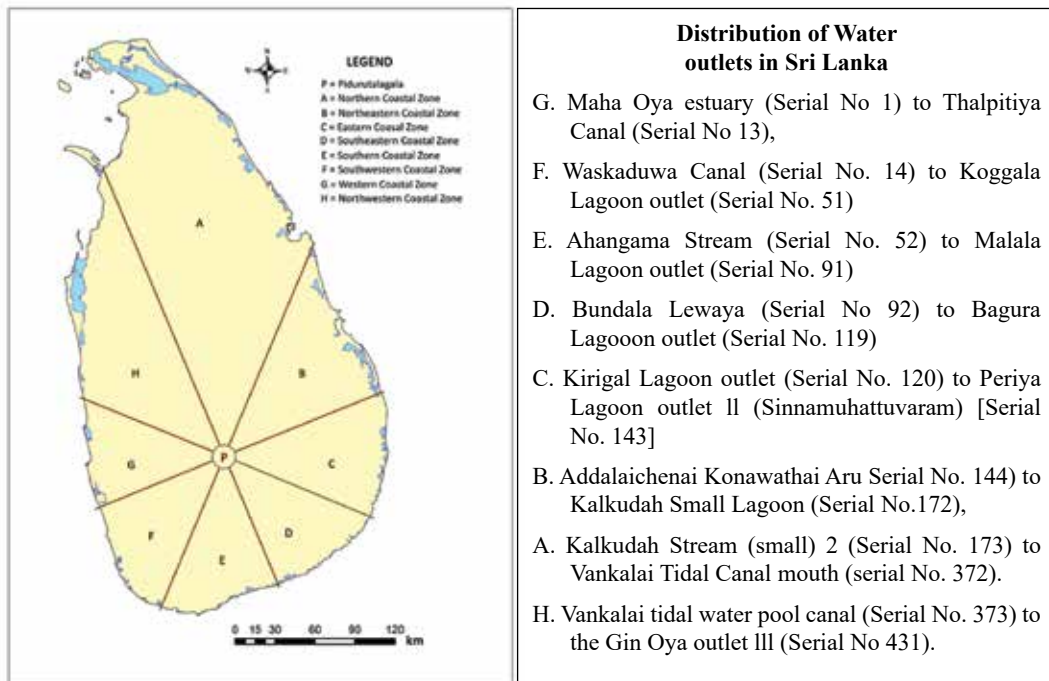


FIGURE 01: Cardinal and inter-cardinal sectors.

Ancient port cities built lots of levies, irrigation channels, artificial lakes, canals, and dams to manage the constant battle against erosion that they faced. They also simply rebuilt much of their infrastructure constantly. Such a city would be built at a higher elevation than its river's floodplain. The city's port would be separate from the city itself. A river meanders within its floodplain, and gradually changes the course of its meandering. The city's port was built on the delta, which was barely above sea level and nearly flat. Because a delta is nearly flat, a river typically splits into several channels as it crosses the delta. Its main channel (the rivers' deepest) is the one where port would be built. However, that channel would gradually silt up and, as it did, the meandering river would either turn a lesser channel into its main one or carve out a new channel to the sea. Thus, the ancient people appreciated the river outlet importance.

Ancient cities did not keep their ports from silting up. When the channel that a port was on silted up, that port would be abandoned, and the city would either die (or lose its prosperity and much of its population) or else - if it was so lucky as to be gifted by its river with a new channel that was relatively free of silt - it would build a new port on that new main channel. Concerning in water entrance of Sri Lanka, our ancient civilization to date the majority of water entrances or mouths, *e.g.* river or some lagoon mouths have been used as ancient cities. Almost all the ports of ancient Sri Lanka were situated by the side of the River outlets. Salawattota was situated near Deduru Oya, Kolontota at the bank of Kelani River, Kalitittha at Kalu Ganga, Beematitta near Bentota Ganga, Gimhatitta at Gin Ganga, Mahawalukagaama at Polwathu Ganga, Nilwalathitta at Nilawalaganga, Gotabbatha at Walawe Ganga, Kirinda at Kirindi Oya, Gokanna Tittha at Mahawadhka River (Mahaweli), Jambukolapattana, Mahatitta at Malwatu Oya are clear examples. Most of these were followed by the river mouths and water entrances. Mostly, they are used for navigation, transportation of goods and commodities, fishing activities, and many other

security purposes. Accordingly, every type of water outlet surrounding the coastal belt of Sri Lanka has whatever value for the Nation.

Geographical Background

Sri Lankan rocks have been documented to be late Archaean to early Proterozoic (3,200 - 2,400 Ma) based on ages of detrital grains zircons obtained from Highland/Southwestern Complex (H/SWC) rocks. It reveals that these rocks have a relationship with Precambrian events, and therefore are the foundation rocks or basement rocks of Sri Lanka (Hölzl *et al.*, 1991; Kröner *et al.*, 1991). By the Paleoproterozoic Era (2,050 - 1,800 Ma), the rugged high ground occupying the Highland Complex (HC) of Sri Lanka (Cooray 1994) became characterized by an NW-SE and NE-SW trending sequence of high-grade metasediments and granulite orthogneiss. Likewise, during the Mesoproterozoic Era (1600-1200 Ma), orthogneiss of the Vijayan Complex (VC) were intruded between 1,040-1,030 Ma, and orthogneiss of the Wannu Complex (WC) were intruded between 1,100-670 Ma. Moreover, by the Neoproterozoic Era between 610 and 550 Ma, the high-grade regional metamorphism of the HC, VC, and WC took place within ultra-high temperature metamorphic rocks (Braun, 2003). All these Proterozoic rocks are the basement rocks of Sri Lanka. Due to the jolting of the geological formations in Sri Lanka, the drainage patterns including Paleo Rivers and other water causes in Sri Lanka formed and connected with the sea. Thus, the present article investigates all water outlets connected with land and sea. Accordingly, many perennial and seasonal rivers flow from Central hill country through above rocky masses. Similarly, other streams flow towards the coast passing mentioned rocks.

Along the indented coastline in Sri Lanka emerged beach rock reef patches and coral reef patches, headlands, headlands bay beaches, pocket beaches, ports, fishing harbors, fish landing grounds, beach seine (draw nets) and tourism facilities are exhibits. Straight coastlines and the beaches between headlands are changing due to the monsoon wind pattern.

As well, tidal creeks, mud flats, mangrove reef patches, and salt marshes also have a considerable influence on the water mouths. In Sri Lanka, tidal prisms are significant for the behavior of the river mouths and lagoon mouths as well as other water mouths. A new tide gauge network was established by Sri Lankan Navy to re-assess the MSL of Sri Lanka based on Kankesanthurai, Trincomalee, Oluvil, Hambantota, Galle, Colombo, Kalpitiya, and Delft stations. The continuous tidal data from each station were obtained for the year 2017 with the collaboration of the Navy, National Hydrographic Office, and Sri Lanka Ports Authority (Prasanna *et al.*, 2019). However, out of the above eight tidal stations, only six stations were used in the final analysis as the data was inadequate (Oluvil and Delft Stations).

Due to the location of Sri Lanka within the tropics between 5° 55' to 9° 51' North latitude and between 79° 42' to 81° 53' East longitude, the climate of the island could be characterized as tropical. The tidal ratios between the diurnal and semi-diurnal components (form factor) of the stations were in the range of 0.2 to 0.5 and it indicated that the nature of the around Sri Lanka is mainly semi-diurnal. Further, the tidal range in Sri Lanka is fluctuating from 0.4 to 0.6 m. The largest tidal range was observed at Colombo (0.6 m) and the lowest was at Kalpitiya (0.37 m). The difference between the MSL on tide gauges and the Lowest Astronomical Tide was varying between 0.34 m to 0.45 m around Sri Lanka. Kalpitiya has the lowest value and Galle has the largest. However, most of the other stations exhibit a uniform range of about 0.4m. This indicates a slight variation between East and West coastlines across the North-South line of the country. These levels govern the water outlets' micromorphology during the Flow and Ebb tide times influencing coastal fauna and flora as well as human activities.

Owing to this location, the rainfall in Sri Lanka has multiple origins Monsoonal, Convective, and depressional rain accounts for a major share of the annual rainfall, the mean annual rainfall varies from under 900mm in the driest parts (southeastern and northwestern) to over 5000mm in the wettest

parts (western slopes of the central highlands). The Climate experienced during 12 months period, Meteorological Department of Sri Lanka characterized into four climate seasons as follows:

1. First Inter-Monsoon Season (March - April);

Warm and uncomfortable conditions, with thunderstorm-type rain, particularly during the afternoon or evening, are the typical weather conditions during this season. The distribution of rainfall during this period shows that the entire Southwestern sector of the hill country receives 250 mm of rainfall, with the localized area on the southwestern slopes experiencing rainfall above 700 mm (Keragala 771 mm). Over most, parts of the island, the amount of rainfall varies between 100 and 250 mm, the notable exception being the Northern Jaffna Peninsula (Jaffna- 78 mm, Elephant pass- 83 mm).

2. Southwest -monsoon Season (May - September);

Windy weather during this monsoon eases off the warmth that prevailed during the 1st Inter monsoon season. Southwest monsoon rains are experienced at any time of the day and night, sometimes intermittently mainly in the Southwestern part of the country. The amount of rainfall during this season varies from about 100 mm to over 3000 mm. The highest rainfall was received in the mid-elevations of the western slopes (Ginigathena- 3267 mm, Watawala- 3252 mm, Norton- 3121 mm). Rainfall decreases rapidly from these maximum regions towards the higher elevation, in Nuwara Eliya drops to 853 mm. The variation towards the Southwestern coastal area is less rapid, with the Southwestern coastal belt experiencing between 1000 mm to 1600 mm of rain during this 5-month-long period. The lowest figures are recorded from the Northern and Southeastern regions.

3. **Second Inter-Monsoon Season (October-November);**

The thunderstorm-type of rain, particularly during the afternoon or evening, is the typical climate during this season. But unlike in the inter-monsoon season, the influence of weather systems like depressions and cyclones in the Bay of Bengal is common during the second inter-monsoon season. Under such conditions, the whole country experiences strong winds with widespread rain, sometimes leading to floods and landslides. The second inter-monsoon period of October – November is the period with the most evenly balanced distribution of rainfall over Sri Lanka. Almost the entire island receives over 400 mm of rain during this season, with the Southwestern slopes receiving higher rainfall in the range of 750mm to 1200 mm (Weweltalawa Estate in Yatiyantota recording 1219 mm)

4. **Northeast -monsoon Season (December - February);**

The dry and cold wind blowing from the Indian landmass will establish comparatively cool, but dry weather over many parts making the surrounding pleasant and comfortable weather except for some rather cold morning hours. Cloud-free skies provide days full of sunshine and pleasant and cool nights. During this period, the highest rainfall figures are recorded in the North, Eastern slopes of the hill country, and the Eastern slopes of the Knuckles/Rangala range. The maximum rainfall is experienced at Kobonella estate (1281 mm), and the minimum is in the Western coastal area around Puttalam (Chilaw - 177 mm) during this period. Above seasonal rainfall patterns distribute different drainage water outlets throughout the country unevenly, and from Central Hill country to the coast. The seasonal rainwaters connect the sea by rivers and streams, lagoons, canals, springs, etc. forming water mouths.

Definitions applied

Many geographical, geomorphological, and sedimentological water outlets, mouths, or outfalls are considered in this text. Concerning all entrances or outlets, which can be seen on the edge of the coastline and connect to the sea are defined to understand easily. Water outlet types and sizes, e. g. Mahaweli Estuary, Yan Oya Estuary, Aruvi Aru (Malwathu Oya) Estuary, etc. in Sri Lanka are very small compared with world consent. Therefore, some definitions were compiled commensurable and to Sri Lanka. Some definitions mentioned here need to be understood concerning location, size of the area, surrounding geology, tidal levels, rainfall, and other physical factors. The Britannica dictionary defines “river” as a large natural flow of water that crosses an area of land and goes into an ocean, a lake, etc. The marine entrance of a river or river outfall where the river enters the ocean is called an “estuary” (Pritchard 1967).

A river flowing throughout the year is called perennial, and empties into the ocean or bay forming an estuary or “estuarine delta”. An estuary is an inland river valley or section of the coastal plain, drowned as the sea invaded the lower course of a river during the Holocene sea-level rise, containing seawater measurably diluted by land drainage, affected by tides, and usually shallower than 20m. Kjerfve (1994) mentioned that this definition is consistent with the definition by Pritchard (1967). Based on the definitions above, and in terms of their water balance, estuaries can be classified into three types: positive, inverse, and low-inflow estuaries (Valle-Levinson 2020). Estuaries may be classified according to their geomorphology as coastal plain, fjord, bar-built, and tectonics. Coastal plain estuaries, also called drowned river valleys, are those that were formed, because of the Pleistocene increase in sea level, starting ~15,000 years ago. Originally, rivers, these estuaries formed during flooding over several millennia by rising sea levels. It is only this type of system that should be referred to as an estuary, which is and has always been the practice in most of Latin America. In Sri Lanka,

out of Sri Lankan rivers, it is conceivable five types of estuaries: (1) Drown River Valley Estuaries, (2) Bar-built Perennial Estuaries, (3) Bar-built Seasonal Estuaries, (4) Bar-built Perennial Delta Estuaries, and (5) Non-barrier Delta Estuaries with Seasonal Rivers.

In principle, an estuary can be defined from several different perspectives, including from the point of view of geomorphology, sedimentation processes, tidal influences, the physical oceanography/salinity structure, or ecology. In simple terms, the definition is perhaps best considered from the standpoint of either “form” or “function. Estuary is an interface or mixing phase of salty water and fresh water, which is also subject to tidal fluxes, storm surges, and wave actions. An estuary is a partly enclosed coastal body of brackish water with one or more rivers or streams flowing into it and with a free connection to the open sea. Estuaries form a transition zone between river environments and maritime environments and are subject to both marine influences, such as tides, waves, and the influx of saline water; and riverine influences, such as flows of fresh water and sediment. As well, an estuary is a partially enclosed, coastal water body where freshwater from rivers and streams mixes with salt water from the ocean. Estuaries, and their surrounding lands, are places of transition from land to sea. Although influenced by tides, they are protected from the full force of ocean waves, winds, and storms by landforms such as barrier islands or peninsulas (NEP 2023).

The tributaries, which are connected to the river designated as Oya, Ela, Odai, Ara, or Aru according to the flow patterns, and size as recognized by the local dialect. A brook means a small stream. The synonyms are stream, streamlet (a small stream), rivulet (a very small river or stream), rill (a shallow channel cut in the surface of soil or rocks by running water), brooklet, runnel or runlet (a small stream), creek (a narrow, sheltered waterway, especially an inlet in a shoreline or channel in a marsh), tributaries (a stream that flows to a larger stream or other body of water). Intermittent rivers (in Sinhala “මංස”) refer to all temporary, ephemeral, seasonal, and episodic streams and

rivers in defined channels (Datry, Larned, and Tockner. 2014). Most of these words are used in Sri Lanka in Wet Zone, Intermediate, and Dry Zones.

Coastal Lagoon is an inland water body, usually oriented parallel to the coast, separated from the ocean by a barrier, connected to the ocean by one or more restricted inlets, and having depths that seldom exceed a couple of meters. A lagoon may or may not be subject to tidal mixing, and salinity can vary from that of a coastal freshwater lake to a hypersaline lagoon, depending on the hydrologic balance. Lagoons formed because of rising sea levels during the Holocene or Late Pleistocene and the building of coastal barriers by marine processes.

Sri Lanka’s coastal lagoons can be described as “shallow coastal water bodies, diverse in shape and size, either shore parallel or not, separated from the ocean by barriers or barrier spits, but connected to the ocean permanently or intermittently through one or more restricted inlets, originated mainly during the mid-Holocene sea-level rises by submergence and emergence (Silva et al 2013). Nevertheless, in Sri Lanka, lagoons are not found in the coastal sectors, which are rich in cliffs and headland areas and where long-shore littoral drift is obstructed. However, for the study, we identified and included several small lagoons, the outlets (mouths) act as over washes along the coast as well as on old barrier ridges or beaches (see Tables 1 – 6). The majority of small lagoons of the Northern and Northwestern coastal zones flux twice daily due to tidal fluctuations.

In Sri Lanka, the evolution of lagoons is related to geomorphology, *e.g.* low hills and rises of the 2nd Planated surface (Katupotha 2013), climate and sea level change, and rhythm of the surface wind direction. Accordingly, the land side of the lagoons from Kelani estuary to Walawe estuary, formed due to geology and geomorphology of the land. The beachside is carved by the morphology of the barrier beaches or barrier ridges. The small lagoons from the Walawe estuary to Panama (see relevant Tables), most of the lagoons are round or overly in shape, and beachside covered by low or high dunes. Some outlets

of these lagoons show seasonal changes as well as sea level changes. The lagoons in the Eastern, Northern, and Northwestern Zone, are somewhat big and flat, and have sedimentation by seasonal floods. Furthermore, many of them are subjected to diurnal tidal fluctuations. Accordingly, the lagoon outlet's relationship with the sea is dramatically behavior. It is not possible to correlate as mentioned by Kjerfve (1986). Many coastal lagoons in Sri Lanka are small. The majority of them are 100< hectares, and some of them are somewhat long (sprawl shape), oval, oblique cylinder, rounded (balloon shape), triangle shapes, etc., followed by local geomorphology. The majority of southern, southeastern, and eastern lagoons belong to such shapes.

Within the coastal water outlets, many canals were identified (see Tables). The Merriam-Webster dictionary defines a "canal" as an artificial waterway for navigation or for draining or irrigating land. Canals or artificial waterways are engineered channels built for drainage management or conveyancing water transport vehicles. They carry free, calm surface flow under atmospheric pressure, and can be thought of as artificial rivers. Based on the nature of the supply source, canals are of two types; (1). Permanent Canal and (2). Inundation Canal. A Permanent canal is a type of canal in which water is available throughout the year (In Merriam-Webster.com dictionary). The type of canal is generally directed from a permanent source of supply waterbodies. Several Permanent hydraulic structures are constructed in this type of canal for water regulation and distribution. A Permanent canal can also be called a perennial canal. An inundation canal is a type of canal in which water is available only during flood periods. These types of canals are taken off from rivers to control the water level in rivers during floods. A canal head regulator is provided to regulate the flow into the canal. In addition to the word "canal", in Physical Geography, the word "channel" is used for a passage for water to flow along, or a part of a river or other area of water that is deep and wide enough to provide a route for ships to travel along. As water entrances, it is possible to recognize that

"canal" and "channel". As mentioned above, perennial canals (coastal mouths) in Sri Lanka are limited to Wet Zone, *e.g.* Hamilton Canal, Wellawatta, and Dehiwala Canals, while others are restricted to Intermediate and Dry Zones, which are operated in seasonally. The Hamilton Canal, sometimes known as the Dutch Canal is a great place for the entire family, friends, and your significant other to embark on a journey to understand the heritage and biodiversity of the canal. The Hamilton Canal is a 14.5 km canal connecting Puttalam to Colombo, passing through Negombo in Sri Lanka. The canal was constructed by the British in 1802 and completed in 1804. It was designed to drain salt water out of the Muthurajawela wetlands. The Wellawatte Canal or "Layrds Folly" or the "Moda Ela" in Sinhala, was built by the Dutch and formed a transportation way until recently up to the time of building the Wellawatta Spinning and Weaving Mills on its banks. From then the industrial wastes of the Mills freely flowed, passed under an old iron bridge on Havelock Road, replaced in 1938 by the bridge, which stands today. It was constructed during the tenure of office of the Mayor of Colombo Dr V.R. Schokman in 1938. Dehiwala Canal is a canal in Western Province. Dehiwala Canal is situated nearby to the locality of Wellawatta and the village Karagampitiya (Table 1). Besides, some perennial canals can identify in Gall District and Matara District (Tables 2 and 3).

