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NORTH CAROLINA
Environmental Quality

November 15, 2018

MEMORANDUM **CRC-18-24**

TO: Coastal Resources Commission

FROM: Ken Richardson, *Shoreline Management Specialist*

SUBJECT: CRC Science Panel Inlet Hazard Area (IHA) Delineation Update

Background:

The establishment of Areas of Environmental Concern (AEC) is authorized under the NC Coastal Area Management Act (CAMA) of 1974 (NCGS 113A-100 et seq.) and forms the foundation of the North Carolina Coastal Resources Commission's (CRC) permitting program for regulating coastal development. Specific rules defining three specific ocean hazard AECs appear in 15A NCAC 07H.0300: 1) Ocean Erodible, 2) Inlet Hazard, and 3) Unvegetated Beach AECs. The inlet hazard area (IHA) AEC is defined in 15A NCAC 07H.0301(3) as locations that "are especially vulnerable to erosion, flooding and other adverse effects of sand, wind, and water because of their proximity to dynamic ocean inlets."

Unlike other CRC jurisdictional areas, IHA boundaries are defined in a report referenced in the CRC's rules, 7H.0304(2). The current IHA boundaries correspond to maps originally developed by Priddy and Carraway (1978) for all the State's then-active inlets. The report designating the IHA boundaries was adopted by the CRC in 1979, with minor amendments since that time.

IHA boundaries in use today are based on statistical analysis (and to a lesser extent previous inlet location) of historical shoreline movement identified on multiple aerial photosets. In most cases, the statistical methods used in the 1978 study identified the landward-most shoreline position (99% confidence interval) projected to occur between 1978 and 1988. Originally, the Commission anticipated that these boundaries were to be updated at the end of the 1980s. However, due to a combination of factors, that update did not occur.

It was not until the late 1990s, after the CRC's Science Panel on Coastal Hazards was formed, that the need to update IHAs became more of a focal point of discussion. The following is a summarized timeline leading up to 2018:

- **1998-1999:** the newly-formed Science Panel recommended to the CRC that the IHAs were outdated and should be updated. The Science Panel recommended that DCM hire staff to work on inlet hazards data collection and analysis.

- **November 2002:** DCM hired a Coastal Hazards GIS Specialist to support all oceanfront and inlet data collection, mapping, and analysis efforts.

- **2004-2008:** data collection and mapping in preparation for updating IHAs. DCM worked extensively with the Science Panel to develop inlet delineation methodologies.

- **2009:** DCM synthesized data and study results into a report.

- **May & July 2010**: DCM presented a proposed IHA boundary update to the CRC.

- **2010-2012**: Given the concern over the increased size of the proposed IHAs, there were many questions about IHA rules, and if "risk" was the same for all areas within the proposed IHAs. Because there were unanswered questions related to IHA development standards, in addition to several key issues consuming much of the Commission's and Science Panel's time (i.e., the terminal groin and oceanfront erosion rate update studies), the IHA boundary update was temporarily put on hold.

- **2012**: The General Assembly directed the CRC to study the feasibility of creating a new AEC for the lands adjacent to the mouth of the Cape Fear River. Session Law 2012-202 required the CRC to consider the unique coastal morphologies and hydrographic conditions of the Cape Fear River region, and to determine if action is necessary to preserve, protect, and balance the economic and natural resources of this region through the elimination of current overlapping AECs by incorporating appropriate development standards into one single AEC unique to this location. During this study, the CRC found that while the Cape Fear River inlet did present a unique set of challenges, other inlets may have similar issues. The Commission therefore decided to undertake a comprehensive review of inlet-related issues and with the expectation of developing additional management tools that would allow the CRC to more proactively address the issues confronted by local governments in these dynamic areas.

- **February 2014**: The CRC asked the Science Panel to review a recommendation to remove IHA status from Mad Inlet, which had been naturally closed for some time. From this effort, the Panel made two recommendations that were presented to the CRC: 1) Mad Inlet was not at risk of reopening so IHA status should be removed; and, 2) current IHAs were severely out of date and needed to be updated.

- **September 2014**: DCM presented a report to the Commission that was prepared following a series of stakeholder meetings, entitled, "NC Coastal Resources Commission Inlet Management Study Findings and Policy Options." Stakeholders made several recommendations to the CRC that pertained specifically to IHAs: 1) The CRC should task the Science Panel to complete the development of methods to define revised IHAs and potential inlet and near-inlet setback lines for CRC review; and, 2) The IHAs should be eliminated and incorporated into the Ocean Erodible Area (OEA) while applying the same development standards currently utilized in the OEA.

- **May 2016**: Staff proposed to the CRC to pick up work on the IHAs, and to update inlet shoreline change rates that were presented in 2010 – CRC unanimously approved.

- **July 2016**: At the CRC meeting in Beaufort, the Commission issued the following scope of work to the Science Panel:

    1) **Develop a methodology for calculating inlet shoreline change rates:** The Science Panel chose the linear regression method to measure shoreline change at inlets. This method incorporates multiple shorelines, versus the end-point method currently used on the oceanfront which only uses two shorelines (early and current). Inlet shoreline changes rates have not historically been used for determining construction setbacks at inlets.

    2) **Re-evaluate points along the oceanfront shoreline where inlet processes no longer influence shoreline position:** When the Science Panel first started working on updating IHA boundaries in 2005, the Panel evaluated changes in shoreline position over time to determine the location along the shoreline where inlet-related processes no longer have a dominant influence on the shoreline's position.

    3) **Present results at a CRC Meeting.**

Summary of Current Inlet Hazard Area Rules:

In 1981, the Commission began to recognize that inlet areas were more hazardous than the rest of the oceanfront, noting that out of the 70 structures impacted by erosion, 60 were near inlets. In addition to setbacks from the first line of stable and natural vegetation, the Commission included density restrictions, lot- and structure-size limits, a public access provision, a prohibition on beach bulldozing and the creation of new dunes, and a prohibition on permanent erosion control structures outside of public projects. Current IHA rules have remained relatively unchanged since adoption in 1981. The following is a summary of rules specific to IHAs:

1. **15A NCAC 07H .0304** (AECs Within Ocean Hazard Areas):
    - the Inlet Hazard Area shall be an extension of the adjacent ocean erodible areas and in no case shall the width of the inlet hazard area be less than the width of the adjacent ocean erodible area.

2. **15A NCAC 07H .0310** (Use Standards for Inlet Hazard Areas):
    - set back from the first line of stable natural vegetation a distance equal to the setback required in the adjacent ocean hazard area;
    - density of no more than one commercial or residential unit per 15,000 square feet of land area on lots subdivided;
    - residential structures of four units or less or non-residential structures of less than 5,000 square feet total floor area shall be allowed within the inlet hazard area, (except roads and bridges);
    - public rights of access to the public trust lands and waters in Inlet Hazard Areas shall not be eliminated or restricted. Development shall not encroach upon public accessways nor shall it limit the intended use of the accessways;
    - Access roads and the replacement of existing bridges are allowed (Added in 1995).
    - Residential piers are allowed along shorelines exhibiting features of estuarine shorelines (Clarified in 1995).