The word "stream" is applied to accredit coastal water outlets. Accordingly, a stream is a body of running water (such as a river or creek) flowing on the land or the earth. The process of straightening or redirecting natural streams in an artificially modified or constructed streambed. Channelization has been carried out for numerous reasons, most often to drain wetlands, direct water flow for agricultural use, and control flooding. While this process makes a stream more useful for human activities, it tends to interfere with natural river habitats and destabilize stream banks by destroying riparian vegetation. When annual flood patterns are disrupted, fertilizing sediment is no longer deposited on riverbanks and excessive sediment accumulation can

occur downstream. Perhaps most importantly, wetland drainage and the removal of instream obstacles such as rocks, fallen trees, shallow backwaters, and sand bars eliminate feeding and reproductive habitats for fish, aquatic insects, and birds (Environmental Encyclopedia 2003). Such running water bodies, in Sri Lanka, create coastal outlets in all climatic zones. Most of the stream (Ela) entrances (outlets) are seasonally open to the sea and some are intermittently open; at irregular intervals; not continuously or steadily. Streams in Sri Lanka are very short, and length and width vary due to the geologic condition of the ground as well as the flowing pattern (meandering pattern) and water volume (see Tables 1 - 8). Most of the stream outlets depict in Sri Lanka, their morphological and sedimentological differentiations, e.g. a stream of the Wet Zone water flows several months of the year. However, in Intermediate and Dry Zones, the short stream is covered by sand or dunes, or gravel bed, e.g. streams between Modaragam Aru estuary to Pomparipp delta, southwards. On the other hand, tidal streams are also somewhat short, and ebb tidal and flood tidal mud or silt exists.

In the northern coastal zone and northwestern coastal zone, river estuaries and open lagoon mouths are related to flood tides and ebb tides. Tides are very long-period waves that move through the ocean in response to the forces exerted by the moon and sun. Tides are the periodic motion of the waters of the sea caused by the changing gravitational effects of the moon and the sun as they change position relative to the rotating earth. The tides in the oceans are very long waves hundreds or thousands of miles long (Parker 2005). Tides are one of the most reliable phenomena in the world. Tides originate in the ocean and progress toward the coastlines where they appear as the regular rise and fall of the sea surface (NOAA 2022). Due to tidal level, fluctuations (fall and rise) occur tide channel or a tidal creek. A tide channel or a tidal creek is an inlet or an estuary that is affected by the ebb and flow of the ocean tides (Healy 2005). The literature provides the following definitions of ebb and flood tides, Ebb is the tidal phase when the tidal current is

flowing seaward (ebb current), and flood is the tidal phase when the tidal current is traveling inland (flood current).

Tidal flats are low-gradient tidally inundated coastal surfaces. Geologically, tidal flats have been of great interest to sedimentologists and stratigraphers as coastal systems that are readily accessible to sampling and study, and rich in processes and products resulting from oceanographic, sedimentologic, geohydrologic, hydrologic, hydro chemical, mineralogical, and biotic interactions (Semeniuk 2005). Tidal flats may be muddy, sandy, gravelly, covered in shell averments, or locally underlain by rock pavement and, compositionally, be underlain by siliciclastic or carbonate sediments. They are complex coastal systems combining elements of coastal geomorphology, sedimentology, hydrology, hydrochemistry, diagenesis, biology, and ecology. A tidal delta is the sand bar or shoaling area left at the mouth of a river by the movement of bottom mud and sand by a diurnal tide and the currents that result from the tide. Most of the tidal behavioral characteristics are in Elephant Pass to Vankalai area (Tables 7 – 8).

Word “Marsh” is a type of wetland that is covered by water for long periods. Marshes are usually dominated by grasses and other herbaceous plants rather than trees. It is a tract of low, ill-drained ground with patches of open water in which reeds, rushes and sedges abound in Temperate latitudes. Some temperate marshes may have alder and willow along the edges of the water bodies, but in the tropics, marshes may have a thicker growth of trees and shrubs. Because of their high organic content marsh soils are often very Fertile when Properly drained (e.g. the Fens) but in general, they are left under permanent grassland with occasional hay-cutting. When inundated with tidal water the coastal tracts are Termed salt marshes, in which a typical “halosere” will become established (Whittow 2000).

Unlike swamps, which are dominated by trees, marshes are usually treeless and dominated by grasses and other herbaceous plants. Herbaceous plants have no woody stem above ground and grow and die back on a regular cycle. Herbaceous plants can be annuals

(which grow anew every year), biennials (which take two years to complete their life cycle), or perennials (which take more than two years to complete their life cycle). There are three types of marshes: tidal salt marshes, tidal freshwater marshes, and inland freshwater marshes. Marshes are also common in deltas, where rivers empty into a larger body of water. Although all are waterlogged and dominated by herbaceous plants, they each have a unique ecosystem. In coastal areas, together with estuaries, lagoons, stream entrances and tidal creeks well-developed salt marshes can be seen (Tables 7 and 8). In wet zone brackish water, marshes also are available.

Salt marshes, which represent the final stage in the leveling of marine delta plains or the filling of depressions, embayment, and other irregularities along coasts, are to some extent a measure of coastal stability or equilibrium. The overall sedimentary sequence is, therefore, a potential record of coastal history; it may reveal complete successions from the original estuary, delta, lagoon, or bay floors to the highest intertidal flat, including lateral variations in contemporaneous facies or subfacies. Associated mineral suites are equally important indicators of both sources and possible recycling of coastal sediments. As habitable dwelling spaces for numerous organisms, some of which are uniquely adapted to stressful conditions, salt marsh substrates record many details of significance in paleoecology, ichnology, and environmental reconstruction. Salt marshes or saline wetlands are vegetated intertidal flats dominated by low-growing halophytic (salt-tolerant) shrubs and herbaceous plants, particularly grasses. Typically, salt marsh borders freshwater or brackish environments. Largely confined to temperate coastlines, they occupy a similar niche to tropical mangrove forests; that is, the upper intertidal zone of inlets, estuaries, lagoons, and embayment, or fronting the open sea where low-energy conditions persist (Frey and Basan 1985).

We identified well-rich “beach mangrove swamps” in the Vedithalativu area in Kilinochchi District related to tidal creeks (Table No. 7, Katupotha 2016; Silva *et al.*, 2013,

Ranawana 2020). Most of the mechanisms and processes regulating mangrove ecosystems; primary productivity, food webs, nutrient fluxes, physiological adaptations of plants and animals, etc. are still poorly known, and this fragmentary knowledge is mainly restricted to species of commercial value (Blasco *et al.*, 2005). Mangrove forests, patches, islands, and edges exist in Sri Lanka mainly in lagoons, tidal outlets, along tidal canals, and river estuaries. The mangrove plant community has great affections on humans, fisheries, and the economy (Katupotha 2016, Katupotha 2018).

Furthermore, creeping plants or creeping vegetation are specific features around coastal water outlets and dune areas, and creeping plant species contribute to strengthening the shore protection function of dune coasts. Water outlets mainly lagoons, streams, canals, etc. in Southern, Southeastern, Northeastern, Eastern, and Northwestern coastal zones cover creeping plant species. *Spinifex littoreus* is a running grass like Kikuyu, Buffalo, and Couch and because of that growth habitat, it covers an area very quickly. Each of these nodes can form roots. This species is an efficient sand binder, forming large colonies and stabilizing dunes, especially can be seen in Intermediate and Dry zones. Besides, *Ipomoea pes-caprae* is a prostrate perennial, often covering large areas; stems long-trailing often several meters in length, rooting at the nodes, and glabrous. “*Dichrostachys cinerea subsp. africana*” (Andara), *Acacia* spp. Plants, *Pandanus tectorius*, and Herbal plants (*Wara/Calotropis procera*) also can be seen in the surroundings of lagoons, water pools and stream mouths.

“Deltas” are coastal landforms comprised of subaerial and subaqueous packages of fluvial-transported sediments that have formed an alluvial landscape by deposition at the mouth of a river (Penland and Kulp. 2005). Deltas form at the coastal interface where riverine sediment supplied to the coastline is not removed by tides or waves. The term delta derives from Herodotus who, in the fifth century BC, noted a geometric similarity between the tract of land at the mouth of the Nile River and the Greek letter “Δ” with its apex-directed landward (Moore and Asquith

1971). Although this distinctive morphology is absent in many river-mouth landscapes, the term has nonetheless been accepted to describe the geographical region near a river mouth and the sedimentary package that develops at a fluvial entrance into a depositional receiving basin.

Deltaic environments have played an important role in our global society. Deltaic environments served as the culture hearth for early civilizations throughout the world because of their tremendous variety of food resources such as fish and wildlife. Moreover, the rich alluvial soils of deltaic landscapes allowed for the establishment of bountiful crops vital to the establishment and expansion of early cultures (Stanley and Warne 1997). Today, deltaic wetlands that were more recently viewed as uninhabitable wasteland are once again considered to be of utmost ecological value. Deltas are depositional areas where rivers meet the sea, often forming extensive, coastal, alluvial fans. Although there is much variability, deltas tend to develop where high-energy rivers deposit their sediment loads into shallow, low-energy marine systems or, more generally, where river energies exceed marine energies.

Since an entire deltaic complex can span hundreds of kilometers, a wide variety of ecosystem types can be associated with them. Although natural upland habitats can be found along the landward edge of the delta and on the levees that form alongside stream channels, the systems that characterize and dominant deltas are wetlands. Wetlands are distinguished by; (1) the presence of water, either above the surface, or in the rooting zone, (2) hydric soils that develop under anaerobic conditions, and (3) vegetation that is adapted to wet conditions. Since deltas are ecotones where rivers meet the sea, concentrations of salts in the waters associated with these wetlands can range from hypersaline (>35 ppt salt) to fresh (>5 ppt salt).

CONCLUSION

In Sri Lanka, different water outlets or water mouths flowing from land to sea show their vast diversity. About 451 such coastal water outlets (entrances) in Sri Lanka are displayed in different

sizes, geographical distribution, and usage. In this article, there are eight sections identified based on cardinal and inter-cardinal zones. In western coastal zone in Table 1 is located in West Zone, and river estuaries and streams or canals are perennial. In the southwestern coastal zone (Table 2) river estuaries, streams, and canals are perennial, but some short streams or canals semi perennial. In the Southern coastal sector (Table 3) and southeastern coastal sector (Table 4), some rivers are perennial, and some are partly covered by sand bars. During the off-season western coastal zone, Southwestern coastal Zone, and Southern coastal zone are subjected to the southwest monsoon period, river estuaries, lagoon outlets, stream outlets, and canal outlets release a considerable amount of water to the sea occurring drastic changes along the coast.

Except for some rivers and lagoons in Eastern and Northeastern coastal zones, superfluous are small in size (Tables 5 and 6). Due to the heavy rain and storm flood water or excess water is released to the coast with severe erosion. During the on-season time the water mouths in Tables 5 and 6, have scenic and recreational value. Besides, fishery activities, tourism, and geologic and archeologic fascinating places are there, avian species; and videlicet migratory birds can see. Many river mouths, lagoons, and wetlands in the Northern Coastal Zone (Table 7) and Northwestern Coastal Zone (Table 8) are subjected to daily tidal fluctuations. By these means tidal deltas, tidal islets, mudflats, water creeks, beach mangroves, mangrove swamps, and tidal marshes form. Apart from the other coastal zones, tide-related Northern and Northwestern Coastal Zones are beset with avian species, especially migratory birds. If we check, any water mouth, out of 431, people engage in different uses, e.g. scenic, recreational, geological, wildlife, flood water draining, commercial, fishing as well as transportation activities. Accordingly, it is necessary to pay attention to different water mouths surrounding the coastal zone of Sri Lanka for regional planning and development processes.

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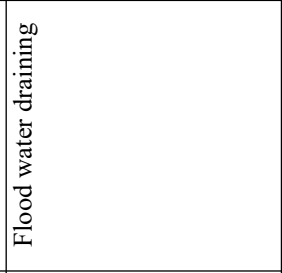
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TABLE 01 : Water Outlets of the Western Coastal Zone

Ser. No	Outlet name and Latitude/ Longitude	Type	Specific features	Outlet behavior	Major values (Existing and potential)	Comments
01	Maha Oya 7°16'19"N 79°50'E	River estuary	Bar build mouth	Annually Open.	Recreational, Scenic.	Patches of mangroves are present.
Changes in the Maha Oya Estuary						
02	Negombo Lagoon mouth 7°12'27"N 79°49'40"E	Lagoon mouth	Fishing boats landing site	Annually open	Fisheries	Ebb and flood tides, and extensive mangroves exist.
					Maha Oya estuary, 1- 2004 (Google) Maha Oya estuary, 11-2021 (Google) Maha Oya estuary, 4- 2022 (Google)	
					Negombo L. mouth, 2-2013 (Google) Negombo L. mouth, Photo 19.01.2012 Negombo L. mouth, Photo 19.01.2012	Negombo L. mouth, Photo 19.01.2012

03	Dikowita Harbour entrance 7°0'19"N, 79°51'56"E	Harbor mouth	Completely Open	Annually Open	Fisheries, Boats landing	Fishery harbor
04	Kelani Ganga estuary 6°58'42"N, 79°52'13"E	River mouth	No sand bars	Annually Open	Scenic, Recreational, Fishery	Perennial river mouth
						
		Kelani Estuary, 11/2017 (Photo)	Kelani Estuary, 11/2017 (Photo)	Kelani Estuary, 3-2020 (Google)		
05	Mattrakkuliya Canal 6°58'6"N 79°52'5"E	Connected to Kelani River LB	Closed by a sand bar. Need to manually remove sand.	Closed	Flood water draining, Wastewater draining	Mangrove vegetation can see.
06	Mutwal Sea Outfall 6°57'44"N 79°51'28"E	Connect with the sea, north of the harbor	No beach left of Walkers Colombo shipyard	Open	Flood water draining, Wastewater draining	Sea outfall made by masonry works.
07	Colombo Harbour Canal outlet 6°56'17"N 79°50'51"E	The canal (aqueduct) is connecting with Colombo Fort and Beira Lake	4/2021	Open		A polluted water canal. Avifauna is living



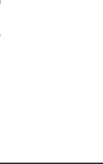




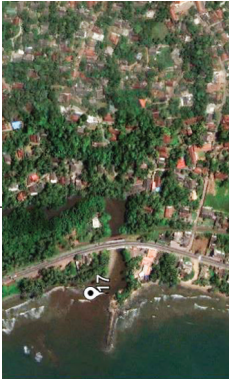




08	Beira lake outlet 6°55'42"N 79°50'30"E	Lake outlet	The Lake outlet connects to Gall face beach	Open	Recreational and cultural	Polluted water drains
09	Kirulapana Canal (Aqueduct) (Wellawatta Canal) 6°52'43"N 79°51'22"E	Lake outlet	Wellawatta Canal outlet	Open	Flood water draining	Polluted water and flood water are released into the sea
10	Dehiwala canal (Aqueduct) 6°51'46"N 79°51'33"E	Lake outlet	Dehiwala Canal outlet	Open	Flood water draining	Polluted water released into the sea
11	Lunawa Lagoon outfall 6°47'40"N 79°52'23"E	Lagoon outlet	1/2022 	Open/closed	Recreational, Fishery	Seasonally covered by sandbars
12	Bolgoda Lagoon System 6°42'59"N 79°53'55"E	Bolgoda Lake (Ganga) outfall	Bolgoda (Panadura) Ganga	Open	Recreational, Fishery, Scenic, Cultural	Boat landing, fish marketing place
13	Thalpitaya canal (aqueduct) 6°40'56"N 79°55'02"E	Canal outfall	Closed by a beach sand bar	Need to remove sand	Flood water draining	Mangrove patches are inside.

TABLE 02 : Water Outlets of the Southwestern Coastal Zone

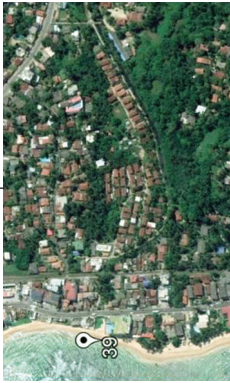
Ser. No	Outlet name and Latitude/ Longitude	Type	Specific features	Outlet behavior	Major values (Existing and potential)	Comments
14	Waskaduwa canal (Naduwatta Canal) 6°36'15"N 79°56'57"E	Canal outlet 	1/2021 Canal outlet 	Artificially opens	Flood water draining, Recreation	Fringe mangroves along the canal sides exist.
15	Kalu Ganga Estuary 6°35'13"N 79°57'23"E	Partly Stabilised estuary 	11/2022 Old mouth 	Seasonal changes occur.	Fisheries, recreation, Scenic and cultural	Formation and breaking sand bars are unusual phenomena.
16	Kalutara Lagoon outlet 6°34'6"N 79°57'44"E	Stabilized lagoon outlet 	11/2021 Lagoon mouth 	New sand bars encompass the newly built lagoon since 2017	Fisheries, Wildlife Scenic, recreation	The lagoon mouth is located adjacent to Avani Kalutara Resort.

17	Dummalamodara canal (Maggonna) 6°30'38"N 79°58'52"E	Canal outlet 	1/2020. The canal is non-parallel to the shore.	A breakwater has been constructed on the left side to prevent erosion	Flood water draining,	Mangrove patches and fringes are along both banks.
18	Maggonna canal 6°30'26"N 79°58'48"E	Unsterilized canal outlet	One side of the Maggonna Canal is a headland, and the other has a crescent beach.	Location of Maggonna Headland	Flood and waste water draining,	Mangrove patches can see
19	Ingirili lagoon outlet (small) 6°29'53"N 79°58'46"E	Lagoon outlet	A sand bar covers the mouth	Need to Artificially Open	Scenic, recreational, and fisheries	Mangrove fringes exist.
20	Beruwala harbor canal 6°28'22"N 79°58'47"E	Harbour canal outfall	The canal is flowing into the harbor	Annually open	Scenic, Flood water draining,	Mangrove patches exist along the canal/stream.
21	Sillia Lagoon (Sila Lake) 6°28'0"N 79°58'30"E	Lagoon outlet 	1-2017 Lagoon outlet	Seasonally Open	A sand bar covers the outlet. Scenic, recreational, and fisheries	Mangrove patches exist along lagoon margins.

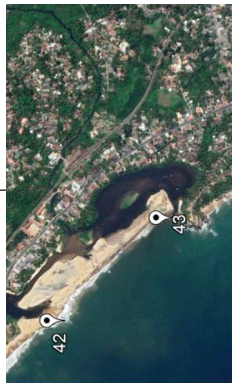
22	Moragolla Canal (I) 6°26'54"N 79°58'55"E	Canal outlet	Water entrances of Both canals Nos. 22 and 23 were closed seasonally.	Artificially open	Flood water draining,	Scattered mangroves can be seen.
23	Moragolla canal II 6°26'50"N 79°59'00"E	Canal outlet 	11/2019 Canal outlets	Artificially open	Flood water draining,	Scattered mangrove trees can be seen.
24	Bentota River (Ganga) estuary 6°26'32"N 79°59'17"E	River Estuary 	11/2021 Estuary	Partly stabilized and annually open	Scenic, recreational, wildlife, and fisheries	Both sides of the river are covered by tourism activities
25	Dedduwa Lake Canal 6°23'49"N 80°00'19"E	Canal outlet	Dedduwa lake canal is named Aturuwella Stream, and it starts from Dedduwa Lake.	A sand bar blocks the Unsterilized outlet.	Flood water draining,	The canal is about 1,425m long.