3. **15A NCAC 07H .0308** (Specific Use Standards for Ocean Hazard Areas):
    - No new dunes shall be created in inlet hazard areas.

4. **15A NCAC 07H .1800** (General Permit to Allow Beach Bulldozing in the Ocean Hazard AEC)
    - This general permit shall not apply to the Inlet Hazard AEC

5. **15A NCAC 7H .0309(b)** Use Standards for Ocean Hazard Areas:
    - Exceptions, in which certain lots platted prior to June 1, 1979 are eligible for an exception to the oceanfront setback rules is not applicable to the IHA.

Science Panel's 2018 Proposed Inlet Hazard Area Boundary Update:

Since the 2016 CRC meeting, DCM staff has been working extensively with the Science Panel to delineate updated IHA boundaries using historical data, updated statistical and mapping methodologies, and expert knowledge of North Carolina's inlet and ocean processes. In June 2018, the Science Panel met in Wilmington to finalize their work on inlets, and DCM will be presenting the Panel's proposed IHA boundaries and discussing next steps at the Commission's November 2018 meeting in Ocean Isle Beach.

The process of delineating updated IHA boundaries has evolved since the Panel's 2010 proposal, and generally considered three major variables: 1) the spatial and temporal variability of the inlet shoreline relative positions over time; 2) the application of shoreline change statistical methods and landward-most location of all vegetation lines (hybrid-vegetation line), and; 3) expert knowledge of how inlet processes, geomorphology, and engineering (hard-structures, dredging, relocation) influence inlet behavior. The study included 10 of the state's 19 active inlets: 1) Tubbs; 2) Shallotte, 3) Lockwood Folly; 4) Carolina Beach; 5) Masonboro; 6) Mason; 7) Rich; 8) New Topsail; 9) New River, and; 10) Bogue. Other inlets were not included in the update study because they are within undeveloped State or Federal management lands (i.e., NC Coastal Reserve or State Park, US National Seashore).

Science Panel's Executive Summary of IHA Boundary 2018 Update Proposal to the CRC:

The first North Carolina Inlet Hazard Areas (IHA) were developed in 1978 in recognition that shorelines adjacent to inlets are more dynamic than those along the oceanfront. At the time, the shoreline analysis methodology relied on the historic migration of inlet shorelines along the coast to delineate IHAs. Since that time, research has shown that in addition to inlet migration, the oscillations of the ocean shoreline adjacent to the inlet can also be a significant threat to development, and that the area of inlet influence extends further along the ocean shoreline than originally understood.

Forty years since the original IHA delineations, some of the inlets have changed significantly, with several inlets (Mad Inlet, Old Topsail Inlet, and New/Corncake Inlet) having closed completely. Others (New Topsail and Shallotte Inlets) have moved beyond the limits of the original IHA delineations. In 2004, the Science Panel began working on revising the IHA delineation methodology, leading to initial draft maps first presented in 2010. Due to a combination of issues including what use standards would be applied in the IHAs and the Science Panel being tasked with reviewing the use of terminal groins in NC, the effort was put on hold. In 2016, the Panel was asked by the Coastal Resources Commission to develop an inlet shoreline change rate calculation methodology and complete the update IHA Delineations.

Inlet shorelines behave differently than oceanfront shorelines not influenced by inlets. Oceanfront shorelines near inlets have long-term erosion rates approximately five times greater than other oceanfront shorelines. The shorelines inside the inlet, between the two islands, can migrate even faster. New Topsail Inlet has been moving south approximately 90 feet per year since the 1930s. Mason Inlet was moving at 365 feet per year before it was relocated and stabilized. Inlet shorelines can also fluctuate much more than those farther away from the inlets. These fluctuations may not increase the overall erosion rate but still contribute to the short-term risk to development.

Although inlet shorelines are more dynamic and locally unique, a common observation is a multi-year oscillation where the near-inlet shoreline on one side erodes rapidly while the other side accretes or gains sand. Over a period of years to decades, the erosion patterns may reverse; what was previously eroding recovers while the previous accretion disappears. This oscillation is most often caused by shifts in the alignment of the channel through the offshore bar, as it naturally oscillates from one side of the inlet to the other.

In 2010, the Panel developed draft IHAs for each of the developed inlets. Public comments criticized the effort in part because there were no proposed rule changes to accompany the much larger draft boundary updates. The prior drafts were also criticized because of the increased size of the draft IHAs and the fact that inlet risk within the areas varied considerably.

In response to the public comments on the prior IHA draft, the panel developed the Inlet Hazard Area Method (IHAM) to define the IHA. and to identify two "risk lines" that are calculated similarly to the CRC's OEA mapping. Away from inlets, the existing vegetation line can be a useful indicator of the long-term erosion trend which offers several advantages in defining the Ocean Hazard Area. However, the dynamic oscillations near the inlets make a fixed IHA designation necessary. The dynamic oscillations near inlets were found to be better represented by a fixed, hybrid-vegetation line based on the most landward limits of all vegetation lines over the study period.

The IHAM establishes the "90-year Risk Line," or landward limit of the IHA, by multiplying 90 times the annual inlet-shoreline erosion rate and measuring landward from the hybrid-vegetation line. This calculation is like the one applied in defining the landward limit of the Ocean Erodible Area and Ocean Hazard Area outside the IHA. The IHAM establishes the "30-year Risk Line" by multiplying 30 times the annual inlet-shoreline erosion rate, and measuring landward from the hybrid-vegetation line. Land seaward of the 30-year Risk Line is considered to be at relatively higher risk than areas landward of the 30-year line. Because inlet shorelines behave differently than non-inlet areas, there are several important differences in how the erosion rates are measured and how they are applied in mapping compared to the non-inlet shorelines:

- The alongshore boundary of the IHA is identified by an increase in shoreline change variability compared to adjacent shoreline, not influenced by the inlets.
- The erosion rates were analyzed using linear regression, a statistical method that takes advantage of the growing database of North Carolina shorelines and which better reflects the dynamic nature of inlets (rather than the endpoint method used in the OEA).
- Time periods for analysis were selected on an inlet-by-inlet basis, based on the available shoreline images that best represented the recent history of the inlet shoreline.
- The IHAM assumes homogeneous, erodible sediments; and in areas where the IHAM does not reflect the influence of underlying geology and dune topography, the Panel used professional judgement and their knowledge of each inlet to aid in the delineation of the landward IHA boundary.

The CRC's Ocean Erodible Area and Ocean Hazard Area identify areas where long-term erosion and severe storm impacts are significantly higher than other areas on the barrier shorelines. The maps in this report present the Panel's recommended IHA for each of the developed inlet shorelines where the inlet processes risk is equal to or greater than the long-term erosion and storm impacts. The landward limit of each IHA is defined by a 90-year Risk Line, and a 30-year Risk Line defines a higher level of risk. Because inlet oscillations make the existing vegetation line a poor indicator of future conditions, the proposed boundaries are fixed relative to the hybrid-vegetation line.