26	Induruwa canal (kaikawala gala) 6°22'35"N 80° 0'29"E	Canal outlet 	11/2021 Canal outlet	Seasonally Open	The canal flows through Kaikawala headland. Flood water draining,	Tourist hotels exist.
27	Kosgoda lagoon mouth I 6°20'49"N 80° 1'15"E	Lagoon outlet	The lagoon outlet opens during the rainy season	Seasonally Open	Scenic, recreational, tourism, and fisheries	Mangrove patches and fringe are in surround the lagoon
28	Kosgoda Lagoon II 6°20'12"N 80°01'35"E	Lagoon outlet	The small lagoon opens during the off-season.	A sandbar blocks the outlet. Seasonally Open	Scenic and recreational	Some mangrove patches exist.
29	Kosgoda (Nape) turtle beach lagoon 6°19'58"N 80° 1'41"E	Lagoon outlet	Both lagoons are located on both sides of the Sheraton Kosgoda Turtle Beach Resort.	Seasonally Open	Scenic and recreational	A sand bar covers the mouth. Both small lagoons are fascinating for tourism
30	Kosgoda turtle beach lagoon 2 6°19'55"N 80° 1'42"E	Lagoon outlet	Both lagoons are located on both sides of the Sheraton Kosgoda Turtle Beach Resort.		Scenic and recreational	
31	Kosgoda duwe modara 6°19'25"N 80° 1'50"E	Lagoon outlet	Small lagoon, A sand bar covers the outlet.	One canal extends parallel to the coast and the other extends nonparallel	Scenic and recreational	Mangrove trees and coconut palms can see

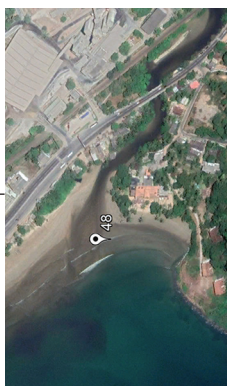
32	Galkanda canal (Manmade) 6°19'10"N 80° 1'45"E	Canal outlet 	2/2022 Canal outlet	Stabilized and annually open.	Flood water draining, Scenic, recreation	Masonry walls are on both sides. Mangrove trees and coconut palms can see.
33a	Middaramulla Canal 6°18'14"N 80°2'7"E	Canal outlet	Small lagoon-type canal	Partly stabilized and seasonally open	Scenic, recreation, and wildlife	Mangrove trees, coconut palms, and home gardens exist.
33b	Balapitiya Pond mouth (Balapitiya training collage) 6°17'26"N 80° 2'14"E	Pond mouth	It is called Balapitiya Beach Pond (pokuna)	Seasonally open	Flood water draining,	Mangroves and other local vegetation exist.
33c	Wellaboda Canal 6°17'4"N 80° 2'6"E	Canal outlet 	11/2020 Canal outlet	The canal is nonparallel to the coast and lies on an old sandy beach.	Flood water, Wastewater draining,	Mangroves and other local vegetation exist.
33d	Brahmanawathugoda Canal (Balapitiya) 6°16'48"N 80° 2'6"E	Canal outlet	The canal is nonparallel to the coast and lies on an old sandy beach	Unsterilized and artificially open	Flood water draining,	Mangroves and other local vegetation exist.

34	Madu Ganga outlet 6° 16' 25" N 80° 2' 6" E	Lagoon outlet	Madu Ganga is a coastal lake. It is not a river.	Stabilized and annually open.	Scenic, recreational, and wildlife Flood water, Wastewater draining,	Breakwaters prevent mouth erosion.
35	Madampe Lake mouth 6° 13' 41" N 80° 3' 12" E	Lagoon (Lake) outlet	Madampe Lake is a coastal water body.	Annually open.	Flood water, Wastewater draining, Scenic, recreational, and wildlife	The streams flow from the Karandeniya area.
36	Akurala stream 6° 11' 51" N 80° 3' 46" E	Stream outlet	The stream mouth is partly stabilized and seasonally open.	Akurala stream and Galduwa stream act as a system.	Fisheries, wildlife	Old buried coral pits, water ponds, and mangrove swamps exist.
37	Sinigama canal (stream) 6° 9' 22" N 80° 5' 33" E	Stream outlet	Partly stabilized, seasonally open. Beach sands cover the canal outlet.	It is a short stream	Flood water draining,	Coconut palms and mangrove trees along the canal exist.
38	Hikkaduwa Lagoon 6° 8' 51" N 80° 5' 56" E	Lagoon outlet	Erosion of the mouth prevents by a groin.	Hikkaduwa Lagoon connects several small coastal streams.	Scenic, recreation Wildlife, Geologic.	Mangrove fringes can see. The North Canal system connects Paraliya Lake.
39	Thuduwegoda Ela (canal) 6° 8' 20" N 80° 5' 57" E	Canal outlet 	5/2019 Canal (aqueduct)	The canal acts as an aqueduct. It connects with Hikkaduwa Lake and inland coastal lowlands.	Flood water draining,	Mangrove and grassy wetland species can see.

40	Mawe kanda (Mawakkada) Ela 6° 7'59"N 80° 6'2"E	Canal outlet	The stream and associated canals connect to Narigama wetlands.	The stream extends along the shore somewhat distance and connects with the lowlands.	Flood water draining,	Mangrove species and marshes cover the stream
41	Rathagama Lagoon Canal mouth 6° 6'17"N 80° 7'26"E	Lagoon (canal) outlet	The canal from the lake up to the sea is non-parallel.	Partly stabilized and seasonally open.	Scenic, Fisheries. Boats landing	Excess lagoon water releases.
42	Ginthota estuary 6° 3'43"N 80° 10'25"E	Estuary	Unsterilized and annually open.	The estuary is changing seasonally/annually	Wildlife, scenic and recreation, Geologic.	Mangrove species and marshy lands exit inland.
43	Ginthota newly built lagoon mouth 6° 3'28"N 80° 10'38"E	Lagoon outlet	2/2019 Lagoon outlet	The newly built lagoon covers an excessive volume of sand.	Wildlife and scenic, Geologic	Mangrove patches and fringe mangroves exist.
44	Walawwatta canal 6° 2'39"N 80° 11'25"E	Canal outlet	1/2022 Canal outlet	The narrow canal is non-parallel to the coast	Flood water and wastewater draining,	Mangrove species and other wetland species cover the area



45	Mahamodara canal mouth 6° 2'20"N 80° 11'55"E	Canal outlet I	In the coastal area, the canal is called Kepu Ela.	It is partially stabilized and seasonally open.	Canal connects to Mahamodara Lake. Flood water draining,	The canal connects the Holuwagoda Ela (stream).
46	Kepu ela mouth 6° 1'53"N 80° 12'50"E	Canal outlet	Narrow canal drains from inland.	Stabilized and annually open	Wastewater flows from the Wakwella area into the sea.	Flood water, urban wastewater draining. Both sides of Kepu Ela Masonry walls exist.
47	Dutch canal entrance 6° 2'5"N 80° 13'52"E	Canal outlet	Stabilized and annually open mouth. It drains from inland to Galle Harbour.	Wastewater and flood water flow from paddy lands.	Flood water draining, Recreation	Mangrove tree species can see along the canal.
48	Kadawatha ela (Stream) mouth 6° 1'41"N 80° 14'31"E	Stream mouth	2/2020 Stream outlet	Meander pattern and other canal drains from inland	Flood water draining, Scenic	Marshy lands and mangrove species covered the lowlands
49a	Unawatuna Canal 6° 0'24"N 80° 14'37"E	Canal outlet	2/2021 Canal outlet	Partly stabilized and seasonally open	Flood water draining, Scenic, Recreation, Tourism	The vegetation cover of the canal area is very important for tourism.



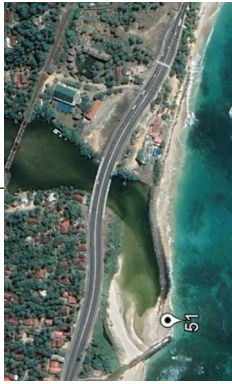









49	<p>Talpe-Mihipipenna Canal outlet (Dodampe Wadu Canal) 5°59'54"N 80°16'20"E</p>	<p>Canal outlet</p>	<p>About 800m in length canal brings water from paddy lands in coastal inland.</p>	<p>Partly stabilized and seasonally Open</p>	<p>Flood water draining, Geologic</p>	<p>Mangrove trees and coconut palms exist along the canal</p>
50	<p>Thimiriela-Pitiduwa Canal outlet 5°59'38"N 80°17'53"E</p>	<p>Canal outlet</p>	<p>Narrow-type lagoon connects inland streams connecting to Talpe- Mihipipenna wetlands.</p>	<p>Partly stabilized and seasonally Open</p>	<p>Flood water draining,</p>	<p>Mangrove trees and coconut palms exist along the canal.</p>
51	<p>Koggala lagoon outlet 5°58'58"N 80°20'09"E</p>	<p>Lagoon outlet</p>	<p>2/2020 Lagoon outlet</p> 	<p>The lagoon mouth area belongs to an old beach ridge</p>	<p>Scenic, Fisheries, recreation, and wildlife</p>	<p>The lagoon is somewhat large. Fringe, patches mangroves, and mangrove islands exist.</p>



TABLE 03 : Water Outlets of the Southern Coastal Zone




Ser. No	Outlet name and Latitude/ Longitude	Type	Specific features	Outlet behavior	Major values (Existing and potential)	Comments
52	Ahangama Stream (Atapalan Ela) 5°58'31"N 80°21'18"E	Stream outlet	A stream, inland flood water and wastewater are released into the sea.	Stabilized and seasonally open	Flood water draining	Mangrove patches and coconut palms exist along the canal
53	Gowiyapana stream 5°57'54"N 80°22'54"E	Stream outlet	2/2019 Stream outlet 	Opened, but sands are gathered along the stream. The jetties at the entrance have been fixed.	Flood water and wastewater draining, scenic	Mangrove patches, coconut palms and marshy lands are seen.
54	Midimodara canal (stream) 5°57'49.5"N 80°23'29"E	Stream outlet	The entrance is fixed with jetties, but the entrance is filled with sand. Use to Inland floodwater release.	Partly stabilized. Seasonally open.	Flood water draining	Mangrove patches exist along the canal.
55	Kapparotota Lagoon outlet 5°57'42"N 80°25'15"E	Lagoon outlet	Excess water in paddy fields release through this stream. Entrance is closed by sands.	Unstabilized, annually open.	Scenic, Flood water draining	A narrow and elongated water body covers mangrove patches covering the entrance.
56	Agrabodi Ela 5°58'13"N 80°25'33"E	Canal outlet	Urban polluted water released by this canal is closed by a sand bar.	Unstabilized, annually open.	Flood water and wastewater draining	The ela (canal) flows into Weligama Bay.



57	Yan Odaya (Kapu Ela) 5°58'19"N 80°25'59"E	Canal outlet	Urban polluted water released by this canal	Unstabilized, annually open.	Flood water and wastewater draining	The ela (canal) flows into Weligama Bay.
58	Polwatta Ganga (Polwathumodera) Estuary 5°57'47"N 80°27'13"E	River Estuary 	2/2019 River estuary	Partly stabilized and annually open	Scenic, recreation	A laterite headland is on the left side. 
59	Garanduwa Canal (Udupila Ela) 5°56'40"N 80°27'37"E	Canal outlet I	The canal starts from Garanduwa Lagoon and flows westward coast.	Unstabilized and seasonally open.	Flood water draining	Mangrove patches have covered the entrance area.
60	Garanduwa Lagoon canal 5°56'14"N 80°29'013"E	Lagoon outlet	The southern canal connects the Garanduwa Lagoon and the sea.	Partly stabilized and seasonally open.	Flood water draining	Release the excess water from the lagoon area.
61	Paramulla Canal (Ela) 5°56'16"N 80°31'59"E	Lagoon outlet	3/2020 Lagoon outlet 	Stabilized and annually open	Flood water draining	Excess flood water and urban wastewater drain.
62	Nilwala River Estuary 5°56'23"N 80°32'16"E	River Estuary		Unsterilized and annually open.	Recreation, scenic, fishery	Fishing boats landing.

63	Dondra Lagoon 5°55'52"N 80°34'56"E	Lagoon outlet 	1/2020 Lagoon outlet 	Stabilized and Seasonally open	Wildlife	Mangrove patches and fringes exist
64	Devinuwara-Wawwa Stream 5°55'35"N 80°35'44"E	Stream outlet	The entrance is blocked by a sand bar.	Stabilized and Seasonally open	Flood water draining, fishery, scenic	Landing of fishing boats and mangrove patches exist along the stream.
65	Tallalla Canal 5°56'47"N 80°37'25"E	Canal outlet	Elongated water body (about 250m in length) formed from coast to inland	Stabilized and Seasonally open	Wildlife	Mangrove trees are a salient feature around the water body.
66	Kottogoda Canal 5°56'46"N 80°38'16"E	Canal outlet	Excess inland water releases along the canal.	Stabilized and Seasonally Open	Flood water draining, fishery	Mangrove trees, coconut palms and paddy fields are salient features.
67	Lunu kalapuwa (goda uda) 5°57'21"N 80°39'14"E	Lagoon outlet 	3/2020 Lagoon outlet	Stabilized and Seasonally open	Scenic, wildlife	Lagoon-shaped small water body covered with mangroves.

68	Bathagama ela 5°57'33"N 80°40'44"E	Canal outlet 	3/2020 Lagoon outlet	Stabilized and Seasonally open (68)	Flood water draining, fishery	The small lagoon has a pond shape behind the sandy mouth. Coconut palms exist along the canal.
69	Bathagama Pond Canal outlet (Thondile Pond canal) 5°57'35"N 80°40'54"E	Canal outlet	The stream drains water from paddy fields to the coast.	Stabilized and Seasonally open (69)	Flood water draining, fishery	Mangrove species extend about 900m inland along the stream.
70	Dickwella Stream 5°57'49"N 80°41'29"E	Canal outlet	A small lagoon- type pond is behind the beach.	Unstabilized and Seasonally open	Fishery scenic	Mangrove species cover the lagoon and the canal.
71	Hiriketiya canal 5°57'47"N 80°42'28"E	Canal outlet	A small lagoon- type canal is behind the beach.	Unstabilized and Seasonally open	Flood water draining	Mangrove species and marshy grasses cover the canal way.
72a	Dodampahala Canal 5°58'35"N 80°43'18"E	Canal outlet	Excess rainwater from paddy fields flows into Kudawella Bay.	Unstabilized and Seasonally open	Flood water draining Scenic	Mangrove species and marshy species extend up to the main road.
72b	Kudawella Bay Canal 5°58'45"N 80°43'25"E	Canal outlet	Mawella Lagoon canal extends from the lagoon to the sea.	Stabilized and Seasonally open	Flood water draining Scenic Recreation	Coconut palms and home gardens are salient features along the canal.
73	Mawella Lagoon Canal 5°59'22"N 80°44'43"E	Canal outlet	3/2022 Lagoon outlet 	Unstabilized and Seasonally open	Fishery, Scenic	It is an elongated water body from beach to inland, about 480m in length. Mangrove patches exist.

75	Simimodara Mouth 6° 0' 3.25"N 80° 45' 15"E	River Estuary	A water body is behind the beach	Unstabilized and Seasonally open	Wildlife, scenic	Mangrove species are the salient features in the area.
76	Goyambokka stream 6° 0' 37.58"N 80° 46' 56"E	Stream outlet	A small lagoon-type pond is behind the beach.	Unstabilized and Seasonally open	Flood water draining	Mangrove species are the salient features
77	Kirama Oya 6° 1' 35.47"N 80° 47' 54"E	River Estuary	3/2019 River estuary 	Partly stabilized and Annually/seasonally open	Flood water draining	An elongated water body is behind the estuary. It extends up to Tangalle main road Bridge.
78	Rekawa - Medilla outlet 6° 02' 19"N 80° 48' 38"E	Lagoon outlet	3/2019 Lagoon outlet 	This mouth is already closed. Appear as an old mouth with two jetties (No. 78)	Flood water draining	Rekawa lagoon canal is behind the beach. Mangrove patches exist.
79	Rekawa – Kapuhenwala Mouth 6° 02' 29"N 80° 49' 19"E	Lagoon outlet		Unsterilized and Seasonally open	Scenic, recreation, wildlife	Rekawa lagoon canal is behind the beach.
80	Kahanda Kalapuwa 6° 03' 45"N 80° 53' 34"E	Lagoon outlet	Several freshwater streams connect the lagoon	Unstabilized and Seasonally open	Scenic, recreation, wildlife	Well-developed sand bars are behind the mouth. Mangrove forests exist.

81	Thillawatawana Lagoon 6°04'07"N 80°54'48"E	Lagoon outlet 	3/2019 Lagoon outlet 	Unstabilized and Seasonally open	Flood water draining	Swash seawater enters the small lagoon during the storms. No mangroves exist.
82	Kumukaliya Lewaya lagoon 6°04'24"N 80°55'26"E	Lagoon outlet	Lewaya has a seawater intake	Unstabilized and artificially open	Flood water draining	Well-developed No mangrove fringes exist.
83	Kalametiya Lagoon Canal 6° 4'4"N 80°56'11"E	Canal outlet	A jetty is at the mouth and a small harbour	Unstabilized and Periodically open	Scenic, wildlife	Considerable mangrove swamp forests are existing
84	Walawe Estuary Welepatanwila 6°06'15"N 81°00'59"E	River Estuary 	1/2019 River estuary	Partly stabilized and Seasonally open	Flood water draining, recreation, scenic, wildlife	Well-developed mangrove patches and fringe exist







85	Walawe Estuary Godawaya 6°06'25"N 81°03'02"E	River Estuary	12/2013 River estuary 	Partly stabilised shed and Seasonally open (85)	Scenic, recreation	Inland floodwater releases into the sea
86	Maha Sittarakala Lewaya Canal (Godawaya) 6°06'38"N 81°03'16"E	Canal outlet		Unstabilized and Seasonally open (86)	Flood water draining	Inland water and lewaya excess water drain.
87	Karagan Harbour Mouth 6°07'07"N 81°06'12"E	Harbour mouth 	10/2022 Harbour mouth	open	Harbour	The western part of the Karagan Lewaya is developed into a harbour.
88a	Karagan Bay Canal 6° 7'6"N 81° 6'25.34"E	Canal outlet	Manmade canal	Stabilized and seasonally open	Flood water draining	Water is released into the eastern part of the Hambantota harbour.
88	Karagan – Hambantota Bay Canal (Panuwala) 6°07'50"N 81°07'44"E	Canal outlet	Manmade canal	Stabilized and seasonally open	Flood water draining	Excess water of the former Karagan lewaya and surrounding releases into Hambantota Bay.
89	Koholankala Maha Lewaya (Lagoon) Canal 6°08'24"N 81°08'54"E	Canal outlet	The inlet is used for the seawater pump into the lagoon.	Stabilized and seasonally open	Flood water draining	No mangroves exist in this lagoon complex. The principal threat is further development of salt production projects.


90	Malala Modara Canal 6°09'11"N 81°10'34"E	Canal outlet	Threats are minimised due to the protection of the area under the Department of Wild Life.	Stabilized and seasonally open	Flood water draining, recreation, scenic	Mangrove vegetation and swamps exist. A few places have been encroached.
91	Malala Lagoon mouth 6°09'31"N 81°11'13"E	Lagoon outlet	Stabilized and seasonally open (rarely)	Stabilized and seasonally open	Scenic, wildlife and	Mangrove vegetation swamps exist. A few places have been encroached.