The Science Panel on Coastal Hazards recommends that the CRC consider subsequent IHA boundary updates every five years, to coincide with the oceanfront erosion rate and Ocean Erodible Area boundary updates. This report is submitted as a replacement for the 2010 report on the panel's recommendations.

Summary of New Maps

At most inlets, the proposed IHA has expanded farther away from the inlet along the oceanfront-inlet shoreline. This longshore boundary was identified using statistical methods based primarily on standard deviation of relative position of historic shorelines, and to a lesser degree, the actual erosion rates. These techniques quantified the extent of shoreline variation (i.e., back and forth movement), and gave the Science Panel the ability to identify the oceanfront-inlet transitional boundary.

Similarly, to how the Ocean Erodible Area (OEA) boundary along the oceanfront is determined (90 times the setback factor), the Panel utilized the multiplier 90 times the shoreline change rate to be the landward-most IHA boundary. However, unlike the oceanfront OEA limit where the distance is measured from the first line of stable and natural vegetation, the Science Panel's landward boundary was measured landward at each transect starting from the landward-most location of all vegetation lines (hybrid-vegetation line). In some instances, the Science Panel

utilized their combined professional knowledge of underlying geology and specific inlet-related processes to modify the landward boundary.

The Panel acknowledged that risk within inlet hazard areas is not the same relative to a specific point in time, and felt it was important to identify areas within their proposed IHA with greatest potential to be influenced by inlet processes (erosion). Termed and defined by the Science Panel, the "30-Year Risk Line" was initially introduced to the CRC in 2010 as a method for delineating the landward extent of those areas within the proposed IHAs where the Science Panel believed the risk to be greatest. Like the landward boundary of the IHA, the "30-Year Risk Line" distance was calculated for each transect by multiplying the shoreline change rate times 30 measured from the landward-most location of all vegetation lines (hybrid-vegetation line).

It is important to remind the Commission that the terms "30- & 90-Year Risk Lines" are utilized by the Science Panel to describe their process of identifying areas with greatest potential to be influenced by both long- and short-term inlet related processes. These terms do not appear in CRC rule language. It is also important to note that the multipliers of 30 and 90 along with shoreline change are used in the Commission's rules for siting oceanfront development, and are not intended to be predictive in nature, but are an indication of how the shoreline has changed over the preceding years.

The Science Panel's proposed IHA boundary maps are attached. The following tables (Tables 1, 2 & 3) summarize boundary area changes, the number of lots less than 15,000 square feet, and structures greater than 5,000 square feet, that would be influenced by current IHA rules and the proposed IHA boundaries.

Table 1. This table illustrates area (acres) based on area of parcels within or intersecting both the existing IHA and proposed IHA. Negative values represent an acreage reduction, while positive values represent an acreage increase. Also note that Masonboro Inlet at Wrightsville Beach does not currently have a designated IHA.

Location	Existing IHA (acres)	2018-Proposed IHA (acres)	Difference (acres)	Increase-Reduction (%)
Tubbs Inlet *at Sunset Beach*	182	96.8	-85.2	-46.8%
Tubbs Inlet *at Ocean Isle*	123.5	84.3	-39.2	-31.7%
Shallotte Inlet *at Ocean Isle*	64.6	216.6	152	235.3%
Shallotte Inlet *at Holden Beach*	290.5	569.3	278.8	96.0%
Lockwood Folly Inlet *at Holden Beach*	64.1	189.5	125.4	195.6%
Lockwood Folly Inlet *at Oak Island*	126.7	229.7	103	81.3%
Carolina Beach Inlet *at Carolina Beach*	177.5	346	168.5	94.9%
Masonboro Inlet *at Wrightsville Beach*	0	90.8	90.8	100.0%
Mason Inlet *at Wrightsville Beach*	267.6	125.5	-142.1	-53.1%
Mason Inlet *at Figure Eight*	267.6	165.6	-102	-38.1%
Rich Inlet *at Figure Eight*	156.2	253.6	97.4	62.4%
Rich Inlet *at Lea-Hutaff Island*	117.7	409	291.3	247.5%
New Topsail Inlet *at Lea-Hutaff Island*	517.1	414.4	-102.7	-19.9%
New Topsail Inlet *at Topsail Beach*	256.9	427.4	170.5	66.4%
New River Inlet *at N. Topsail Beach*	85.2	144.8	59.6	70.0%
Bogue Inlet *at Emerald Isle*	136.1	429.5	293.4	215.6%
TOTAL:	**2833**	**4192.8**	**1359.5**	**48.0%**

Table 2. This table illustrates the number of structures (residential and commercial combined) within or intersecting either the existing IHA and proposed IHA and have a heated-area greater than 5,000 square feet. Negative values represent a reduction, while positive values represent an increase.

Structures > 5,000 square feet	IHA (current)	IHA (2018 proposed)	Difference
Tubbs Inlet *at Sunset Beach*	0	0	0
Tubbs Inlet *at Ocean Isle*	**5**	**4**	**-1**
Shallotte Inlet *at Ocean Isle*	0	**1**	**1**
Shallotte Inlet *at Holden Beach*	**5**	**9**	**4**
Lockwood Folly Inlet *at Holden Beach*	0	0	0
Lockwood Folly Inlet *at Oak Island*	0	0	0
Carolina Beach Inlet *at Carolina Beach*	0	0	0
Masonboro Inlet *at Wrightsville Beach*	0	**1**	**1**
Mason Inlet *at Wrightsville Beach*	**1**	**1**	0
Mason Inlet *at Figure Eight*	**9**	**5**	**-4**
Rich Inlet *at Figure Eight*	**2**	**9**	**7**
Rich Inlet *at Lea-Hutaff Island*	0	0	0
New Topsail Inlet *at Lea-Hutaff Island*	0	0	0
New Topsail Inlet *at Topsail Beach*	0	0	0
New River Inlet *at N. Topsail Beach*	0	**11**	**11**
Bogue Inlet *at Emerald Isle*	**2**	0	**-2**
TOTAL:	**24**	**41**	**17**

Table 3. This table illustrates the number of lots (residential commercial combined) within, or intersecting either the existing IHA and proposed IHA, that have a lot less than 15,000 square feet (0.334 acres). Negative values represent a reduction, while positive values represent an increase.