TABLE 04 : Water Outlets of the Southeastern Coastal Zone


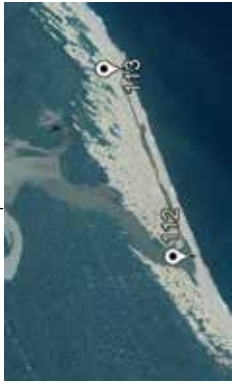
Ser. No	Outlet name and Latitude/ Longitude	Type	Specific features	Outlet behavior	Major values (Existing and potential)	Comments
92	Bundala Lewaya outlet 6°10'41"N 81°14'02"E	Lagoon outlet	Seawater intake seasonally covers sands.	Unstabilized and periodically open	Flood water draining, Scenic surrounding Avian species.	Sandy Beach, dunes, and the area cover the creeping and thorny bushes.
93	Bundala Lewaya outlet 2 6°10'55"N 81°14'47"E	Patanagala beach Lagoon outlet	Seasonally covers sands.	Unstabilized and periodically open	Flood water draining, Avian species.	Sandy Beach, dunes, and the surrounding area cover the creeping and thorny bushes.
94	Kirindi Oya outfall 6°11'36"N 81°17'36"E	River Estuary	1/2019 Estuary	Unstabilized and periodically open	Scenic, Recreation, wildlife	Somewhat high dunes are seen. A wide beach is on the left side.
95	Modara Ela and Rankeliya Canal / yoda kandiya Canal 6°12'12"N 81°19'27"E	Kirinda Canal outlet	1/2019 Canal outfall	Unstabilized outfall and periodically open, A rocky	Flood water draining, scenic, Geologic. Wetland-type headland on the right side	Rocky and sandy features at the mouth. vegetation exists.



	 Blue-tailed Bee Eater - Palatupana	 Barred Buttonquail- Palatupana	 Osprey Bundala	 Small Pratincole Bundala	 Crested Hawk Eagle Koggala	
97	Palatupana Maha Lewaya canal 6°14'26"N 81°22'25"E	Canal outlet	The canal drains from the lagoon to the sea releasing excess water.	Unstabilized and periodically open	Flood water draining, scenic, Geologic.	Dry forests and dune vegetation can see.
98	Palatupana Maha Lewaya outfall 6°14'41"N 81°22'48"E	Lagoon outlet	The lagoon's outlet drains rainwater from the lagoon.	Unstabilized and seasonally open	Flood water draining, scenic, Geologic.	Dry forests and dune vegetation can see surround the mouth.
99	Palatupana Small lagoon (Mahadiyabanwewa Lagoon) 6°15'18"N 81°24'11"E	Lagoon outlet	The mouth is covered by a sand bar.	Unstabilized and seasonally open	Flood water draining Scenic, Recreational	Dry forests and dune vegetation can see. The beach area is significant for tourism.
100	Palatupana lagoon (Kudadiyabanwewa Lagoon) 6°15'44"N 81°24'38"E	Lagoon outlet 	1/2019 Closed L. mouth	Unstabilized and seasonally open	Flood water draining, Scenic, Recreation Geologic	Dry forests and dune vegetation can see. Overwash seawater enters by storm surges.

101	Palatupana Goda Kalapuwa 6°16'27"N 81°25'12"E	Lagoon outlet 	1/2019 Lagoon mouth	Unstabilized and Periodically Open	Flood water draining, Scenic, Recreation Geologic	Dry forests and dune vegetation can see. Overwash seawater enters by storm surges.
102	The Secret Yala Lagoon 6°16'47"N 81°25'36"E	Lagoon outlet	Massive forest, grasslands with elephants, leopards, crocodiles & abundant bird life.	Unstabilized and seasonally open	Flood water draining, Scenic, Recreation Geologic	Dunes can see the surrounding area during the rainy season, the mouth connects with the sea.
103	Kudasilawa (Angunakolawala) 6°16'56"N 81°25'37"E	Lagoon outlet	The lagoon has an elongated shape. Rocky grounds are inside the lagoon.	Unstabilized and seasonally open	Flood water draining, scenic, Recreation Geologic	Dunes, Sparsely distributed trees exist.
104	Mahasilawa (Jamburagala) Stream 6°17'31"N 81°26'11"E	Stream outlet	Rocky grounds are inside the lagoon.	Unstabilized and seasonally open	Flood water draining, Scenic, Recreation Geologic	Dunes and dune forests can see the surrounding area.
105	Uraniya (Palugaswala) lagoon 6°18'30"N 81°28'22"	Lagoon outlet	The lagoon has an Eelongated shape. Rocky grounds and somewhat high dunes can see.	Unstabilized and Periodically Open	Flood water draining, geologic, Scenic	Dunes and dune forests can see the surrounding area.

106 a	Butawa Lagoon 6°19'08"N 81°29'01"E	Lagoon outlet 	1/2019 Lagoon mouth 	Partly stabilized and seasonally open.	Flood water draining, scenic, Recreation Geologic	Dune vegetation and forest are covered surroundings.
106b	Butawa Small Lagoon 6°19'53"N 81°29'41"E	Lagoon outlet	The somewhat elongated lagoon is fed by inland seasonal streams.	Partly stabilized and seasonally open	Flood water draining	Seawater enters the lagoon by a canal and overwashes from the sea.
107	Patanagala lagoon 6°20'27"N 81°29'51"E	Lagoon outlet	The vast beach has a funnel shape and attracts tourists.	Unstabilized and seasonally open	Flood water draining, Scenic, Recreation Geologic	Narrow low dune ridges, scrublands, and sparsely distributed dry forests can see.
108	Gonalabbe Lagoon 6°20'27"N 81°29'51"E	Lagoon outlet	The lagoon is fed by inland short streams.	Unstabilized and seasonally open	Flood water draining, Recreation, Scenic, Geologic	A beach bar covers the mouth. Scrublands and sparsely distributed dry forests can see.
109	Manik Ganga Estuary 6°21'47"N 81°31'53"E	River Estuary 	1/2015 Estuary	Unstabilized and seasonally open	Flood water draining, Scenic, Wildlife, Recreation, Geologic	Sand bars from both sides of the main mouth. During flood time, PULLESSA Modara creates.

110	Pulesa Modara 6°22'26"N 81°33'51"E	River Estuary	Pulesa Modara canal extends from Menig Ganga (109) to 110 behind the dunes.	Partly stabilized and seasonally open	Flood water draining, scenic, Wildlife, Recreation, Geologic	The southern end covers with dunes and a headland. The northern part covers a beach bar.
111	Kurunde Ara (Udapotana Lewaya) 6°25'14"N 81°36'54"E	Lagoon outlet	1/2015 Lagoon mouth 	Partly stabilized and seasonally open	Flood water draining, scenic, Wildlife, Recreation Geologic	The lagoon is fed by inland seasonal streams and seawater. The mouth covers by a headland.
112	Pahala Potana lake 6°26'12"N 81°37'38"E	Lagoon outlet	1/2018 Lagoon mouth 	Unstabilized and seasonally open	Flood water draining Scenic, Geologic	The elongated lagoon is fed (112) by inland seasonal streams and seawater. The mouth covers by a headland.
113	Pothana Lake channel 6°26'35"N 81°38'40"E	Channel outlet	The mouth forms a parallel canal. It is covered by beach sand.	Unstabilized and seasonally open	Flood water draining Scenic, Geologic	The northern part of the canal covers by dunes and dune vegetation.
114	Uda Gajabaeliya stream 6°28'4"N 81°40'1"E	Stream outlet	The lagoon canal connects the inland water body.	Unstabilized and seasonally open	Flood water draining, scenic, Wildlife, Recreation Geologic	The lagoon is fed by inland seasonal streams and seawater.











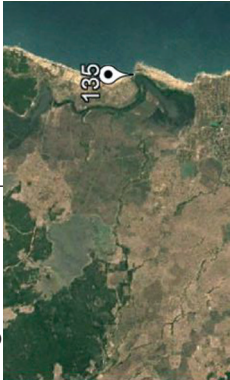
115	Kubukkan Oya mouth 6°30'11"N 81°42'17"E	River Estuary	7/2009 Estuary 	Unstabilized and seasonally open	Flood water draining, scenic, Wildlife, Recreation Geologic	The southern part of the Kubukkan Oya bank has a long water body and a sand bar.
116	Yakkala Lagoon (Kumana) 6°32'36"N 81°43'33"E	Lagoon outlet	1/2017 Lagoon outlet 	Unstabilized and seasonally open (116)	Flood water draining, scenic, Wildlife, Recreation Geologic	Overly balloon shape lagoon has a wide sandy beach, forests, and creeping vegetation.
117	Itikala Lagoon 6°33'05"N 81°43'42"E	Lagoon outlet	Overly balloon shape lagoon has a canal from the lagoon to the beach.	Unstabilized and seasonally open (117)	Flood water draining, scenic, Wildlife, Recreation Geologic	The right side has a rocky headland covered by dry forest. The left side covers a wide beach and forests.
118	Andarakala Lagoon 6°33'57"N 81°44'13"E	Lagoon outlet	Overly balloon shape lagoon has a canal from the lagoon to the beach.	Unstabilized and seasonally open (118)	Flood water draining, scenic, Wildlife, Recreation Geologic	Wide sandy beaches, creeping vegetation, and salty dry soil beds can see.
119	Bagura Lagoon 6°34'57"N 81°44'53"E	Lagoon outlet	Overly balloon shape lagoon has a canal from the lagoon to the beach.	Unstabilized and seasonally open	Flood water draining, wildlife, Geologic	Wide sandy beaches, creeping vegetation, Sparsely distributed trees, and salty dry soils.


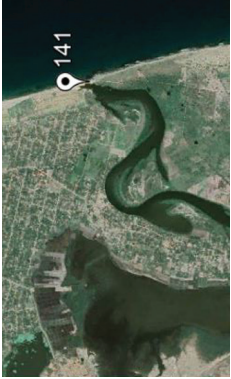
TABLE 05 : Water Outlets of the Eastern Coastal Zone

Ser. No	Outlet name and Latitude/ Longitude	Type	Specific features	Outlet behavior	Major values (Existing and potential)	Comments
120	Kirigal Lagoon (small) (Kadalanchichiya Stream) 6°36'28"N 81°45'37"E	Lagoon outlet 	1/2017 Lagoon outlet 	Unstabilized and Seasonally open.	Flood water draining	Move the mouth seasonally. Dry forests exist.
121	Girikula Lagoon 6°37'37"N 81°46'18"E	Lagoon outlet	Behind the lagoon, the water body acts as a stream.	Partially Stabilized and seasonally open	Flood water draining, wildlife, Scenic.	The northern side covers dune and dune forests. The southern part is covered with wide low dunes.
122	Tillanwala Lagoon 6°38'50"N 81°46'35"E	Lagoon outlet 	1/2017 	Partially Stabilized and seasonally open	Flood water draining, scenic, Wildlife, Geologic Avian species	Somewhat low dunes and dry forests are behind them.

123	Okanda Lagoon 6°39'12"N 81°46'22"E	Lagoon outlet 	7/2018 Lagoon outlet	Partially Stabilized and seasonally open	Flood water draining, avian species Geologic	The water body extends non-parallel to the beach. Scattered dune forest, creeping vegetation can see.
124	Ikiriyawattawana Small Lagoon 6°39'31"N 81°46'179"E	Lagoon canal mouth	No. 124 extends about 700m inland from the sea and its width is about 130m.	Unstabilized and Seasonally open	Flood water draining avian species Geologic	Scrublands and Dune forests exist.
125	Helawa Lagoon mouth 6°39'59"N 81°46'18"E	Lagoon outlet	Halawa Lagoon has an oval balloon shape.	Unstabilized and Seasonally open	Flood water draining avian species Geologic	Surroundings the lagoon has barren lands.
126	Helawa beach stream. 6°40'58"N 81°46'49"E	Stream outlet	Stream-like small lagoon extends from the beach to inland.	Unstabilized and Seasonally open	Flood water draining avian species Geologic	Beaches, scrublands, barren lands, and creeping vegetation exist.
127	Kunukala Lagoon 6°42'17"N 81°47'50"E	Lagoon outlet 	12/2012 Lagoon outlet	Unstabilized and Seasonally open	Flood water draining, avian species	Barren lands, scrublands, geological and creeping vegetation can see.

128	Solambe Lagoon 6°43'03"N 81°48'03"E	Lagoon outlet	12/2012 Lagoon outlet Nos. 127, 128, and 129 are in different sizes and shapes.	Unstabilized and Seasonally open	Flood water draining, geological avian species	Barren lands, scrublands, and creeping vegetation can see.
129	Panakala Lagoon 6°43'29"N 81°48'06"E	Lagoon outlet		Unstabilized and Seasonally open	Flood water draining, avian species Geologic	Barren lands, scrublands creeping vegetation can see.
130	Panama Lagoon 6°46'01"N 81°49'3"E	Lagoon outlet	3/2020 Lagoon outlet 	Partially Stabilized and seasonally open	Scenery, recreational, wildlife, geologic avian species	A rocky headland, vegetated dunes, and scrublands can see.
131	Ramwell Ela (Ragam Wel Ela) 6°47'01"N 81°49'10"E	Stream outlet	The small lagoon canal extends from the beach to the Ramwell-Shastrawela tanks	Partially Stabilized and seasonally open	Flood water draining, Wildlife, Geologic	The right side of the lagoon canal has a rocky headland, and the other side exist vegetated dunes.
132	Heda Oya 6°48'36"N 81°49'25"E	River Estuary	3/2020 Lagoon outlet 	Partially Stabilized and seasonally open	Scenic, Wildlife, Geological avian species	The south margin covers a headland. To the northwards, a well-developed sand spit can see.

133	Kudakalli Lagoon 6°49'08"N 81°49'28"E	Lagoon outlet	Freshwater parts of the lagoon have been converted into paddy lands.	Unstabilized and Seasonally open	Recreation wildlife, scenic, avian species	The lagoon feeds by inland streams, and the upper part acts as a flood plain.
134	Arugam bay Lagoon 6°51'8.7"N 81°49'57"E	Lagoon outlet	Many streams connected with the lagoon were used as paddy lands.	Partially stabilized and Seasonally Open (134)	Scenic, Wildlife, Fishery Scenic, Recreation	Both sides behind the lagoon are highly populated.
135	Potuvil Lagoon 6°53'56"N 81°50'43"E	Lagoon outlet 		Unstabilized and Seasonally open	Wildlife, scenic, Recreation Geologic.	The southern side is covered by vegetated dunes and the northern side covers by homesteads.
136	Murugattenna Lagoon 6°57'20.5"N 81°51'41"E	Lagoon outlet	Grazing grounds, scrublands, and paddy fields can see the surrounding area of the lagoon.	Unstabilized and Seasonally open	Wildlife, scenic	Both sides of the mouth are covered by scrubland and vegetated dunes.
137	Komari Lagoon 6°58'36"N 81°51'56"E	Lagoon outlet 		Unstabilized and Seasonally open	Fisheries, wildlife, flood water draining, scenic, Wildlife Geologic avian species	Dune and dune vegetation exist. Homesteads can see behind the dunes.

138	Timbutu Lagoon 7°00'57.5"N 81°52'35"E	Lagoon outlet	This lagoon connects inland flood streams, which flow to the lagoon.	Stabilized and Seasonally Open	Flood water draining avian species	Wide beaches, natural forestlands, and plantations exist.
139	Sangamankanda small lagoon 7° 1'58"N 81°52'31"E	Lagoon outlet	This small lagoon appears somewhat perpendicular to the beach.	Stabilized and Seasonally Open	Flood water draining avian species	Sandy beaches exist. Behind the beaches, old vegetated dunes are covered.
140	Small lagoon Near Moonjil rest 7°01'58"N 81°52'30"E	Lagoon outlet 	3/2020 Lagoon outlet	Unstabilized and Seasonally open	Fisheries, wildlife, flood water draining, scenic, Wildlife Geologic, avian species	It is a small lagoon with narrow beach. Scattered thorny species and coconut palms can see.
141	Korai Lagoon system (Omari, Tandiyadi and Mulyadi) 7° 5'36"N 81°51'36"E	Lagoon outlet 	4/2020 Lagoon outlet	Unstabilized and Seasonally open	Fisheries, wildlife, flood water draining, scenic, Wildlife Geologic avian species	Patches and fringing mangroves exist. Rice paddies, coconut cultivation, and housing, schemes exist.



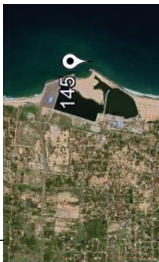
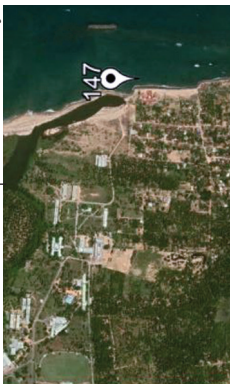


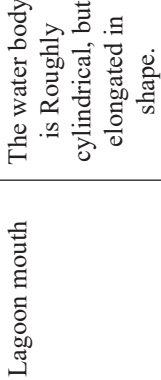


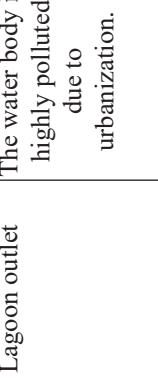

142	Periya Lagoon Mouth I (Periyamuhattuvaram) 7° 9' 2"N 81° 51' 37"E	Lagoon outlet	Narrow beaches are in both sides, exist.	Stabilized and Seasonally Open	Scenery, wildlife, fishery, recreation avian species	Periyamuhattuvaram Bridge extends across this lagoon mouth
143	Periya Lagoon mouth II (Sinnamuhattuvaram) 7° 11' 7.45"N 81° 51' 42.48"E	Lagoon outlet 	2/2017 Lagoon outlet	Stabilized and Seasonally Open	Scenery, wildlife, fishery, recreation avian species	Muhattuvaram Bridge extends across this lagoon mouth

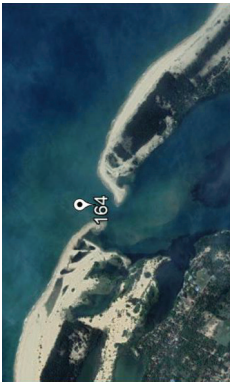


TABLE 06 : Water Outlets of the Northwestern Coastal Zone

Ser. No	Outlet name and Latitude/ Longitude	Type	Specific features	Outlet behavior	Major values (Existing and potential)	Comments
144	Addalaichenai Konawathai Aru 7°14'17"N 81°51'48"E	Aru (oya) outlet	The area is highly populated.	Stabilized and seasonally open	Recreation, Scenic	Konatta Oya extends parallel to the coast. Highly populated area.
145	Oluvil Hobour mouth 7°16'33"N 81°52'10"	Harbour outlet	2/2017 Habour mouth 	3/2019 Sand collected harbor mouth 	Fishery, Logistics, and Transportation	Files up of sand by seasonal wind action and dredging are needed to remove the sand at the harbor mouth.
146	Oluvil Lighthouse canal 7°17'29"N 81°52'01"E	Canal outlet	Oluvil coastal area is subjected to severe erosion.	Unstabilized and seasonally open (146)	Scenery, Recreation, Geologic Fishery	A long revetment exists in front of the beach.
147	Gal Oya (Kalioda) 7°17'58"N 81°51'55"E	River Estuary	2/2029 River estuary 	Unstabilized and seasonally open (147)	Scenery, Recreation, Wildlife	The wetland behind the beach covers the marshy lands and beach forests.