Lots < 15,000 sqft. (0.334 acres)	IHA (current) # of Parcels	IHA (2018 proposed) # of Parcels	Difference
Tubbs Inlet *at Sunset Beach*	156	16	-140
Tubbs Inlet *at Ocean Isle*	20	3	-17
Shallotte Inlet *at Ocean Isle*	146	403	257
Shallotte Inlet *at Holden Beach*	15	173	158
Lockwood Folly Inlet *at Holden Beach*	52	156	104
Lockwood Folly Inlet *at Oak Island*	49	116	67
Carolina Beach Inlet *at Carolina Beach*	0	17	17
Masonboro Inlet *at Wrightsville Beach*	NA	9	9
Mason Inlet *at Wrightsville Beach*	0	0	0
Mason Inlet *at Figure Eight*	4	7	3
Rich Inlet *at Figure Eight*	8	16	8
Rich Inlet *at Lea-Hutaff Island*	3	0	-3
New Topsail Inlet *at Lea-Hutaff Island*	3	1	-2
New Topsail Inlet *at Topsail Beach*	230	238	8
New River Inlet *at N. Topsail Beach*	137	542	405
Bogue Inlet *at Emerald Isle*	71	108	37
TOTAL:	**894**	**1805**	**911**

Summary of Proposed Inlet Hazard Area Rule Amendments:

Some may recall that during the 2010 IHA update proposal, progress was eventually halted in part due to many unanswered questions related to what changes were envisioned for development standards within the proposed IHAs, especially given the increased size of the proposed areas. For this reason, staff is proposing the following concepts to be considered by the Commission while discussing amendments to existing rule language:

- All existing structures within the new IHAs be grandfathered; clarify that the existing grandfathering provisions contained within 15A NCAC 07H .0306(a)(5)(L) apply within IHAs.
- All lots under 15,000 square feet, platted before the effective date of these amendments, be grandfathered.
- Remove the distinction between "residential" and "commercial" structures.
- Limit all new construction to 5,000 square feet.
- Remove restrictions on the number of units allowed in a structure.
- Use the calculated erosion rates inside of the IHAs, instead of the rates from the adjacent OEAs.

This information is being provided to the Commission as a status update on the Panel's progress, and to familiarize the CRC with current IHA rules and the Panel's proposed boundaries. The Science Panel's full report is complete and currently undergoing final review, and will be provided to the Commission at the February 2019 meeting.

Staff is asking for the Commission's direction in development of amended rule language to accompany the newly delineated IHAs and methods report for presentation at the February 2019 meeting.

APPENDIX A: Existing rules pertaining to IHAs
APPENDIX B: Draft 2018 Proposed IHA maps

Appendix A: Existing Rule Language Pertaining To IHAs:

15A NCAC 07H .0310 USE STANDARDS FOR INLET HAZARD AREAS

(a) Inlet areas as defined by Rule .0304 of this Section are subject to inlet migration, rapid and severe changes in watercourses, flooding and strong tides. Due to this extremely hazardous nature of the Inlet Hazard Areas, all development within these areas shall be permitted in accordance with the following standards:

(1) All development in the inlet hazard area shall be set back from the first line of stable natural vegetation a distance equal to the setback required in the adjacent ocean hazard area;

(2) Permanent structures shall be permitted at a density of no more than one commercial or residential unit per 15,000 square feet of land area on lots subdivided or created after July 23, 1981;

(3) Only residential structures of four units or less or non-residential structures of less than 5,000 square feet total floor area shall be allowed within the inlet hazard area, except that access roads to those areas and maintenance and replacement of existing bridges shall be allowed;

(4) Established common-law and statutory public rights of access to the public trust lands and waters in Inlet Hazard Areas shall not be eliminated or restricted. Development shall not encroach upon public accessways nor shall it limit the intended use of the accessways;

(5) All other rules in this Subchapter pertaining to development in the ocean hazard areas shall be applied to development within the Inlet Hazard Areas.

(b) The inlet hazard area setback requirements shall not apply to the types of development exempted from the ocean setback rules in 15A NCAC 7H .0309(a), nor, to the types of development listed in 15A NCAC 7H .0309(c).

(c) In addition to the types of development excepted under Rule .0309 of this Section, small scale, non-essential development that does not induce further growth in the Inlet Hazard Area, such as the construction of single-family piers and small scale erosion control measures that do not interfere with natural inlet movement, may be permitted on those portions of shoreline within a designated Inlet Hazard Area that exhibit features characteristic of Estuarine Shoreline. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than in the adjoining Ocean Erodible Area. Such development shall be permitted under the standards set out in Rule .0208 of this Subchapter. For the purpose of this Rule, small scale is defined as those projects which are eligible for authorization under 15A NCAC 7H .1100, .1200 and 7K .0203.

History Note: *Filed as a Temporary Amendment Eff. October 30, 1981, for a period of 70 days to expire on January 8, 1982;*
Filed as an Emergency Rule Eff. September 11, 1981, for a period of 120 days to expire on January 8, 1982;
Authority G.S. 113A-107; 113A-113(b); 113A-124;
Eff. December 1, 1981;
Amended Eff. April 1, 1999; April 1, 1996; December 1, 1992; December 1, 1991; March 1, 1988.

15A NCAC 07H .0309 USE STANDARDS FOR OCEAN HAZARD AREAS: EXCEPTIONS

(a) The following types of development shall be permitted seaward of the oceanfront setback requirements of Rule .0306(a) of the Subchapter if all other provisions of this Subchapter and other state and local regulations are met:

(1) campsites;
(2) driveways and parking areas with clay, packed sand or gravel;
(3) elevated decks not exceeding a footprint of 500 square feet;
(4) beach accessways consistent with Rule .0308(c) of this Subchapter;
(5) unenclosed, uninhabitable gazebos with a footprint of 200 square feet or less;
(6) uninhabitable, single-story storage sheds with a foundation or floor consisting of wood, clay, packed sand or gravel, and a footprint of 200 square feet or less;
(7) temporary amusement stands;
(8) sand fences; and
(9) swimming pools.

In all cases, this development shall be permitted only if it is landward of the vegetation line or static vegetation line, whichever is applicable; involves no alteration or removal of primary or frontal dunes which would compromise the integrity of the dune as a protective landform or the dune vegetation; has overwalks to protect any existing dunes; is not essential to the continued existence or use of an associated principal development; is not required to satisfy minimum requirements of local zoning, subdivision or health regulations; and meets all other non-setback requirements of this Subchapter.

(b) Where application of the oceanfront setback requirements of Rule .0306(a) of this Subchapter would preclude placement of permanent substantial structures on lots existing as of June 1, 1979, buildings shall be permitted seaward of the applicable setback line in ocean erodible areas, but not inlet hazard areas or unvegetated beach areas, if each of the following conditions are met:

(1) The development is set back from the ocean the maximum feasible distance possible on the existing lot and the development is designed to minimize encroachment into the setback area;

(2) The development is at least 60 feet landward of the vegetation line or static vegetation line, whichever is applicable;

(3) The development is not located on or in front of a frontal dune, but is entirely behind the landward toe of the frontal dune;

(4) The development incorporates each of the following design standards, which are in addition to those required by Rule .0308(d) of this Subchapter.