148	Kodaimolaa Aru (Nochchihadu Stream) 7°19'10"N 81°51'56"E	Aru (Oya) estuary 	11/2018 estuary 	Unstabilized and seasonally open (148)	Scenery, recreation, wildlife	Two canals inland connect near the coast becoming a small lagoon.
149	Addaippaliam Lagoon (Nintavur) or Wowval Oda 7°20'01"N 81°51'48"E	Lagoon mouth 	The water body is Roughly cylindrical, but elongated in shape.	Unstabilized and seasonally open.	Flood water draining	A small lagoon and back area cover marshy vegetation.
150	Nindur water body (Vettar canal) 7°21'54"N 81°51'16"E	Canal outlet 	6/2016 Canal outlet 	Unstabilized and seasonally open (150)	Flood water draining, wastewater draining.	No. 150 water mouth connects with No. 151 behind the beach.
151	Karativu Lagoon (Kinnayadi Muhattuwarem) 7°22'4"N 81°51'13"E	Lagoon outlet 	The water body is highly polluted due to urbanization.	Unstabilized and seasonally open (151)	Flood water draining, recreation	Nos. 150 and 151 are connected by a parallel beach canal.

152	Karativu Lagoon (Saintamaruthu Lagoon) 7°23'47"N 81°50'38"E	Lagoon outlet	The water body is highly polluted due to urbanization.	Unstabilized and seasonally open	Flood water draining Fishing boats are landing.	The lagoon mouth area acts as a fish collecting site.
153	Periyaneelavanai Lagoon 7°26'51"N 81°49'16"E	Lagoon outlet	It is a small lagoon and has a Kemana shape.	Unstabilized and seasonally open	Flood water draining	Sandy Beach, aquatic plants exist.
154	Periyakallar mouth (Batticaloa) 7°27'51"N 81°49'2"E	Lagoon outlet	This mouth is the southern end of Batticaloa Lagoon.	Unstabilized and seasonally open.	Fishery, Flood water draining	The mouth is closed by beach sands.
155	Padirippu Lagoon (Kaluwanchikudy) 7°30'44"N 81°48'28"E	Lagoon outlet	The water body stretches as a small stream on the old barrier.	Unstabilized and seasonally open	Flood water draining	The mouth area is highly populated at the land site.
156	Thethativu small stream 7°33'31"N 81°47'55"E	Stream outlet	The water body stretches as a small stream on the old barrier.	Unstabilized and seasonally open	Flood water draining	The water body covers a wide sandy area.
157	Kirankulam small lagoon 7°36'24"N 81°47'1"E	Lagoon outlet	The water body stretches as a small stream and a lake on the old barrier. A planted forest is parallel to the coast.	Unstabilized and seasonally open	Flood water draining	The sea water enters the lagoon through a canal.

158	Vedarkudiyirippu stream 7°39'17"N 81°45'36"E	Stream outlet	The water body stretches as a small stream and a lake on the old barrier.	Unstabilized and seasonally open	Flood water draining	Stretching a small lagoon and a stream, it followed old dune ridges.
159	Palamunai Stream (small) 7°39'440"N 81°45'21"E	Stream outlet 	12/2021 Stream outlet	Unstabilized and seasonally open	Flood water draining	Stretching a small lagoon and a stream, it followed old dune ridges.
160	Palamunai Stream (small) 7°39'59"N 81°45'11"E	Stream outlet	The area behind the mouth is highly populated and has sparsely distributed homesteads.	Unstabilized and seasonally open	Flood water draining	Stretching a small lagoon and a stream, it followed old dune ridges
161	Kattankudy (Mannunai) Lagoon 7°40'37"N 81°44'48"E	Lagoon outlet	The area behind the mouth is highly populated and has sparsely distributed homesteads.	Unstabilized and seasonally open	Flood water draining	Stretching as a short stream and lake, it followed old dune ridges.
162	Kattankudi small lagoon 7°41'14"N 81°44'25"E	Lagoon outlet	The area behind the mouth is highly populated and has sparsely distributed homesteads.	Unstabilized and seasonally open	Flood water draining	The mouth area is located on the beach.


163	Nochhimunai stream outfall 7°42'5N 81°43'53" E	Lagoon outlet	Sparsely distributed homesteads can see and the stream has flowed a runnel on the old barrier.	Unstabilized and seasonally open	Flood water draining	Overwash, seawater enters the small lagoon through storms.
164	Batticaloa lagoon mouth 7°45'35"N 81°41'17"E	Lagoon outlet 	12/2010 Lagoon outlet	Partly stabilized and seasonally open	Scenery, Wildlife, Fishery Avian species	Well-developed sand spits and bars cover the main water entrance of the lagoon.
165	Thalavai Stream 7°49'23"N 81°36'46"E	Stream outlet 	11/2019 Stream outlet	Unstabilized and seasonally open	Flood water draining, Scenic, Fishery Avian species Geologic	The stream flows to seaward across the old barrier beach.
166	Vitz aru I (Kaluwankeni) 7°49'35"N 81°36'03"E	Aru (river) outlet 	Mangrove species, grassy patches, and planted species can see along the stream	Unstabilized and seasonally open	Flood water draining Scenery, Wildlife, Fishery, Avian species	The stream flows to seaward across the old barrier beach.


167	Vitz aru II (Kaluwankeni-Eravur) 7°49'52"N 81°35'39"E	Aru (river) outlet	Mangrove patches and scarcely distributed vegetation can be seen along the lagoon and stream.	Unstabilized and seasonally open	Flood water draining	The stream flows seaward across the old barrier beach following the runnel morphology of the old barrier.
168	Palaiyadiithona canal (Kalkudah) 7°52'52"N 81°33'56"E	Canal outlet	Mangrove patches and scarcely distributed vegetation can be seen along the lagoon and stream.	Unstabilized and seasonally open	Flood water draining Scenery, Wildlife, Fishery, Avian species	The stream flows seaward across the old barrier beach following the runnel morphology.
169	Kiran Beach small lagoon 7°52'31"N 81°34'2"E	Lagoon outlet	Coconut palms and homesteads distribute surrounding the waterbody.	Unstabilized and seasonally open	Flood water draining Scenic, Wildlife, Fishery Avian species	The lagoon outlet is spread out on the beach, and the whole water body is on the old barrier beach.
170	Kumburumulai stream (Canal) 7°52'52"N 81°33'56"E	Stream outlet	Coconut palms, homesteads, and mangrove patches distribute surrounding the waterbody	Unstabilized and seasonally open	Flood water draining Scenic, Wildlife, Fishery	The lagoons outlet is spread out on the beach.
171	Kalkudah Stream 7°53'15.09"N 81°33'52.22"E	Stream outlet	11/2019 Small Lagoon 	Unstabilized and seasonally open	Flood water draining Scenic, Wildlife, Fishery	The stream of a small lagoon extends parallel to the beach. The stream brings water from inland.

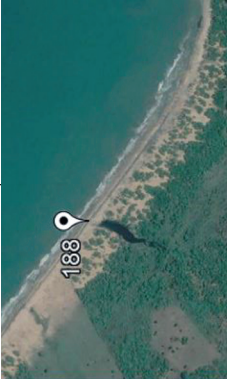

172	<p>Kalkudah small Lagoon 7°53'46"N 81°33'49"E</p>	<p>Lagoon outlet</p> 	<p>11/2019 Small Lagoon</p>	<p>Unstabilized and seasonally open</p>	<p>Flood water draining Scenic, Wildlife, Fishery</p>	<p>The stream brings water from inland. The mouth area varies due to the seasonal behavior of the beach.</p>
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TABLE 07 : Water Outlets of the Northern Coastal Zone




Ser. No	Outlet name and Latitude/ Longitude	Type	Specific features	Outlet behavior	Major values (Existing and potential)	Comments
173	Kalkudah Stream (small) 2 7°54'12"N 81°33'51"E	Stream outlet	The grassy type vegetation and bare lands exist in the surroundings.	Unstabilized and seasonally open	Flood water draining Fishery	Behind the stream of the water body is small The overwash mouth brings seawater to the lagoon.
174	Pasikuda (Kalkudah) small lagoon 7°54'42"N 81°33'57"E	lagoon outlet	The grassy type vegetation and bare lands are seen in the surroundings.	Unstabilized and seasonally open	Flood water draining Fishery	The stream part of the water body is laid on the old barrier.
175	Pasikuda Beach small lagoon 7°56'6"N 81°33'39"E	lagoon outlet	The grassy type vegetation and bare lands exit in the surroundings.	Unstabilized and seasonally open	Recreation Scenic Flood water draining	The lagoon outlet is laid on the beach, and the lagoon part lies on the old barrier.
176	Valachenai (Pasikuda beach small canal) 7°56'6"N 81°33'39"E	Canal outlet	The grassy type vegetation and bare lands exit in the surroundings.	Unstabilized and seasonally open	Recreation Scenic Flood water draining	The stream part exists on the beach, and the lagoon part lies on the old barrier.
177	Valachenai Lagoon 7°56'29"N 81°33'5"E	lagoon outlet	The grassy type vegetation and bare lands exit in the surroundings.	In some years the mouth is 400m wide (2/2020) and in some years it is partly opened.	Recreation, scenery, wildlife	The outlet is laid on the old beach, and moving seasonally.


178	Nasuvantivu Beach – Kayankerni (small lagoon) 7°56'48"N 81°32'43"E	lagoon outlet 	2/2020 Lagoon outlet	Unstabilized and seasonally open	Flood water draining, Wildlife, Geologic, Scenic	The lagoon connects the tidal canals of 177 & 179.
179	Kayankerny stream 7°57'53"N 81°32'22"E	Stream outlet	The mouth is so shallow and seawater enters by swash action.	Unstabilized and seasonally open	Flood water draining, Wildlife	Seasonal sands cover the wide entrance.
180	Vattavan Small Lagoon canal 7°58'14"N 81°32'24"E	Lagoon outlet	The grassy type vegetation, bare lands, and big trees with large canopy exit in the surroundings.	Unstabilized and seasonally open	Flood water draining	The lagoon connects the tidal canals of 177 & 179.
181	Nattavan-Kayankerny beach parallel stream 7°58'22"N 81°32'26"E	Stream outlet 	2/2020 Stream outlet	Unstabilized and seasonally open	Flood water draining	A long stream extends parallel to the beach.
182	Vattavan overly shape Small Lagoon 7°59'31"N 81°32'4"E	Lagoon outlet 	7/2016 Lagoon outlet	Unstabilized and seasonally open	Recreation Scenic Flood water draining Geologic	Sand ridges have developed on the small peninsula parallel to the beach.

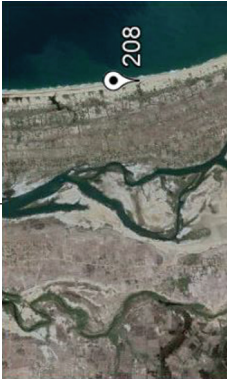
183	Vattavan overly shape Small Lagoon 7°59'20"N 81°32'35"E	Lagoon outlet	The grassy type vegetation, bare lands, and big trees with large canopy are seen in the surroundings.	Unstabilized and seasonally open	Recreation Scenic Flood water draining Avian species	The mouth area has a wide wash over the beach. Short tidal streams of the No. 182 lagoon connect to No. 183 tidal canals.
184	Kayankerny coastal stream 7°59'10"N 81°32'18"E	Stream outlet 	6/2016 Stream outlet	Unstabilized and seasonally open	Flood water draining Avian species	The mouth is subjected to overwash action and erosion.
185	Thenardy bay canal 7°59'7"N 81°32'17"E	Canal outlet		Unstabilized and seasonally open	Flood water draining Avian species	The mouth is subjected to overwash action and erosion
186	Kayankerny small beach lagoon 7°59'19"N 81°31'18"E	Lagoon outlet	The grassy type vegetation, bare lands, and big trees and scrublands are seen in the surroundings.	Unstabilized and seasonally open	Flood water draining Avian species	The outlet is subjected to overwash action. The stream extends inland in a perpendicular direction.
187	Kayankerny small beach stream 7°59'47"N 81°30'51"E	Stream outlet	Mangrove species, grassy species and scrublands, homesteads can see the surroundings.	Unstabilized and seasonally open	Flood water draining	The stream-type lagoon is stretching across the beach.

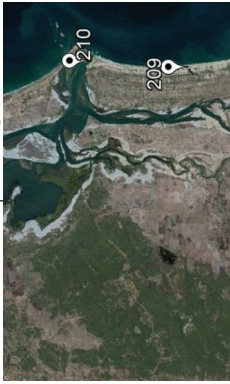

188	Kayankerny small beach stream 7°59'57"N 81°30'21"E	Stream outlet 	12/2016 Stream outlet	Unstabilized and seasonally open	Flood water draining Avian species	The lagoon is stretching across the beach.
189	Small lagoon near the processing plant 8° 0'7.80"N 81°30'7"E	lagoon outlet 	5/2022 Lagoon outlet	Unstabilized and seasonally open	Flood water draining Scenic Avian species	Bare sandy pockets and scrublands are behind the beach.
190	Mankerny South lagoon 8° 1'17"N 81°29'3"E	lagoon outlet	Mangrove species, grassy species and scrublands, homesteads can see the surroundings.	Unstabilized and seasonally open	Flood water draining	The lagoon and the stream are perpendicular to the beach.
191	Mankerny Central 1 8° 2'14"N 81°28'31"E	lagoon outlet	Mangrove species, grassy species and scrublands, homesteads can see the surroundings.	Unstabilized and seasonally open	Flood water draining Avian species	The lagoon and the stream extend through the beach.

192	Mankerny Central II 8°2'34"N 81°28'22"E	lagoon outlet	Mangrove species, grassy species and scrublands, homesteads can see their surroundings.	Unstabilized and seasonally open	Flood water draining Avian species	Lagoon and the stream extend perpendicular to the beach.
193	Kirmichai small lagoon 8° 3'23"N 81°28'2"E	lagoon outlet	Mangrove species, grassy species, scrublands, dry forest species, and homesteads can see in the surroundings.	Unstabilized and seasonally open	Flood water draining Avian species	The head of the stream appears as a lagoon and the other part exit as a stream.
194	Panichchankerny small lagoon I 8° 4'13"N 81°27'47"E	lagoon outlet	Sparsely distributed scrublands as well as dry forest species, homesteads can see the surroundings.	Unstabilized and seasonally open	Flood water draining Avian species Scenic	The stream behind the lagoon receives seawater by overwash and the stream part is fed by rain.
195	Panichchankerny small lagoon II 8° 4'37"N 81°27'40"E	lagoon outlet	The small lagoon and stream are located on the old sand barrier.	Unstabilized and seasonally open	Flood water draining scenic	The stream behind the lagoon receives seawater by overwash and the stream part is fed by rain.
196	Panichchankerny Vakari beach lagoon I 8° 5'1.20"N 81°27'34"E	lagoon outlet	A small lagoon connects a parallel stream behind the beach of the old barrier.	Unstabilized and seasonally open	Flood water draining Avian species	The stream behind the lagoon receives seawater by overwash and the stream part is fed by rain.

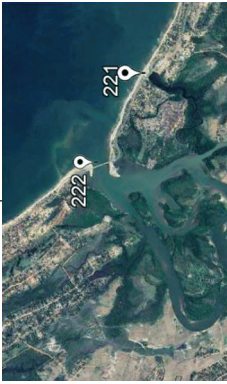
197	Panichchankerny Vakari Lagoon II 8° 5'43"N 81°27'27"E	lagoon outlet 	11/2019 Lagoon outlet 	Unstabilized and seasonally open	Flood water draining Avian species	The water outlet on the beach exists during storms. The water body extends to the old beach (197). The stream part is parallel to the beach.
198	Panichchankerny Vakari Lagoon III 8° 5'49"N 81°27'33"E	lagoon outlet	Sparsely distributed scrublands as well as dry forest species, homesteads can see the surroundings.	Unstabilized and seasonally open	Flood water draining Avian species	The water outlets are on the beach. They are open during the storm period. The water body extends on an old beach.
199	Panichchankerny 8° 6'1.21"N 81°27'25"E	lagoon outlet	Sparsely distributed scrublands as well as dry forest species, homesteads can see the surroundings.	Unstabilized and seasonally open	Flood water draining Avian species Scenic	The water outlets are on the beach. They are open during the storm period. The water body extends on an old beach.
200	Sallathive Island 8°6'34"N 81°27'34"E	lagoon outlet 	11/2019 Lagoon outlet	Unstabilized and seasonally open	Flood water draining Avian species Scenic Geologic	The water body (200) is very significant for tourism. The coral island with a Tomolo shape is subjected to water level fluctuation due to tidal flow.

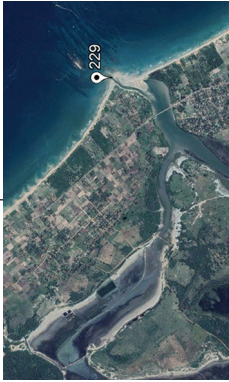

201	Vakarei Lagoon 8° 8'31"N 81°26'20"E	lagoon outlet	Lagoon Canal extends parallel to the coast	Partly stabilized and seasonally open	Flood water draining, wildlife, scenery, Avian species, Scenic	The beach side of the canal is very narrow with creeping vegetation and some bushes.
202	Vakarei North canal I 8°10'40"N 81°26'3"E	Canal outlet	<p>11/2019 Canal outlets</p> 	Unstabilized and seasonally open	Flood water draining	The short water outlet is close to the beach. The whole water body is on an old barrier (202). Low dunes exist.
202a	8°10'49"N 81°25'49"E	Canal outlet		Unstabilized and seasonally open	Flood water draining	The short water outlet is close to the beach. The whole body is on an old barrier (203).
202b	8°11'20"N 81°25'31"E			Unstabilized and seasonally open	Flood water draining	The short water outlet is close to the beach. The whole body is on an old barrier (203).
203	Vakarei North canal II 8°10'49"N 81°25'49"E	Canal outlet		The tombolo shaped morphology of the canal mouth was eroded by wave action.	Unstabilized and seasonally open	Flood water draining
204	Palchenai Stream 8°11'20"N 81°25'31"E	Stream outlet	Verugal stream extends across to the beach. It connects with 206 in inland.	Partly stabilized and seasonally open	Recreation Scenic Flood water draining	The stream has a meandering pattern and the beach side of the entrance covers grasses, mangrove species, and creeping vegetation.
205	Verugal Stream 8°14'44"N 81°24'29"E	Stream outlet				



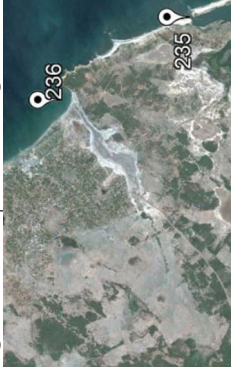
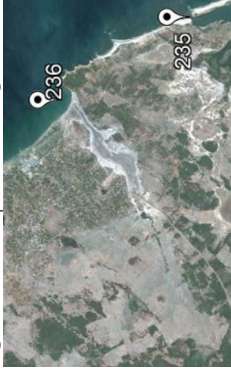
206	Verugal Mugathuvaram stream 8°16'9"N 81°24'12"E	Stream outlet	The stream has a meandering pattern and it reaches to sea through the recent barrier.	Partly stabilized and seasonally open	Recreation Scenic Flood water draining	The stream has a meandering pattern and the beach side of the entrance covers grasses, mangrove spp. and creeping vegetation.
207	Verugal Mugathuvaram small stream 8°18'45"N 81°23'40"E	Stream outlet	The headland morphology at the end of canal mouth exits. Sands seasonally gathered in front of the headland.	Unstabilized and seasonally open	Recreation Scenic Flood water draining	Wide sandy flats are seen on both sides of the entrance.
208	Ilangaithurai Mugathuvar Small stream 8°19'37"N 81°23'21"E	Stream outlet 	10/2013 Stream outlet	Unstabilized and seasonally open	Flood water draining	The outlet area covers sandy flats, while the other part exits on an old barrier.
209	Ilangaithurai Mugathuvar 8°20'8"N 81°23'17"E	Stream outlet	Sparsely distributed trees, and grassy lands (pastures) are on old barriers.	Unstabilized and seasonally open	Flood water draining	The outlet area covers sandy flats, while the other part is on the old barrier.