(A) All pilings shall have a tip penetration that extends to at least four feet below mean sea level;

(B) The footprint of the structure shall be no more than 1,000 square feet, and the total floor area of the structure shall be no more than 2,000 square feet. For the purpose of this Section, roof-covered decks and porches that are structurally attached shall be included in the calculation of footprint;

(C) Driveways and parking areas shall be constructed of clay, packed sand or gravel except in those cases where the development does not abut the ocean and is located landward of a paved public street or highway currently in use. In those cases concrete, asphalt or turfstone may also be used;

(D) No portion of a building's total floor area, including elevated portions that are cantilevered, knee braced or otherwise extended beyond the support of pilings or footings, may extend oceanward of the total floor area of the landward-most adjacent building. When the geometry or orientation of a lot precludes the placement of a building in line with the landward most adjacent structure of similar use, an average line of construction shall be determined by the Division of Coastal Management on a case-by-case basis in order to determine an ocean hazard setback that is landward of the vegetation line, static vegetation line or measurement line, whichever is applicable, a distance no less than 60 feet.

(5) All other provisions of this Subchapter and other state and local regulations are met. If the development is to be serviced by an on-site waste disposal system, a copy of a valid permit for such a system shall be submitted as part of the CAMA permit application.

(c) Reconfiguration and development of lots and projects that have a grandfather status under Paragraph (b) of this Rule shall be allowed provided that the following conditions are met:

(1) Development is setback from the first line of stable natural vegetation a distance no less than that required by the applicable exception;

(2) Reconfiguration shall not result in an increase in the number of buildable lots within the Ocean Hazard AEC or have other adverse environmental consequences.

For the purposes of this Rule, an existing lot is a lot or tract of land which, as of June 1, 1979, is specifically described in a recorded plat and which cannot be enlarged by combining the lot or tract of land with a contiguous lot(s) or tract(s) of land under the same ownership. The footprint is defined as the greatest exterior dimensions of the structure, including covered decks, porches, and stairways, when extended to ground level.

(d) The following types of water dependent development shall be permitted seaward of the oceanfront setback requirements of Rule .0306(a) of this Section if all other provisions of this Subchapter and other state and local regulations are met:

(1) piers providing public access; and

(2) maintenance and replacement of existing state-owned bridges and causeways and accessways to such bridges.

(e) Replacement or construction of a pier house associated with an ocean pier shall be permitted if each of the following conditions is met:

(1) The ocean pier provides public access for fishing and other recreational purposes whether on a commercial, public, or nonprofit basis;
(2) Commercial, non-water dependent uses of the ocean pier and associated pier house shall be limited to restaurants and retail services. Residential uses, lodging, and parking areas shall be prohibited;
(3) The pier house shall be limited to a maximum of two stories;
(4) A new pier house shall not exceed a footprint of 5,000 square feet and shall be located landward of mean high water;
(5) A replacement pier house may be rebuilt not to exceed its most recent footprint or a footprint of 5,000 square feet, whichever is larger;
(6) The pier house shall be rebuilt to comply with all other provisions of this Subchapter; and
(7) If the pier has been destroyed or rendered unusable, replacement or expansion of the associated pier house shall be permitted only if the pier is being replaced and returned to its original function.

(f) In addition to the development authorized under Paragraph (d) of this Rule, small scale, non-essential development that does not induce further growth in the Ocean Hazard Area, such as the construction of single family piers and small scale erosion control measures that do not interfere with natural oceanfront processes, shall be permitted on those non-oceanfront portions of shoreline that exhibit features characteristic of an Estuarine Shoreline. Such features include the presence of wetland vegetation, and lower wave energy and erosion rates than in the adjoining Ocean Erodible Area. Such development shall be permitted under the standards set out in Rule .0208 of this Subchapter. For the purpose of this Rule, small scale is defined as those projects which are eligible for authorization under 15A NCAC 07H .1100, .1200 and 07K .0203.

(g) Transmission lines necessary to transmit electricity from an offshore energy-producing facility may be permitted provided that each of the following conditions is met:
(1) The transmission lines are buried under the ocean beach, nearshore area, and primary and frontal dunes, all as defined in Rule 07H .0305, in such a manner so as to ensure that the placement of the transmission lines involves no alteration or removal of the primary or frontal dunes; and
(2) The design and placement of the transmission lines shall be performed in a manner so as not to endanger the public or the public's use of the beach.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(6)a; 113A-113(b)(6)b; 113A-113(b)(6)d; 113A-124;*
Eff. February 2, 1981;
Amended Eff. June 1, 2010; February 1, 2006; September 17, 2002 pursuant to S.L. 2002-116; August 1, 2000; August 1, 1998; April 1, 1996; April 1, 1995; February 1, 1993; January 1, 1991; April 1, 1987.

15A NCAC 07H .0308 SPECIFIC USE STANDARDS FOR OCEAN HAZARD AREAS

(a) Ocean Shoreline Erosion Control Activities:
(1) Use Standards Applicable to all Erosion Control Activities:
(A) All oceanfront erosion response activities shall be consistent with the general policy statements in 15A NCAC 07M .0200.
(B) Permanent erosion control structures may cause significant adverse impacts on the value and enjoyment of adjacent properties or public access to and use of the ocean beach, and, therefore, are prohibited. Such structures include bulkheads, seawalls, revetments, jetties, groins and breakwaters.
(C) Rules concerning the use of oceanfront erosion response measures apply to all oceanfront properties without regard to the size of the structure on the property or the date of its construction.
(D) All permitted oceanfront erosion response projects, other than beach bulldozing and temporary placement of sandbag structures, shall demonstrate sound engineering for their planned purpose.
(E) Shoreline erosion response projects shall not be constructed in beach or estuarine areas that sustain substantial habitat for fish and wildlife species, as identified by natural resource agencies during project review, unless mitigation measures are incorporated into project design, as set forth in Rule .0306(i) of this Section.
(F) Project construction shall be timed to minimize adverse effects on biological activity.

(G) Prior to completing any erosion response project, all exposed remnants of or debris from failed erosion control structures must be removed by the permittee.

(H) Erosion control structures that would otherwise be prohibited by these standards may be permitted on finding by the Division that:

(i) the erosion control structure is necessary to protect a bridge which provides the only existing road access on a barrier island, that is vital to public safety, and is imminently threatened by erosion as defined in provision (a)(2)(B) of this Rule;

(ii) the erosion response measures of relocation, beach nourishment or temporary stabilization are not adequate to protect public health and safety; and

(iii) the proposed erosion control structure will have no adverse impacts on adjacent properties in private ownership or on public use of the beach.

(I) Structures that would otherwise be prohibited by these standards may also be permitted on finding by the Division that:

(i) the structure is necessary to protect a state or federally registered historic site that is imminently threatened by shoreline erosion as defined in provision (a)(2)(B) of this Rule;

(ii) the erosion response measures of relocation, beach nourishment or temporary stabilization are not adequate and practicable to protect the site;

(iii) the structure is limited in extent and scope to that necessary to protect the site; and

(iv) any permit for a structure under this Part (I) may be issued only to a sponsoring public agency for projects where the public benefits outweigh the short or long range adverse impacts. Additionally, the permit shall include conditions providing for mitigation or minimization by that agency of any unavoidable adverse impacts on adjoining properties and on public access to and use of the beach.