210	Ullakkalie Lagoon 8°21'24"N 81°23'21"E	Lagoon outlet 	10/2013 Lagoon outlet	Partly stabilized and seasonally open	Recreation, scenery, fishery, wildlife	Seasonally open lagoon entrance and area are on the old barrier. Stream 209 connects with Ullakkalie Lagoon, and the lagoon mouth forms accordingly.
211	Nawarathnapuram 8°28'42"N 81°21'17"E	Lagoon outlet	The entrance is a narrow path followed local morphology, e.g. rocky headland.	Unstabilized and seasonally open	Flood water draining	Tidal flats, forest species, and homesteads (northern side) are behind the entrance.
212	Foul Point small lagoon 8°30'0.07"N 81°20'52"E	Lagoon outlet	Overly shape lagoon has a trial to narrow beach.	Unstabilized and seasonally open	Flood water draining	Dry forests, vegetated dunes, and dry sandy areas surrounding the lagoon can see.
212	Koonitivu Canal 8°30'17"N 81°20'31"E	Canal outlet 	10/2013 Stream outlet	Unstabilized and seasonally open	Flood water draining, scenic	Dry forests, vegetated dunes etc. are surrounding the stream (212).
213	Koonitivu stream 8°30'46"N 81°19'56"	Stream outlet	A dry sandy border extends surrounding the small lagoon.	Unstabilized and seasonally open	Flood water draining, scenic	Dry forests, vegetated dunes etc. are surrounding the stream. (213)
214	Sampoer West 8°29'18"N 81°17'14"E	Stream outlet		Unstabilized and seasonally open	Flood water draining, scenic	Dry forests, vegetated dunes etc. are surrounding the stream (214).

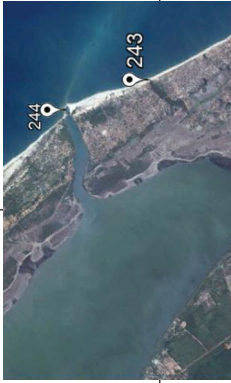

215	Sampur Beach (Villu Kulam short stream 8°27'56"N 81°12'42"E)	Stream outlet	The surrounding of the stream is highly residential.	Unstabilized and seasonally open	Flood water draining	The entrance area covers by beach sands, and along the stream, a wetland border can see.
216	Muthur Lagoon mouth 8°27'43"N 81°15'31"E	Lagoon outlet (Mahawel mouth)	Jetties have been constructed and the entrance.	Partly stabilized and seasonally open	Recreation scenic Flood water draining	Fishing boat landing, distribution of homesteads in islands, sparsely distributed trees.
217	Muthur Lagoon outlet 8°27'44"N 81°15'33"E	Lagoon outlet (Mahawel mouth)	Immature sand lobes of the water entrance move seasonally.	Partly stabilized and seasonally open	Flood water draining, scenic wildlife	217 and 218 directly connect with the sea and during the flood season, all are submerged by flood water.
218	Ralkully stream outlet 8°27'41"N 81°15'13"E	Stream outlet (Mahawel mouth)	11/2016 River outlet 	Partly stabilized and seasonally open	Flood water draining, scenic Wild life,	217 and 218 directly connect with sea and during the flood season, all are submerged by flood water.
219	Ralkully outlet 8°27'41"N 81°14'37"E	Stream outlet (Mahawel mouth)	Immature sand lobes of the water entrance moves seasonally.	Partly stabilized and seasonally open	Flood water draining, Scenic, Wild life, recreation	Creeping and bush plant species are migrating to the area.
220	Gangei Bridge 8°27'37"N 81°13'50"E	River Estuary (Mahaweli mouth)	The sand lobes are moving due to fresh water and	Annually open	Flood water draining, scenic Wild life	Creeping and bush plant species are migrating to the area.

221	Uppuar (Mahaweli River) 8°27'56.00"N 81°12'42.51"E	River Estuary (Mahaweli mouth) 	2/2014 River outlet	Partly stabilized and seasonally open	Flood water draining, Scenic, Wildlife	Creeping and bush plant species are migrating to the area.
222	Upparu -Kinnia 8°28'13"N 81°12'10"E	River Estuary (Mahaweli mouth)	The mouth is covered by immature sandy lobes. The Aru flows to the and associated streams follow the runnel topography.	Annually open	Flood water draining, Scenic, Wildlife	Creeping and bush plant species are migrating to the area.
223	Th.lambalagam lagoon mouth 8°36'7"N 81°13'18"E	Lagoon outlet	The lagoon mouth is formed by rocky structures (Northern side) and Palaco dune ridge (southern side).	Annually open	Flood water draining, Scenic, Wildlife	Both sides of the water entrance are covered by homesteads, planted trees, and infrastructure exits.
224	Uppuveli lagoon stream 8°37'15"N 81°13'12"E	Stream outlet	The stream extends inland as a ribbon.	Unstabilized and seasonally open	Flood water draining	Homesteads and other agricultural practices, wash over sand flats exist close to the water entrance.
225	Salli beach lagoon 8°37'15"N 81°13'12"E	Lagoon outlet	Overly shaped lagoon has a stream towards the coast.	Unstabilized and seasonally open	Recreation Scenic Flood water draining	Sandy mud flats behind the beach, low dune vegetation on the beach exit.

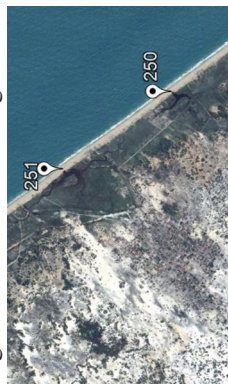
226	Sampalthivu stream 8°39'58"N 81°12'48"E	Stream outlet	Forestland species cover the whole length of the stream.	Unstabilized and seasonally open	Flood water draining	Over wash seawater enters inland through the entrance.
227	Periyakulam- Nilaveli small lagoon 8°39'44"N 81°13'00"E	Lagoon outlet	The stream area stretches on old barrier.	Unstabilized and seasonally open	Flood water draining	Over wash seawater enters inland through the entrance.
228	Iqbalnagar- Nilaveli stream 8°39'58"N 81°12'48.38"E	Stream outlet	The stream area stretches on old barrier.	Unstabilized and seasonally open	Flood water draining	The whole length of the stream covers by grassy type vegetation.
229	Sinnakarachi 8°44'1.85"N 81°10'30"E	Lagoon outlet 	2/2014 Lagoon outlet	Partly stabilized and seasonally open	Flood water draining	Changing the mouth seasonally forming tidal flats. Highly populated on both sides.
230	Kumbrupiddy small stream 8°45'32.13"N 81°9'6"E	Stream outlet	The small lagoon extends to a perpendicular direction from the beach.	Unstabilized and seasonally open	Flood water draining Fishing	The whole stream canal is covered by vegetation. Fishing activities are undertaken.
231	Kuchchaveli (Pankulam Aru) 8°47'28.30"N 81°7'16"E	Lagoon outlet 	2/2014 Lagoon outlet	Partly stabilized and seasonally open	Flood water draining Fishing	Boat landing and fishing huts exit. The headland is covered by bush type vegetation. Many inland streams gather at the mouth.

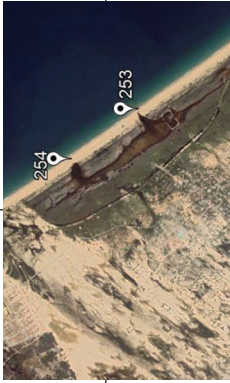

232	Jayanagar Kuchchaveli Small lagoon (south) 8°50'33"N 81° 5'22.43"E	Lagoon outlet 	2/2014 Lagoon outlet 	Unstabilized and seasonally open	Flood water draining	Both mouths (232) and (233) are on the beach. Behind these mouths, sandy plains and forest patches exist.
233	Jayanagar Kuchchaveli Small lagoon (south) 8°50'39"N 81° 5'22.10"E	Lagoon outlet	Aquatic plants, sandy flats and mangrove species can see.	Unstabilized and seasonally open	Flood water draining	Forest species covered the stream and lagoon.
234	Puduwakattu Lagoon mouth 8°51'31"N 81° 4'14"E	Lagoon mouth	Behind lagoon entrance, the estuary covers mud and sandy flats, water creeks and mangrove swamps.	Annually open	Flood water draining	Fishing activities are highly concentrated and fishing boats are landing.
235	Yan Oya mouth 8°55'05"N 81°00'58"E	River Estuary	Behind the river entrance, the estuary area covers mud and sandy flats, water creeks and mangrove swamps.	Partly stabilized and seasonally open	Flood water draining	The entrance area covers rocky islets.
236	Asirimale lagoon 8°56'8.38"N 81° 0'15"E	Lagoon outlet 	1/2020 Lagoon outlet 	Unstabilized and seasonally open	Flood water draining	Fishing activities are concentrated and fishing boats are landing.



237	Pulmoddai lagoon 8°56'59"N 80°59'31"E	Lagoon outlet	Surrounding the lagoon is highly populated.	Unstabilized and seasonally open.	Flood water draining	The lagoon extremity acts as a stream towards the beach, and sandy flats exit its surroundings.
238	Kokilai Lagoon mouth 8°59'20."N 80°57'51"E	Lagoon outlet 	1/2020 Lagoon outlet	Partly stabilized and open	Flood water draining, Scenery, Wildlife, Fishery	Fishing activities and boat landing, tourism. The mouth acts as a flood and ebbs tidal delta. Well-developed mangroves exist.
239	Kokkuth thoduwai Lagoon 9° 3'37"N 80°55' 18"E	Lagoon outlet	The whole lagoon is locating a tunnel of the old barrier.	Unstabilized and seasonally open	Flood water draining	The lagoon extends parallel to the beach and is covered by aquatic plants.
240	Nayaru Lagoon outlet 9° 7'38"N 80°53"E	Lagoon outlet 	7/2017 Lagoon outlet	Unstabilized and seasonally open	Flood water draining, fishery	In front of the lagoon mouth, off-shore barriers exist.
241	Nayaru Lagoon II outlet 9° 9'28.75"N 80°52'3"E	Lagoon outlet	Nayaru Lagoon has two parts (twin or double drum shape).	Unstabilized and seasonally open	Flood water draining, fishery	2nd mouth of the lagoon is somewhat wide. Over-wash sea waters flow inland through this means.

242	Uppumaveli stream outlet 9°12'57"N 80°50'53"E	Stream outlet	The stream extends across the old barrier beach seasonally open	Unstabilized and	Flood water draining	Uppumaveli stream is beginning from Uppumaveli Pond inland
243	Kovilkudiyiruppu Lagoon 9°16'36"N 80°49'2"E	Lagoon outlet 	7/2016 Lagoon outlet	Unstabilized and seasonally open	Flood water draining	The Nandi Kadal Lagoon is fed by two water mouths No.243 and No. 244. Sea water directly enters by No.243.
244	Nanthi Kadal Lagoon mouth 9°17'32"N 80°48'41"E	Lagoon outlet		Unstabilized and seasonally open	Flood water draining, fishery, wildlife	Sand spits are moving seasonally.
245	Chalai Lagoon (North) 9°25'7"N 80°40'17"E	Lagoon outlet	Chalai is a linear type of water body. It is extending parallel to the coast with a narrow sand bar.	Unstabilized and seasonally open	Flood water draining, recreation, scenery	The tidal water enters the Nandi Kadal lagoon.
246	Chundikkulam lagoon 9°25'13"N 80°40'12"E	Lagoon outlet 	7/2015 Lagoon outlet Jaffna Lagoon tidal water flow to the east coast through Chundikkulam Lagoon outlet.	Unstabilized and seasonally open	Inland flood water draining	Four-water outlets viz: 246, 247, 248 and 249 are laid on Chudikulam beach.

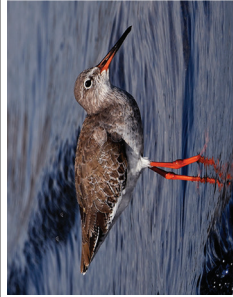





247	Chundikulam lagoon main outlet 9°28'45.84"N 80°35'37.03"E	Lagoon outlet	Some years Chundikulam outlet shows ebb flows.	Unstabilized and seasonally open	Flood water draining, wildlife, scenery	Wash Over the seawater supply to Chundikulam Lagoon through the sand barrier.
248	Pokkaruppu Small lagoon 9°30'15.10"N 80°33'36"E	Lagoon outlet	Over-washes are entering to Chundikulam.	Unstabilized and seasonally open	Flood water draining	Chundikulam Beach is covered in creeping vegetation and bush-type species.
249	Ponnaithodduvai Kulam 9°30'41"N 80°33'4"E	Lagoon outlet	Over-washes are entering to inland pond.	Unstabilized and seasonally open	Flood water draining	Chundikulam Beach is covered in creeping vegetation and bush-type species
250	Nagarkovil East small lagoon 9°42'12"N 80°19'38"E	Lagoon outlet	4/2017 Lagoon outlet	Unstabilized and seasonally open	Flood water draining	The lagoon extends parallel to the coast. Creeping vegetation can see.
251	Nagarkovil beach parallel lagoon 9°42'41"N 80°19'17"E	Lagoon outlet	Small lagoon is laid on old barrier beach.	Unstabilized and seasonally open	Flood water draining	The lagoon extends parallel to the coast. Creeping vegetation can see.
252	Nagarkovil beach west lagoon II 9°43'41"N 80°18'41"E	Lagoon outlet	Small lagoon is laid on old barrier beach.	Unstabilized and seasonally open	Flood water draining	The lagoon extends parallel to the coast. Creeping vegetation exists.




253	Potpathi small lagoon I 9°45'36"N 80°17'16"E	Lagoon outlet 	Small lagoon is laid on old barrier ridge.	Unstabilized and seasonally open	Flood water draining	The lagoon extends parallel to the coast. Creeping vegetation exists.
254	Potpathi small lagoon II 9°45'51"N 80°17'5"E	4/2021 Lagoon outlet		Unstabilized and seasonally open	Flood water draining	The lagoon extends parallel to the coast. Creeping vegetation exists.
255	Tumpalai Beach parallel stream 9°48'57"N 80°15'21"E	Stream outlet	Beach parallel stream running on old barrier ridge.	Unstabilized and seasonally open	Flood water draining	The stream is running parallel to the coast and creeping vegetation can see.
256	Thondaimanaru Lagoon mouth 9°49'13"N 80°8'2"E	Lagoon outlet	The entrance releases see water up to Jaffna Lagoon through Thondamanatu Lagoon.	Partly stabilized and seasonally open	Flood water draining, recreation, fishery	Both sides of the entrance are highly populated. The tidal water connects No. 268 of the Jaffna lagoon.
257	Ilavalai canal 9°48'37"N 79°59'20"E	Canal outlet	The entrance opens to Palk Strait.	Partly stabilized and seasonally open	Flood water draining	The lagoon canal extends up to Jaffna-Ponnalai-Point Pedro Road.
258	Dambakolapatuna Small Lagoon 9°47'09"N 79°56'34"E	Lagoon outlet 	5/2020 Lagoon outlet	Partly stabilized and seasonally open	Flood water draining	The lagoon canal mouth is facing to Palk Strait.

259	Thiruvadinalai small lagoon 9°46'39"N 79°55'45"E	Lagoon outlet	The lagoon extends perpendicular to the on old low barrier ridge.	Partly stabilized and seasonally open	Flood water draining	The entrance opens to Palk Strait.
260	Chulipuram stream 9°46'31"N 79°55'20"E	Stream outlet 	5//2020 Stream outlet	Partly stabilized and seasonally open	Flood water draining	The tidal entrance opens to Palk Strait.
261	Chulipuram washover 9°46'32"N 79°55'2"E	Wash over canal outlet		Partly stabilized and seasonally open	Flood water draining	The tidal entrance opens to Palk Strait.
262	Ponnalli Khadu tidal canal 9°46'3"N 79°54'29"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	The area is subjected to daily tidal fluctuations.	Flood water draining	Tidal mud flats, and tidal plant species exist.
263	Palk Strait canal 9°46'1"N 79°54'8"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	The area is subjected to daily tidal fluctuations.	Flood water draining	Tidal mud flats, and tidal plant species exist.
264	Karainagar wash over tidal canal 9°45'41"N 79°52'25"E	Tidal creek 	1/2017 Tidal creek	The area is subjected to daily tidal fluctuations.	Flood water draining	Tidal mud flats, and tidal plant species exist.



265	Palk Strait canal 9°42'23"N 79°51'4"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	The area is subjected to daily tidal fluctuations.	Flood water draining	Tidal mud flats, and tidal plant species exist.
266	Ponnalli Khadu Tidal channel outlets 9°45'46"N 79°54'22"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	The area subjected to daily tidal fluctuations.	Flood water draining	Tidal mud flats, and tidal plant species exist.
267	Ponnalli Khadu tidal channel mouth 9°45'46"N 79°54'22"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	The area subjected to daily tidal fluctuations.	Flood water draining, wildlife, recreation, scenery	Tidal mud flats, and tidal plant species exist.
268	Arialei canal mouth 9°39'4"N 80°4'43"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	The area is subjected to daily tidal fluctuations.	Flood water draining	Tidal mud flats, and tidal plant species exist.
269	Navatkuli tidal canal 9°39'4"N 80°4'43"E	Tidal canal outlet	5/2021 Tidal creek 	The area is subjected to daily tidal fluctuations.	Flood water draining	Tidal mud flats, and tidal plant species exist.
270	Pachchilapalli-Mulliyar tidal canal 9°30'50"N 80°23'32"E	Tidal outlet	Subject to the ebb tidal phase and flood tidal phase	The area is subjected to daily tidal fluctuations.	Flood water draining	Tidal mud flats, and tidal plant species exist.

	Ruddy Turnstone Elephant Pass		Pin-tailed Snipe Chundikulam		Glossy Ibis Chundikulam		Pied Kingfisher Kokilai		Brown Shrike Kokilai
271	Chundikulam-Alampil 9°27'19"N 80°37'8"E	Tidal outlet	Subject to the ebb tidal phase and flood tidal phase	The area is subjected to daily tidal fluctuations.	Flood water draining avian species	Tidal mud flats, and tidal plant species exist.			
272	Piramanthalaru Tidal pool 9°27'19"N 80°36'29"E	Tidal outlet	Subject to the ebb tidal phase and flood tidal phase	The area is subjected to daily tidal fluctuations.	Flood water draining avian species	Tidal mud flats, and tidal plant species exist.			
273	Terav Aru estuary (delta) 9°27'27"N 80°36'18"E	Tidal creek	4/2023 Tidal creek 	Subject to the ebb tidal phase and flood tidal phase	Flood water draining avian species	During the rainy season, fresh water enters the Jaffna lagoon and daily tidal flow forms the small tidal delta.			
274	Piramanthalaru estuary 9°27'27"N 80°35'44"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal pools	Flood water draining avian species	During the rainy season, fresh water enters the Jaffna lagoon and daily tidal flow forms the small tidal delta.			