(J) Structures that would otherwise be prohibited by these standards may also be permitted on finding by the Division that:

(i) the structure is necessary to maintain an existing commercial navigation channel of regional significance within federally authorized limits;

(ii) dredging alone is not practicable to maintain safe access to the affected channel;

(iii) the structure is limited in extent and scope to that necessary to maintain the channel;

(iv) the structure shall not adversely impact fisheries or other public trust resources; and

(v) any permit for a structure under this Part (J) may be issued only to a sponsoring public agency for projects where the public benefits outweigh the short or long range adverse impacts. Additionally, the permit shall include conditions providing for mitigation or minimization by that agency of any unavoidable adverse impacts on adjoining properties and on public access to and use of the beach.

(K) The Commission may renew a permit for an erosion control structure issued pursuant to a variance granted by the Commission prior to 1 July 1995. The Commission may authorize the replacement of a permanent erosion control structure that was permitted by the Commission pursuant to a variance granted by the Commission prior to 1 July 1995 if the Commission finds that:

(i) the structure will not be enlarged beyond the dimensions set out in the permit;

(ii) there is no practical alternative to replacing the structure that will provide the same or similar benefits; and

(iii) the replacement structure will comply with all applicable laws and with all rules, other than the rule or rules with respect to which the Commission granted the variance, that are in effect at the time the structure is replaced.

(L) Proposed erosion response measures using innovative technology or design shall be considered as experimental and shall be evaluated on a case-by-case basis to determine consistency with 15A NCAC 07M .0200 and general and specific use standards within this Section.

(2) Temporary Erosion Control Structures:

(A) Permittable temporary erosion control structures shall be limited to sandbags placed landward of mean high water and parallel to the shore.

(B) Temporary erosion control structures as defined in Part (2)(A) of this Subparagraph shall be used to protect only imminently threatened roads and associated right of ways, and buildings and their associated septic systems. A structure is considered imminently threatened if its foundation, septic system, or right-of-way in the case of roads, is less than 20 feet away from the erosion scarp. Buildings and roads located more than 20 feet from the erosion scarp or in areas where there is no obvious erosion scarp may also be found to be imminently threatened when site conditions, such as a flat beach profile or accelerated erosion, increase the risk of imminent damage to the structure.

(C) Temporary erosion control structures shall be used to protect only the principal structure and its associated septic system, but not appurtenances such as pools, gazebos, decks or any amenity that is allowed as an exception to the erosion setback requirement.

(D) Temporary erosion control structures may be placed seaward of a septic system when there is no alternative to relocate it on the same or adjoining lot so that it is landward of or in line with the structure being protected.

(E) Temporary erosion control structures shall not extend more than 20 feet past the sides of the structure to be protected. The landward side of such temporary erosion control structures shall not be located more than 20 feet seaward of the structure to be protected or the right-of-way in the case of roads. If a building or road is found to be imminently threatened and at an increased risk of imminent damage due to site conditions such as a flat beach profile or accelerated erosion, temporary erosion control structures may be located more than 20 feet seaward of the structure being protected. In cases of increased risk of imminent damage, the location of the temporary erosion control structures shall be determined by the Director of the Division of Coastal Management or their designee in accordance with Part (2)(A) of this Subparagraph.

(F) Temporary erosion control structures may remain in place for up to two years after the date of approval if they are protecting a building with a total floor area of 5000 sq. ft. or less and its associated septic system, or, for up to five years for a building with a total floor area of more than 5000 sq. ft. and its associated septic system. Temporary erosion control structures may remain in place for up to five years if they are protecting a bridge or a road. The property owner shall be responsible for removal of the temporary structure within 30 days of the end of the allowable time period.

(G) Temporary sandbag erosion control structures may remain in place for up to eight years from the date of approval if they are located in a community that is actively pursuing a beach nourishment project, or if they are located in an Inlet Hazard Area adjacent to an inlet for which a community is actively pursuing an inlet relocation or stabilization project in accordance with G.S. 113A-115.1. For purposes of this Rule, a community is considered to be actively pursuing a beach nourishment, inlet relocation or stabilization project if it has:

(i) an active CAMA permit, where necessary, approving such project; or

(ii) been identified by a U.S. Army Corps of Engineers' Beach Nourishment Reconnaissance Study, General Reevaluation Report, Coastal Storm Damage Reduction Study or an ongoing feasibility study by the U.S. Army Corps of Engineers and a commitment of local or federal money, when necessary; or

(iii) received a favorable economic evaluation report on a federal project; or

(iv) is in the planning stages of a project designed by the U.S. Army Corps of Engineers or persons meeting applicable State occupational licensing requirements and initiated by a local government or community with a commitment of local or state funds to construct the project and the identification of the financial resources or funding bases necessary to fund the beach nourishment, inlet relocation or stabilization project.

If beach nourishment, inlet relocation or stabilization is rejected by the sponsoring agency or community, or ceases to be actively planned for a section of shoreline, the time extension is void for that section of beach or community and existing sandbags are subject to all applicable time limits set forth in Part (F) of this Subparagraph.

(H) Once the temporary erosion control structure is determined by the Division of Coastal Management to be unnecessary due to relocation or removal of the threatened structure, a storm protection project constructed by the U.S. Army Corps of Engineers, a large-scale beach nourishment project, an inlet relocation or stabilization project, it shall be removed by the property owner within 30 days of official notification from the Division of Coastal Management regardless of the time limit placed on the temporary erosion control structure.

(I) Removal of temporary erosion control structures is not required if they are covered by dunes with stable and natural vegetation.

(J) The property owner shall be responsible for the removal of remnants of all portions of any damaged temporary erosion control structure.

(K) Sandbags used to construct temporary erosion control structures shall be tan in color and three to five feet wide and seven to 15 feet long when measured flat. Base width of the structure shall not exceed 20 feet, and the height shall not exceed six feet.

(L) Soldier pilings and other types of devices to anchor sandbags shall not be allowed.

(M) An imminently threatened structure may be protected only once, regardless of ownership, unless the threatened structure is located in a community that is actively pursuing a beach nourishment project, or in an Inlet Hazard Area and in a community that is actively pursuing an inlet relocation or stabilization project in accordance with (G) of this Subparagraph. Existing temporary erosion control structures located in Inlet Hazard Areas may be eligible for an additional eight year permit extension provided that the structure being protected is still imminently threatened, the temporary erosion control structure is in compliance with requirements of this Subchapter and the community in which it is located is actively pursuing a beach nourishment, inlet relocation or stabilization project in accordance with Part (G) of this Subparagraph. In the case of a building, a temporary erosion control structure may be extended, or new segments constructed, if additional areas of the building become imminently threatened. Where temporary structures are installed or extended incrementally, the time period for removal under Part (F) or (G) of this Subparagraph shall begin at the time the initial erosion control structure is installed. For the purpose of this Rule:

(i) a building and septic system shall be considered as separate structures.

(ii) a road or highway shall be allowed to be incrementally protected as sections become imminently threatened. The time period for removal of each section of sandbags shall begin at the time that section is installed in accordance with Part (F) or (G) of this Subparagraph.