275	Piramanthalaru Tidal Pool 9°27'19"N 80°35'23"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal pools	Flood water draining avian species	Tidal pools, tidal flats and mud flats exist.
276	Punnaineeravi Tidal Pool 9°27'19"N 80°35'23"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal small delta	Flood water draining, avian species	Tidal pools, tidal flats and mud flats exist.
277	Punnaineeravi Aru estuary 9°27'17"N 80°35'9"E	Tidal creek	7/2021 Tidal creek 	Tidal food canal	Flood water draining, avian species	Tidal pools, tidal flats and mud flats exist.
278	Punnaineeravi tidal stream 9°27'12.10"N 80°34'59.43"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Small tidal mouth	Flood water draining avian species	Tidal pools, tidal flats and mud flats exist.
279	Punnaineeravi stream 9°26'59"N 80°33'38"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal and stream flow	Flood water draining	Tidal pools, tidal flats and mud flats exist.
280	Puliyampokkanai tidal flat 9°27'4"N 80°33'15"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal and stream flow	Flood water draining avian species	Tidal pools, tidal flats and mud flats exist.
281	Puliyampokkanai tidal flat 9°27'26"N 80°32'36"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal and stream flow	Flood water draining	Tidal pools, tidal flats and mud flats exist.

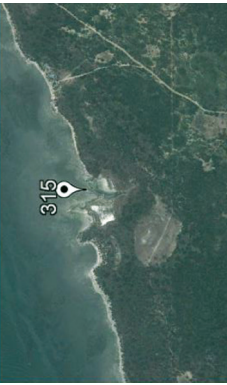

282	Puliyampokkanai tidal stream 9°27'26"N 80°32'35"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal and stream flow	Flood water draining avian species	Tidal pools, tidal flats, mud flats and tidal delta can see.
283	Puliyampokkanai i tidal delta 9°27'45"N 80°32'26"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal and stream flow	Flood water draining avian species	Tidal pools, tidal flats, mud flats and tidal delta can see.
284	Punnaineeravi tidal stream 9°28'33"N 80°31'28"E	Tidal creek	4/2017 Tidal creek 	Tidal and stream flow	Flood water draining avian species	Tidal pools, tidal flats, mud flats and tidal delta can see.
285	Punnaineeravi tidal delta 9°26'55"N 80°33'29"E	Tidal creek	4/2017 Tidal creek	Tidal and stream flow	Flood water draining avian species	Tidal pools, tidal flats, mud flats and tidal delta can see.
285a	9°28'49"N 80°30'11"E					
285b	9°29'52"N 80°29'49"E					
286	Kandalalai tidal pool 9°29'33.96"N 80°29'5"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal and stream flow	Flood water draining avian species	Tidal pools, tidal flats, mud flats and tidal delta can see.
287	Kandalalai tidal delta 9°30'34"N 80°28'8"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal and stream flow	Flood water draining avian species	Tidal pools, tidal flats, mud flats and tidal delta can see.

288	Kandavalai tidal delta 9°30'8"N 80°27'37"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal and stream flow	Flood water draining avian species	Tidal pools, tidal flats, mud flats and tidal delta can see.
289	Kandalalai-Uriyan stream 9°29'59"N 80°27'52"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Inland stream and tidal stream	Flood water draining avian species	Tidal and mud flats as well as aquatic plants are seen.
290	Uriyan stream 9°30'8.70"N 80°27'21"E	Tidal creek	Stream mouth is Subject to the ebb tidal phase and flood tidal phase	Inland stream and tidal stream	Flood water draining avian species	Tidal pools, tidal flats, mud flats and tidal delta can see.
291	Thadduvankoddy small lagoon 9°30'4.42"N 80°26'15"E	Lagoon outlet	Subject to the ebb tidal phase and flood tidal phase	Inland stream and tidal stream	Flood water draining avian species	Tidal flats, tidal canals and stream deltas can see
292	Thadduvankoddy small lagoon 9°30'38"N 80°25'4"E	Lagoon outlet	2/2014 Tidal creek 	Inland stream and tidal stream	Flood water draining avian species	Tidal flats, tidal canals and stream deltas can see
293	Thadduvankoddy Aru 9°30'13"N 80°25'7"E	Lagoon outlet	Subject to the ebb tidal phase and flood tidal phase	Inland stream and tidal stream	Flood water draining avian species	Tidal flats, tidal canals and stream deltas can see
294	Thadduvankoddy Tidal pool 9°30'48"N 80°24'8"E	Lagoon outlet	Subject to the ebb tidal phase and flood tidal phase	Tidal flow	Flood water draining avian species	Tidal flats, tidal canals and stream deltas can see
295	Umaiyalpuram Tidal canal 9°28'56"N 80°23'23"E	Tidal canal outlet	Subject to the ebb tidal phase and flood tidal phase	Tidal flow	Flood water draining	Tidal flats, tidal canals and stream deltas can see



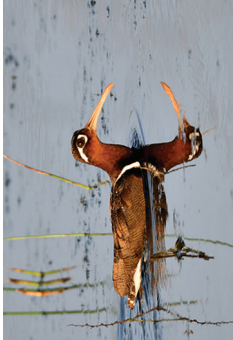
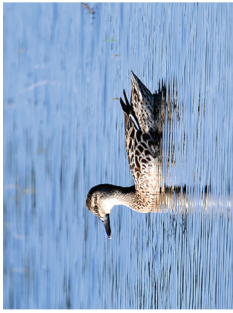
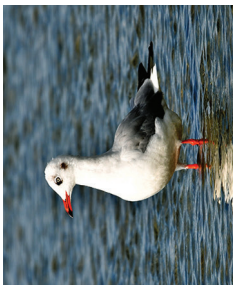
296	Umaiyaipuram stream 9°28'47"N 80°23'6"E		Subject to the ebb tidal phase and flood tidal phase	Tidal flow and Inland stream	Flood water draining	Tidal flats, tidal canals and stream deltas can see
297	Umaiyaipuram Small lagoon and tidal canal 9°28'51"N 80°22'41"E	Lagoon outlet 	4/2017 Tidal creek	Tidal canal flow	Flood water draining avian species	Tidal flats, tidal canals and mud flats exist.
298	Pachchilapalli small lagoon 9°28'21"N 80°22'5"E	Lagoon outlet	Subject to the ebb tidal phase and flood tidal phase	Tidal flow	Flood water draining avian species	Small lagoon covers by sand bars/sand ridge
299	Kumarapuram Stream 9°28'9"N 80°21'43"E	Stream outlet	Subject to the ebb tidal phase and flood tidal phase	Tidal flow and Inland stream	Flood water draining avian species	Small lagoon covers by sand bars/sand ridge
300	Urithirapuram Tidal stream 9°28'2"N 80°21'7"E	Tidal outlet	Subject to the ebb tidal phase and flood tidal phase	Tidal canal	Flood water draining avian species	Tidal flats, tidal canals and mud flats exist.
301	Pachchilapalli (canal (tidal) 9°28'2"N 80°21'7"E	Tidal creek 	4/2017 Tidal creek	Tidal flow	Flood water draining avian species	Tidal flats, tidal canals and mud flats exist.


302	Urithirapuram stream 9°27'36"N 80°18'28"E	Stream outlet	Subject to the ebb tidal phase and flood tidal phase	Tidal flow and Inland stream	Flood water draining avian species	Tidal flats, tidal canals and mud flats exist.
302a	9°27'36"N 80°18'19"E					
303	Urithirapuram tidal stream 9°27'19"N 80°17'21"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal flow and Inland stream	Flood water draining avian species	Tidal flats, tidal canals and mud flats exist.
304	Cheddiakurichchi – Nallur lagoon 9°28'9.40"N 80°14'59"E	Lagoon outlet	Subject to the ebb tidal phase and flood tidal phase	Tidal flow	Flood water draining avian species	Tidal flats, tidal canals and mud flats exist.
305	Cheddiakurichchi small lagoon 9°29'39"N 80°16'52"E	Lagoon outlet	Subject to the ebb tidal phase and flood tidal phase	Tidal flow	Flood water draining avian species	Tidal flats, tidal canals and mud flats exist.
306	Gnamadam stream 9°31'42"N 80°13'8"E	Stream outlet	4/2017 Stream outlet 	Stream	Flood water draining avian species	Stream flows through Vattakiranchy Kulam, Tidal flats, tidal canals and mud flats
307	Pallikuda tidal canal 9°28'55"N 80°11'7"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal flow	Flood water draining avian species	Tidal flats, tidal canals and mud flats exist.


308	Pallikuda tidal canal 9°28'8"N 80°10'27"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal flow	Flood water draining, wildlife avian species	Tidal flats, tidal canals and mud flats, mangrove swamps exist.
309	Pallikuda Small tidal canal 9°27'31"N 80°9'54"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal flow	Flood water draining, wildlife avian species	Tidal flats, tidal canals and mud flats, mangrove swamps exist.
310	Ponnaveili Tidal canal 9°27'14"N 80°9'39"	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal flow	Flood water draining, wildlife	Tidal flats, tidal canals and mud flats, mangrove swamps exist.
311	Mandekal Aru estuary 9°27'9"N 80°9'9"E	River Estuary	4/2017 River estuary 	Tidal flow and inland water flow	Flood water draining, wildlife avian species	Tidal flats, tidal canals and mud flats, mangrove swamps exist.
312	Ponnaveili tidal canal 9°25'55"N 80°8'8"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal flow and inland water flow	Flood water draining, wildlife avian species	Tidal flats, tidal canals, mud flats and tidal muddy islets exist.
313	Palk bay-Ponnaveili tidal canal 9°25'41"N 80°7'32"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal canal	Flood water draining, wildlife	Tidal flats, tidal canals, mud flats and tidal muddy islets exist.
314	Palk bay-Ponnaveili tidal canal 9°25'29"N 80°7'18"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal canal	Flood water draining, Wildlife, Scenic Avian species	Tidal flats, tidal canals, mud flats and tidal muddy islets exist.


315	Ponnaveli tidal canal 9°27'31"N 80°9'54"E	Tidal creek 	9/2011 Tidal creek	Tidal canal	Flood water draining, wildlife Avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
316	Ponnaveli tidala canal 9°22'29"N 80° 3'23"E	Tidal creek 	9/2011 Tidal creek	Tidal canal	Flood water draining, wildlife Avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
317	Ponnaveli tidala canal 9°22'23.78"N 80° 3'19.20"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal canal	Flood water draining, wildlife Avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
318	Ponnaveli Tidal canals and tidal flats 9°20'26"N 80° 3'48"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal canal	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
319	Ponnaveli Tidal canals 9°19'47"N 80°3'52"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal canal	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.

320	Ponnaveili-Simmativu tidal canal 9°19'36"N 80°4'25"E	Tidal creek 	10/2011 Tidal creek	Tidal canal	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
321	Poonakary tidal canal 9°17'38"N 80°7'14"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal canal	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
322	Nachehikkuda tidal canal 9°15'35"N 80°7'14"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal canal	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
323	Thevampiddy tidal canal 9°12'34"N 80°7'2"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal canal	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
324	Thevampiddy tidal canal 9°12'19"N 80°6'52"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal canal	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
325	Thevampiddy tidal canal 9°11'55"N 80°6'32"E	Tidal creek 	4/2022 Tidal creek	Tidal canal	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.

326	Thevampiddy Tidal canal 9°11'1"N 80°6'22"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Tidal canal	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
327	Poonakary Stream 9°10'57"N 80°6'20"E	Stream mouth	Subject to the ebb tidal phase and flood tidal phase	Tidal canal	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
						
Northern Shoveler Poonarin		Grey Francolin Poonarin	Greater Painted-snip Aruvi Aru (Malwatu)	Garganey Vedithalatiu	Brown-headed Gull Vedithalatiu	
328	Pali Aru 9°10'33"N 80°6'11"E	Delta Estuary	Subject to the ebb tidal phase and flood tidal phase	Estuary	Flood water draining, wildlife, recreation avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
329	Pali Aru 9°9'6"N 80°6'4"E	Delta Estuary	Subject to the ebb tidal phase and flood tidal phase	Estuary	Flood water draining, wildlife, recreation avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
330	Pali Aru Delta canal 9°9'34"N 80°5'55"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Delta	Flood water draining, wildlife, recreation avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.


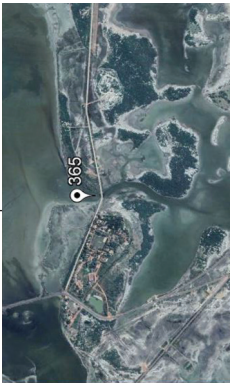
331	Pali Aru Delta canal 9° 9' 18.35"N 80° 5' 42"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Delta	Flood water draining, wildlife, recreation avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
332	Pali Aru Delta canal 9° 9' 12"N 80° 5' 28"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Delta	Flood water draining, wildlife, recreation avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
333	Pali Aru Delta canal 9° 9' 0"N 80° 5' 10"E	Tidal creek 	12/2016 Tidal creek	Delta	Flood water draining, wildlife, recreation avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
334	Anthonyarpuram tidal canal 9° 8' 37"N 80° 5' 3"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
335	Anthonyarpuram 9° 8' 16"N 80° 4' 57"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
336	Anthonyarpuram 9° 8' 7"N 80° 4' 57"E	Tidal creek 	6/2015 Tidal creek	Daily tidal fluctuations	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.

337	Anthonyarpuram 9° 8' 1"N 80° 4' 54"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
338	Anthonyarpuram (Iluppaikkadavai) 9° 7' 48"N 80° 4' 45"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
339	Anthonyarpuram (Iluppaikkadavai) 9° 7' 31.16"N 80° 4' 32.46"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
340	Anthonyarpuram (Iluppaikkadavai) 9° 7' 4"N 80° 4' 33"E	Tidal creek	6/2015 Tidal creek 	Daily tidal fluctuations	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
341	Anthonyarpuram (Iluppaikkadavai) 9° 6' 45"N 80° 4' 33"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
342	Anthonyarpuram (Iluppaikkadavai) 9° 6' 21"N 80° 4' 26"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
343	Iluppaikkadavai 9° 5' 56"N 80° 4' 26"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.

344	Illupukadavai 9° 5'15"N 80°4'13"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Mangrove swamps, Tidal flow, mud flats and tidal muddy islets exist.
345	Kalliyadi Tidal Canal 9° 4'51"N 80°4'20"E	Tidal creek 	3/2016 Tidal creek	Daily tidal fluctuations	Flood water draining, wildlife avian species	Started point of the Vedihalatu beach mangrove swamps. Tidal flow, mud flats and tidal muddy islets.
346	Kalladi Tidal canal 9° 4'32"N 80°4'14"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
347	Kalladi Tidal canal 9° 4'8"N 80°4'7"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
348	Kalladi Tidal canal 9° 3'52"N 80°4'3.82"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
349	Sonakapidi Kalladi Tidal canal 9° 3'34"N 80°3'50.72"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
350	Kalladi Tidal canal 9° 3'22"N 80°3'37"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.

351 351a 351b	Vidatalativu Kovilkulam 9° 3' 6.28"N 80° 3' 2.5"E	Tidal creek 	3/2016 Tidal creek	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
352	Vidatalativu Kovilkulam 9° 2' 52"N 80° 3' 17"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
353	Vidatalativu Kovilkulam 9° 1' 40"N 80° 2' 42"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
354 354a	Vidatalativu 9° 1' 7"N 80° 2' 16.79"E 9° 0' 59"N 80° 2' 22"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
355	Vidatalativu 9° 0' 57"N 80° 2' 8"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
356 356a 356b	Vidatalativu 9° 1' 0.35"N 80° 1' 46"E	Tidal creek 	3/2016 Tidal creek	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.

357	Vidatalativu 9° 0' 39" N 80° 0' 46" E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
						
Eurasian Curlew Vedithalathiv		Garganey Vedithalathiv		Crab-plover Vankalai		Greater Flamingo Vankalai
358	Vidatalativu 8° 59' 57" N 79° 59' 55" E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
359	8° 59' 5" N 79° 59' 44" E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
360	Adampan 8° 59' 19" N 9° 59' 27" E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
360a	8° 59' 15" N 79° 59' 26" E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species muddy islets exist.	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
361	Adampan 8° 59' 1.6" N 79° 59' 21" E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.

362	Adampan 8°58'460"N 79°59'18"E	Tidal creek 	1/2018 Tidal creek	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
363	Adampan 8°58'26"N 79°58'52"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
364	Adampan 8°56'49"N 79°57'5"E	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Mud flats, tidal islets, and Mangrove swamps exist..
365	Adampan 8°56'34"N 79°55'53"E	Tidal creek 	1/2018 Tidal creek	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
366	Thirukesvam 8°57'27"N 9°54'55"E	Tidal creek		Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
367	Nagathalvu 8°57'23"N 79°54'35"	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.
368	Vankalai Tidal channel 8°53'2"N 79°55'49"	Tidal creek	Subject to the ebb tidal phase and flood tidal phase	Daily tidal fluctuations	Flood water draining, wildlife avian species	Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.