(N) Existing sandbag structures may be repaired or replaced within their originally permitted dimensions during the time period allowed under Part (F) or (G) of this Subparagraph.

(3) Beach Nourishment. Sand used for beach nourishment shall be compatible with existing grain size and in accordance with 15A NCAC 07H .0312.

(4) Beach Bulldozing. Beach bulldozing (defined as the process of moving natural beach material from any point seaward of the first line of stable vegetation to create a protective sand dike or to obtain material for any other purpose) is development and may be permitted as an erosion response if the following conditions are met:

(A) The area on which this activity is being performed shall maintain a slope of adequate grade so as to not endanger the public or the public's use of the beach and shall follow the pre-emergency slope as closely as possible. The movement of material utilizing a bulldozer, front end loader, backhoe, scraper, or any type of earth moving or construction equipment shall not exceed one foot in depth measured from the pre-activity surface elevation;

(B) The activity shall not exceed the lateral bounds of the applicant's property unless he has permission of the adjoining land owner(s);

(C) Movement of material from seaward of the mean low water line will require a CAMA Major Development and State Dredge and Fill Permit;

(D) The activity shall not increase erosion on neighboring properties and shall not have an adverse effect on natural or cultural resources;

(E) The activity may be undertaken to protect threatened on-site waste disposal systems as well as the threatened structure's foundations.

(b) Dune Establishment and Stabilization. Activities to establish dunes shall be allowed so long as the following conditions are met:

(1) Any new dunes established shall be aligned to the greatest extent possible with existing adjacent dune ridges and shall be of the same general configuration as adjacent natural dunes.

(2) Existing primary and frontal dunes shall not, except for beach nourishment and emergency situations, be broadened or extended in an oceanward direction.

(3) Adding to dunes shall be accomplished in such a manner that the damage to existing vegetation is minimized. The filled areas shall be immediately replanted or temporarily stabilized until planting can be successfully completed.

(4) Sand used to establish or strengthen dunes shall be of the same general characteristics as the sand in the area in which it is to be placed.

(5) No new dunes shall be created in inlet hazard areas.

(6) Sand held in storage in any dune, other than the frontal or primary dune, may be redistributed within the AEC provided that it is not placed any farther oceanward than the crest of a primary dune or landward toe of a frontal dune.

(7) No disturbance of a dune area shall be allowed when other techniques of construction can be utilized and alternative site locations exist to avoid unnecessary dune impacts.

(c) Structural Accessways:

(1) Structural accessways shall be permitted across primary dunes so long as they are designed and constructed in a manner that entails negligible alteration on the primary dune. Structural accessways shall not be considered threatened structures for the purpose of Paragraph (a) of this Rule.

(2) An accessway shall be conclusively presumed to entail negligible alteration of a primary dune provided that:

(A) The accessway is exclusively for pedestrian use;

(B) The accessway is less than six feet in width;

(C) The accessway is raised on posts or pilings of five feet or less depth, so that wherever possible only the posts or pilings touch the frontal dune. Where this is deemed impossible, the structure shall touch the dune only to the extent absolutely necessary. In no case shall an accessway be permitted if it will diminish the dune's capacity as a protective barrier against flooding and erosion; and

(D) Any areas of vegetation that are disturbed are revegetated as soon as feasible.

(3) An accessway which does not meet Part (2)(A) and (B) of this Paragraph shall be permitted only if it meets a public purpose or need which cannot otherwise be met and it meets Part (2)(C) of this Paragraph. Public fishing piers shall not be deemed to be prohibited by this Rule, provided all other applicable standards are met.

(4) In order to avoid weakening the protective nature of primary and frontal dunes a structural accessway (such as a "Hatteras ramp") shall be provided for any off-road vehicle (ORV) or emergency vehicle access. Such accessways shall be no greater than 10 feet in width and shall be constructed of wooden sections fastened together over the length of the affected dune area.

(d) Building Construction Standards. New building construction and any construction identified in .0306(a)(5) and 07J .0210 shall comply with the following standards:

(1) In order to avoid danger to life and property, all development shall be designed and placed so as to minimize damage due to fluctuations in ground elevation and wave action in a 100-year storm. Any building constructed within the ocean hazard area shall comply with relevant sections of the North Carolina Building Code including the Coastal and Flood Plain Construction Standards and the local flood damage prevention ordinance as required by the National Flood Insurance Program. If any provision of the building code or a flood damage prevention ordinance is inconsistent with any of the following AEC standards, the more restrictive provision shall control.

(2) All building in the ocean hazard area shall be on pilings not less than eight inches in diameter if round or eight inches to a side if square.

(3) All pilings shall have a tip penetration greater than eight feet below the lowest ground elevation under the structure. For those structures so located on or seaward of the primary dune, the pilings shall extend to five feet below mean sea level.

(4) All foundations shall be adequately designed to be stable during applicable fluctuations in ground elevation and wave forces during a 100-year storm. Cantilevered decks and walkways shall meet this standard or shall be designed to break-away without structural damage to the main structure.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(6)a.,b.,d.; 113A-115.1; 113A-124; Eff. June 1, 1979;*

Filed as a Temporary Amendment Eff. June 20, 1989, for a period of 180 days to expire on December 17, 1989;
Amended Eff. August 3, 1992; December 1, 1991; March 1, 1990; December 1, 1989;
RRC Objection Eff. November 19, 1992 due to ambiguity;
RRC Objection Eff. January 21, 1993 due to ambiguity;
Amended Eff. March 1, 1993; December 28, 1992;
RRC Objection Eff. March 16, 1995 due to ambiguity;
Amended Eff. April 1, 1999; February 1, 1996; May 4, 1995;
Temporary Amendment Eff. July 3, 2000; May 22, 2000;
Amended Eff. May 1, 2013; July 1, 2009; April 1, 2008; February 1, 2006; August 1, 2002.

15A NCAC 07H .0304 AECS WITHIN OCEAN HAZARD AREAS

The ocean hazard AECs contain all of the following areas:

(1) Ocean Erodible Area. This is the area where there exists a substantial possibility of excessive erosion and significant shoreline fluctuation. The oceanward boundary of this area is the mean low water line. The landward extent of this area is the distance landward from the first line of stable and natural vegetation as defined in 15A NCAC 07H .0305(a)(5) to the recession line established by multiplying the long-term annual erosion rate times 90; provided that, where there has been no long-term erosion or the rate is less than two feet per year, this distance shall be set at 120 feet landward from the first line of stable natural vegetation. For the purposes of this Rule, the erosion rates are the long-term average based on available historical data. The current long-term average erosion rate data for each segment of the North Carolina coast is depicted on maps entitled "2011 Long-Term Average Annual Shoreline Rate Update" and approved by the Coastal Resources Commission on May 5, 2011 (except as such rates may be varied in individual contested cases or in declaratory or interpretive rulings). In all cases, the rate of shoreline change shall be no less than two feet of erosion per year. The maps are available without cost from any Local Permit Officer or the Division of Coastal Management on the internet at http://www.nccoastalmanagement.net.