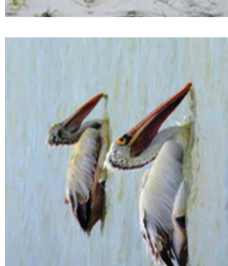

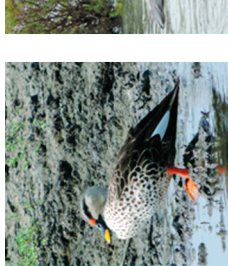
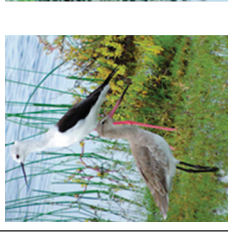





						<p>A & B = a. Black winged Stilt (<i>Himantopus himantopus</i>) in Vankalai sanctuary, b. Black tailed Godwit (<i>Limosa limosa</i>) in Vankalai sanctuary.</p>	<p>Tidal creek</p>	<p>12/2012</p>	<p>Tidal creek</p>	<p>Daily tidal fluctuations</p>	<p>Flood water draining, wildlife avian species</p>	<p>Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.</p>
<p>369</p>	<p>Vankalai 8°52'55"N 79°55'49"E</p>		<p>Subject to the ebb tidal phase and flood tidal phase</p>	<p>Daily tidal fluctuations</p>	<p>Flood water draining, wildlife avian species</p>	<p>Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.</p>						
<p>370</p>	<p>Vankalai 8°52'22"N 79°55'44"E</p>	<p>Tidal creek</p>	<p>Subject to the ebb tidal phase and flood tidal phase</p>	<p>Daily tidal fluctuations</p>	<p>Flood water draining, wildlife avian species</p>	<p>Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.</p>						
<p>371</p>	<p>Vankalai 8°52'14"N 79°55'39"E</p>	<p>Tidal creek</p>	<p>Subject to the ebb tidal phase and flood tidal phase</p>	<p>Flood water draining, wildlife avian species</p>	<p>Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.</p>							
<p>372</p>	<p>Vankalai 8°49'32"N 79°55'8"E</p>	<p>Tidal creek</p>	<p>Subject to the ebb tidal phase and flood tidal phase</p>	<p>Daily tidal fluctuations</p>	<p>Flood water draining, wildlife avian species</p>	<p>Beach mangrove swamps. Tidal flow, mudflats and tidal muddy islets exist.</p>						


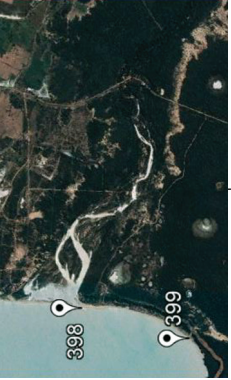
TABLE 08 : Water Outlets of the Northwestern Coastal Zone

Ser. No	Outlet name and Latitude/ Longitude	Type	Specific features	Outlet behavior	Major values (Existing and potential)	Comments
373	Vankalai tidal water pool canal 8°49'16"N 79°54'58"E	Stream outlet	Mudflats and tidal flats form could be seen due to the flood and ebb tides.	Tidal delta canals	Flood water draining, wildlife, Avian spices, scenic	Mangrove swamps, Mag. Inlands, tidal and mud flats exist.
374	Small Lagoon, Gulf of Mannar 8°48'45"N 79°55"E	Lagoon outlet	A considerable number of tidal creeks exist.	Tidal flow	Flood water draining Avian spices,	Mangrove patches and seagrass flats exist.
375	Achchankulam stream complex (Aruvi Aru Delta) 8°48'5"N 79°55'8"E	River estuary	1/2017 River estuary 	Tidal flow, Tiny islets, small dunes	Flood water draining, wildlife, scenic, recreational, Avian spices,	Mag. Inlands, tidal and mud flats exist.
376	Aruvi Aru Delta 8°47'49"N 79°55'19"E	River estuary	Mudflats and tidal flats form could be seen due to the flood and ebb tides	Tidal flow, Tiny islets, small dunes	wildlife, scenic Avian spices,	Tidal canals and scrublands are distributed. Dwellings can see.
376a	Kalimannodai Beach 8°47'35"N 79°55'34"E	Lagoon outlet				

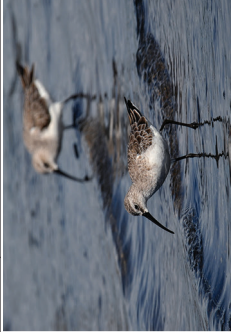
377	Small lagoon (North of Doric Bungalow) 8°46'57"N 79°56'1"E	Lagoon outlet	Mudflats and tidal flats form could be seen due to the flood and ebb tides	Tidal flow	Flood water draining Avian species	Tidal canals and scrublands are distributed. Dwellings can see in the surrounding.
378	Arippu Small stream 8°46'32"N 79°56'12"E	Stream outlet	Mudflats and tidal flats form could be seen due to the flood and ebb tides.	Tidal flow	Flood water draining wildlife, scenic Avian species	Mangrove strips, Scrublands exist. Flood tidal islets exist.
379	Kalimannodai Beach Small Lagoon 8°45'35"N 79°56'29"E	Lagoon outlet	Flood tide and ebb tide exist.	Tidal flow	Flood water draining Scenic Recreation Avian species	Mangrove strips, Scrublands exist. Flood/ebb tidal islets exist.
380	Silavathurai Lagoon Canal 1 8°45'15"N 79°56'41"	Lagoon outlet	1/2015 Canal outlet	Mangroves and salt marshes	Flood water draining Scenic, Recreation Avian species	Boat landing and fishing huts are along the coast
380a	8°45'10"N 79°56'42"E					
381	Silavathurai Lagoon (Stream) 8°44'13"N 79°57'15"E	Stream outlet	Overwash storm sea water enters inland.	Tidal flow	Flood water draining Scenic Avian species	Thorny shrubs, scrublands, and sandy/mud flats exist.
382	Mullikulam Canal 8°44'5.11"N 79°57'18"E	Canal outlet	Overwash storm sea water enter to inland.	Tidal flow	Flood water draining Scenic, Recreation Avian species	Thorny shrubs, scrublands, and sandy/ mud flats exist.
383	Silawathurei stream (close to the temple) 8°41'29"N 79°57'3"E	Stream outlet	Low dunes can see. The stream shows a meandering pattern and flows incisive of sand- low dunes.	Water mouth closed by seasonal sand bars.	Flood water draining, Scenic Avian species	Mangrove patches, forest patches, and forestlands along the stream exists.

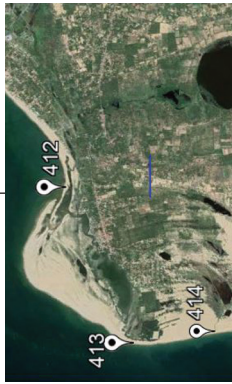
384	Kayakkuli stream 8°41'5"N 79°57'3"E	Stream outlet	Low dunes can see. The stream shows a meandering pattern and flows incisive of sand-low dunes.	Water mouth closed by seasonal sand bars.	Flood water draining, Scenic Avian species	Mangrove patches and forestlands along the stream exist. Inland sandy flats exist.
385	Konduchchi Stream 8°39'23"N 79°56'37"E	Stream outlet	Low dunes can see. The short stream shows a meandering pattern and flows incisive of sand low dunes.	Water mouth closed by seasonal sand bars.	Flood water draining, Scenic	Forestlands exist along the stream.
386	Kal Aru Estuary 8°39'22"N 79°56'35"E	River estuary 	1/2015 River estuary	Delta-type sediment exists in front of the estuary and the mouth is changing seasonally.	Flood water-draining, scenic, Recreation, Avian species.	The river flows incisive of dunes and forest lands.
387	Karadikkuli small stream 8°38'41"N 79°56'36"E	Stream outlet	The stream bed shows dry, and act	Seasonally open for a short period.	Flood water draining	The river flows incisive of dunes and forest lands.
388	Karadikkuli small stream 8°38'18"N 79°56'46"E	Stream outlet	In front of the stream survive a small lagoon, and the stream flows intermittently. It exists in the area as a dry bed.	Seasonally open for a short period.	Flood water draining, Scenic Geologic, Avian species	The stream flows incisive of dunes and forest lands.


389	Karadikkuli small stream 8°38'55"N 79°56'48"E	Stream outlet	The stream flows intermittently. It exists in the area as a dry bed.	Seasonally open for a short period.	Flood water draining, Scenic, Geologic, Avian species	The stream flows incisive of dunes and forest lands.
390	Karadikkuli small stream 8°37'32"N 79°56'39"E	Stream outlet	In front of the stream survive a small water body.	Seasonally open for a short period.	Flood water draining, Scenic, Geologic, Avian species	The stream flows incisive of dunes and forest lands.
391	Karadikkully stream 8°37'16"N 79°56'35"E	Stream outlet 	1/2018 Stream outlet	Seasonally open for a short period.	Flood water draining, Scenic, Geologic, Avian species	The stream flows incisive of dunes and forest lands.
392	Karadikkully stream 8°36'41"N 79°55'59"E	Stream outlet	In front of the stream survive a small water body.	Seasonally open for a short period.	Flood water draining, Scenic, Geologic, Avian species	The stream flows incisive of dunes and forest lands.
393	Karadikkully 8°35'23"N 79°55'11"E	Stream outlet	The lowlands have been converted into paddy lands.	Seasonally open for a short period.	Flood water draining, Scenic, Geologic, Avian species	The stream flows incisive of low dunes and forest lands.
394	Marichchukkaddi Beach stream 8°35'37"N 79°55'14"E	Stream outlet	The inland lands can see as drylands.	Seasonally open for a short period.	Flood water draining, Scenic, Geologic, Avian species	The stream flows incisive of low dunes and forest lands.

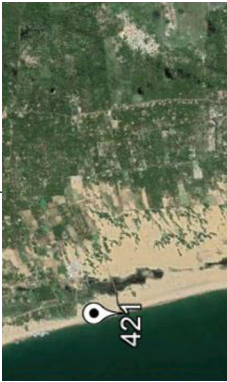
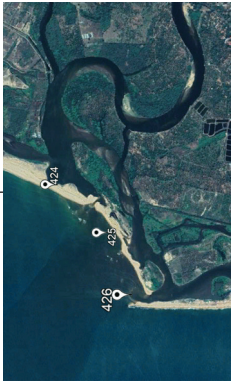
395	Mullikulam Stream 8°35'22"N 79°55'10"E	Stream outlet 	1/2018 Stream outlet	Seasonally open for a short period.	Flood water draining, Scenic, Geologic, Avian species	The stream flows incisive of low dunes and forest lands.
396	Mullikkulam small stream 8°35'7"N 79°55'9"E	Stream outlet	The mouth area appears as a water body.	Seasonally open for a short period.	Flood water draining Geologic, Avian species	The stream flows incisive of low dunes and forestlands.
397	Mullikulam Small stream 8°34'46"N 79°55'12"E	Stream outlet	The stream extends as a channel a short distance parallel to the coast.	Seasonally open.	Flood water draining Geologic	The stream flows incisive of low dunes and forestlands
398	Modaragam Aru 8°33'47"N 79°55'10"E	Stream outlet 	2/2018 Stream outlet	Seasonally open	Flood water draining, wildlife, Scenic, Geologic, Recreation	The stream flows incisive of low dunes and forestlands
399	Pukkulama small stream (Lagoon) 8°33'1"N 79°55'0"E	Stream outlet	Intermittent stream	Seasonally open	Flood water draining, wildlife, Scenic, Geologic, Recreation.	The stream flows incisive of low dunes and forestlands.


400	Eluwankulama Canal na lagoon 8°20'9"N 79°50'20"E	Lagoon outlet	Eluwankulama Bay is encompassed as a lagoon, and sand spit developed due to seasonal beach changes.	Seasonally open	Flood water draining, wildlife, Scenic, Geologic, Recreation Avian species	A meandering pattern stream system exists as a small delta. Mangrove swamps and tidal creeks exist.
401	Wellamundala south of the church 8°19'44"N 79°50'11"E	Stream outlet	Stream (Flood type)	Partly annually open,	Flood water draining, wildlife, Scenic, Geologic, Recreation Avian species	A meandering pattern stream system exists as a small delta. Mangrove swamps and tidal creeks exist.
402	Pomparippu Oya system 8°19'33"N 79°50'4"E	Stream outlet	The stream is connected to Pomparippu Oya.	Partly annually open,	Flood water draining Wildlife, Recreation Avian species	A meandering pattern stream system exists as a small delta. Mangrove swamps and tidal creeks exist.
403	Pomparippu Oya Mouth 8°19'31"N 79°50'0"E	Stream outlet	The stream is a part of the Pomparippu delta.	Partly annually open,	Flood water draining, wildlife, Scenic, Geologic, Recreation	A meandering pattern stream system exists as a small delta. Mangrove swamps and tidal creeks exist.
404	Pomparippu Oya Stream (Dutch Bay) 8°19'12"N 79°49'59"E	Stream outlet	9/2919, Pomparippu Delta 	Annually Open	Flood water draining, wildlife, Scenic, Geologic, Recreation	A meandering pattern stream system exists as a small delta. Mangrove swamps and tidal creeks exist.

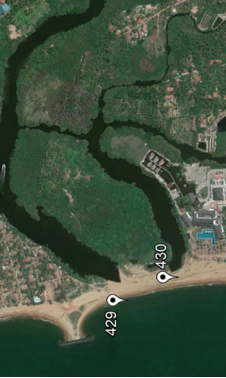
405	Pomparippu Oya Mouth 8°18'56"N 79°50'10"E	River estuary	The Oya located in the lowland area, act as a wetland.	Annually Open	Flood water draining, wildlife, Scenic, Geologic, Recreation Avian species	A meandering pattern stream system exists as a small delta. Mangrove swamps and tidal creeks exist.		Curlew Sandpiper Kalpitiya
406	North of Gangewadiya 8°18'33"N 79°50'9"E	Kala Oya Delta estuary	The Oya located in the lowland area, act as a wetland.	Annually Open	Flood water draining, wildlife, Scenic, Geologic Avian species	A meandering pattern stream system exists as a small delta. Mangrove swamps and tidal creeks exist		Little Grebe Kalpitiya
407	Kala oya estuary 8°18'21"N 79°50'5"E	Kala Oya estuary	8/2022 Estuary 	Annually Open	Flood water draining, wildlife, Scenic, Geologic, Recreation, Avian species	Meandering pattern stream system exist as small delta. Mangrove swamps, tidal creeks exist.		Common Iora Kala Oya Es.
408	Kala oya estuary Gangewadiya 8°18'9.00"N 79°49'59"E	Kala Oya estuary	The Oya located in the lowland area, act as a wetland.	Annually Open	Flood water draining, wildlife, Scenic, Geologic, Recreation, Avian species	Meandering pattern stream system exist as small delta. Mangrove swamps, tidal creeks exist.		Brahminy Kite Puttalam
								Woolly-necked Stork Puttalam

409	Kala Oya estuary Gangewadiya 8°17'48"N 79°50'6"E	Kala Oya estuary	The Oya located in the lowland area, act as a wetland.	Annually Open	Flood water draining, wildlife, Scenic, Geologic, Recreation, Avian species	Meandering pattern stream system exist as small delta. Mangrove swamps, tidal creeks exist.
410	Serakuliya Lagoon, 8°13'39"N 79°47'30"E	Tidal creek outlet	Lagoon mouth	Flood and ebb creeks, Mangrove swamps exist.	Flood water draining, wildlife, Scenic, Geologic, Recreation	Flood and ebb creeks, Mangrove swamps exist.
411	Kandakuliya tidal creeks 8°16'30"N 79°46'17"E	Tidal outlet	Tidal creeks	Flood and ebb creeks, Mangrove swamps exist.	Tidal water draining, wildlife, Scenic, Geologic, Recreation, Avian species	Flood and ebb creeks, Mangrove swamps exist.
412	Kandakuliya lagoon 8°12'40"N 79°41'38"E	Lagoon outlet	Small lagoon parallel to the coast.	Closed by sand dunes	Tidal water draining, wildlife, Scenic, Geologic, Recreation	Low dune vegetation, Creeping Dune vegetation, Mangrove patches.
413	Kandakuliya beach canal 8°12'35"N 79°41'34"E	Canal outlet	7/2021 Canal outlet 	Seasonally closed by sand dunes	Tidal water draining, wildlife, Scenic, Geologic, Recreation, Avian species	Low dune vegetation, Creeping Dune vegetation, Mangrove patches.
414	Kandakuliya beach tidal canal 8°12'1"N 79°41'38"E	Canal outlet	Canal outfall exists across the dunes.	Seasonally closed by sand dunes	Tidal water draining, wildlife, Scenic, Geologic, Recreation	Low dune vegetation, Creeping Dune vegetation, Mangrove patches.
415	Kappaladi Lagoon 8° 8'7"N 79°42'19"E	Lagoon outlet	Coastal lagoon mouth	Seasonally closed by sand dunes	Tidal water draining, wildlife, Scenic, Geologic, Recreation	Low dune vegetation, Creeping Dune vegetation, Mangrove patches.

416	Puluthivayal canal 7°57'9"N 79°44'20"E	Canal outlet	Canal mouth	Seasonally closed by sand dunes	Flood water draining, wildlife, Scenic, Recreation	Low dune vegetation, Creeping Dune vegetation, Thorny forest patches.
417	Mukkuthoduwawa 7°56'3"N 79°44'42"E	Canal outlet	12/2019 Canal outlet 	Seasonally closed by sand dunes	Flood water draining, wildlife, Scenic, Recreation, Avian species	Low dune vegetation, Creeping Dune vegetation, Thorny forest patches.
418	Thoduwawa Stream 7°55'30"N 79°44'49"E	Stream outlet	The stream has flowing water only during, and for a short duration after, precipitation events in a typical year	Seasonally closed by sand dunes	Flood water draining, wildlife, Scenic, Recreation	Low dune vegetation, Creeping Dune vegetation, Thorny forest patches and homesteads exit
419	Viruthodai Stream 7°53'27"N 79°45'19"E	Stream outlet	The stream has flowing water only during, and for a short duration after, precipitation events in a typical year	Seasonally closed by beach sands	Flood water draining, wildlife, Scenic, Recreation, Avian species	Low dune vegetation, Creeping Dune vegetation, Thorny forest patches and mangrove patches exit
420	Palli Wasalpaduwa small stream 7°51'49"N 79°45'40"E	Stream outlet	Dry stream mouth	Seasonally closed by beach sands	Flood water draining, wildlife, Scenic, Recreation	Low dune vegetation, coconut palms, Thorny forest patches and mangrove patches exit

421	Wattawan Odai (Canal) 7°48'53"N 79°46'28"E	Lagoon type water body 	12/2019 Canal outlet	Seasonally closed by beach sands	Flood water draining, wildlife, Scenic, Recreation	Low dune vegetation, Thorny forest patches and mangrove patches exit
422	Udappu lagoon mouth 7°44'58"N 79°47'22"E	Canal Outlet	Closed by beach sands	Temporal tidal flow	Flood water draining, wildlife, Scenic, Recreation	Sand dunes, Residential houses
423	Udappuwa Lagoon 7°43'46"N 79°47'33"E	Lagoon outlet	Udappuwa lagoon mouth closed by beach sand	Udappuwa lagoon mouth closed by beach sand	Flood water draining, wildlife, Scenic, Recreation, Avian species	Low dune vegetation, coconut palms, Thorny forest patches and mangrove forests exit
424	Arachchikattuwa Deduru Oya Stream mouth 7°36'49"N 79°47'48"E	Stream let	The stream connect the Deduru Oya delta (northern side)	Partially open the estuary	Flood water draining, wildlife, Scenic, Recreation.	Tidal muds, Mangrove forests, Ebb tidal sediments exit
425	Deduru Oya 7°36'34"N 79°47'33"E	Estuary outlet 	12/2019 Deduru Oya	Canal fom Karukkaponne to Deduru Oya Mouth	Flood water draining Avian species Scenic	Filling op of sands, Tidal muds, Mangrove forests, Ebb tidal sediments exit

426	Chilaw Lagoon canal 7°36'27"N 79°47'14"E	Estuary outlet	The Chilaw Lagoon mouth Canal is connected to the Deduru Oya outlet. It is a west word stream of the delta. During some dry months, the mouth is close by sand, It is necessary to dredge the sand for moving fishing boats from outlet to the lagoon.	Partially open the estuary	Tidal water draining, wildlife, Scenic, Geologic, Recreation, Avian species	Filling op of sands, Tidal muds, Mangrove forests, Ebb tidal sediments exit
427	Karamlan Oya mouth 7°29'33"N 79°47'51"E	Thoduwawa Stream 	4/2020 Stream outlet	2/2022, Flood water open, sand bar development	Seasonally closed	Mangrove swamps, coconut palms, Highly populated areas, Tidal water draining, wildlife, Scenic, Geologic, Recreation.
428	Anankalliya 7°25'56"N 79°48'40"E	Anakalliya lagoon	Seasonally open, sand bar developemt exist.	Seasonally closed	Flood water draining, Tidal water draining, wildlife, Scenic, Geologic, Recreation	Mangrove swamps, Highly populated areas,
429	Gin Oya mouth 1 7°18'7"N 79°50'15"E	Gin oya estuary	Seasonally open, sand bar development exist.	Seasonally closed	Flood water draining, Recreation, Fishery Scenic, Avian species	Mangrove swamps, Highly populated areas

430	Gin Oya mouth II 7°18'3"N 79°50'18"E	Gin oya estuary 	1/2017 Estuary No sand bar development due to constructed groins.	Seasonally closed	Flood water draining, Recreation, Fishery, Scenic, Avian species	Mangrove swamps, Highly populated areas
431	Gin Oya mouth III 7°17'5"N 79°50'23"E	Gin oya	Annually open	Flood water draining, Recreation, Fishery, Scenic, Avian species	Low dunes, Creeping veg. Mangrove strips.	