(2) Inlet Hazard Area. The inlet hazard areas are natural-hazard areas that are especially vulnerable to erosion, flooding, and other adverse effects of sand, wind, and water because of their proximity to dynamic ocean inlets. This area extends landward from the mean low water line a distance sufficient to encompass that area within which the inlet migrates, based on statistical analysis, and shall consider such factors as previous inlet territory, structurally weak areas near the inlet, and external influences such as jetties and channelization. The areas on the maps identified as suggested Inlet Hazard Areas included in the report entitled INLET HAZARD AREAS, The Final Report and Recommendations to the Coastal Resources Commission, 1978, as amended in 1981, by Loie J. Priddy and Rick Carraway are incorporated by reference and are hereby designated as Inlet Hazard Areas, except for:

(a) the Cape Fear Inlet Hazard Area as shown on the map does not extend northeast of the Bald Head Island marina entrance channel; and

(b) the former location of Mad Inlet, which closed in 1997.

In all cases, the Inlet Hazard Area shall be an extension of the adjacent ocean erodible areas and in no case shall the width of the inlet hazard area be less than the width of the adjacent ocean erodible area. This report is available for inspection at the Department of Environmental Quality, Division of Coastal Management, 400 Commerce Avenue, Morehead City, North Carolina or at the website referenced in Item (1) of this Rule. Photocopies are available at no charge.

(3) Unvegetated Beach Area. Beach areas within the Ocean Hazard Area where no stable natural vegetation is present may be designated as an Unvegetated Beach Area on either a permanent or temporary basis as follows:

(a) An area appropriate for permanent designation as an Unvegetated Beach Area is a dynamic area that is subject to rapid unpredictable landform change due to wind and wave action. The areas in this category shall be designated following studies by the Division of Coastal Management. These areas shall be designated on maps approved by the Coastal Resources

Commission and available without cost from any Local Permit Officer or the Division of Coastal Management on the internet at the website referenced in Item (1) of this Rule.

(b) An area that is suddenly unvegetated as a result of a hurricane or other major storm event may be designated by the Coastal Resources Commission as an Unvegetated Beach Area for a specific period of time, or until the vegetation has re-established in accordance with 15A NCAC 07H .0305(a)(5). At the expiration of the time specified or the re-establishment of the vegetation, the area shall return to its pre-storm designation.

History Note: *Authority G.S. 113A-107; 113A-107.1; 113A-113; 113A-124;*
Eff. September 9, 1977;
Amended Eff. December 1, 1993; November 1, 1988; September 1, 1986; December 1, 1985;
Temporary Amendment Eff. October 10, 1996;
Amended Eff. April 1, 1997;
Temporary Amendment Eff. October 10, 1996 Expired on July 29, 1997;
Temporary Amendment Eff. October 22, 1997;
Amended Eff. July 1, 2016; September 1, 2015; May 1, 2014; February 1, 2013; January 1, 2010; February 1, 2006; October 1, 2004; April 1, 2004; August 1, 1998.

APPENIX B: Draft 2018 Proposed IHA map

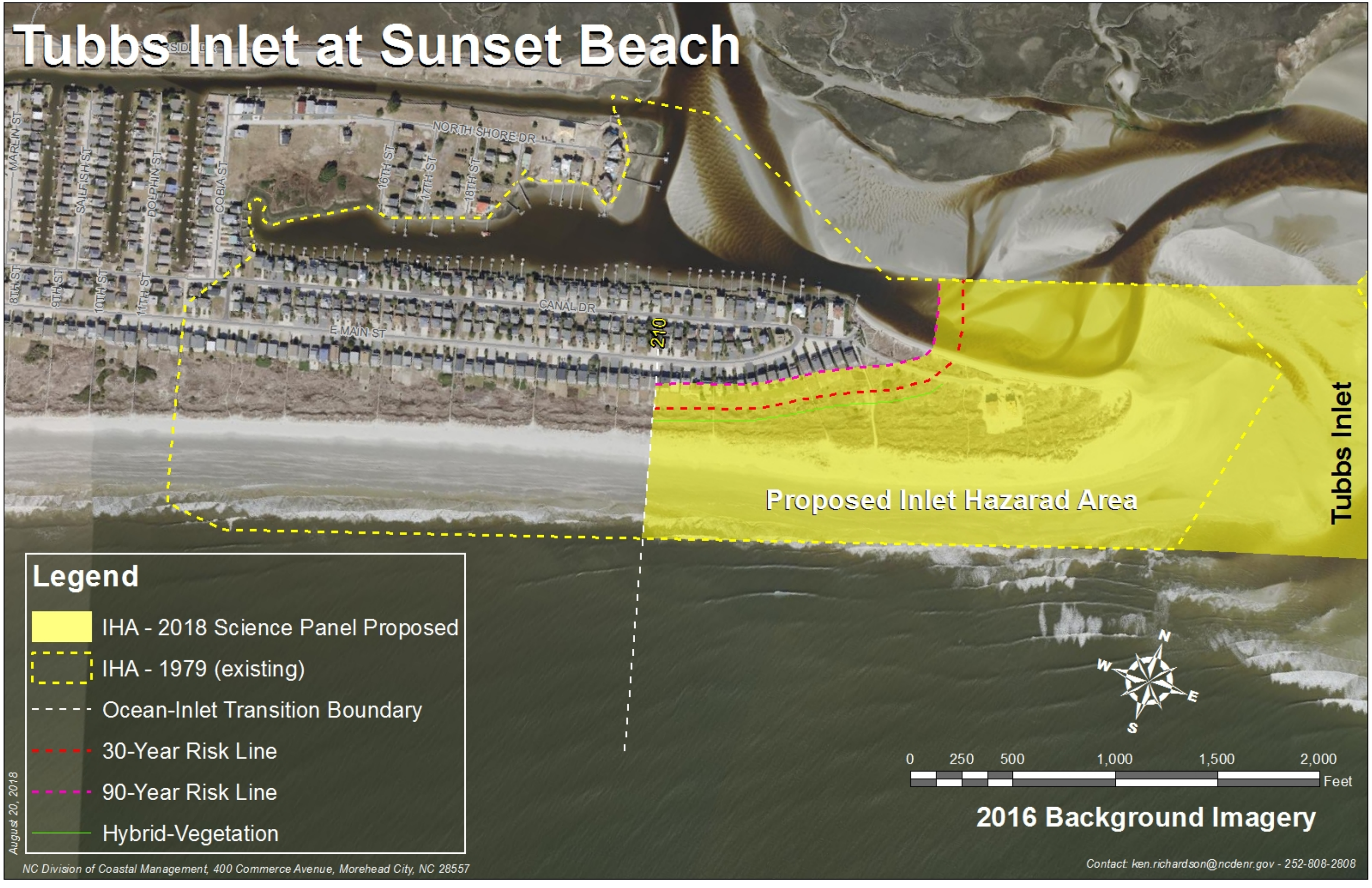


Figure 1. Proposed IHA Boundaries - Tubbs Inlet - Sunset Beach

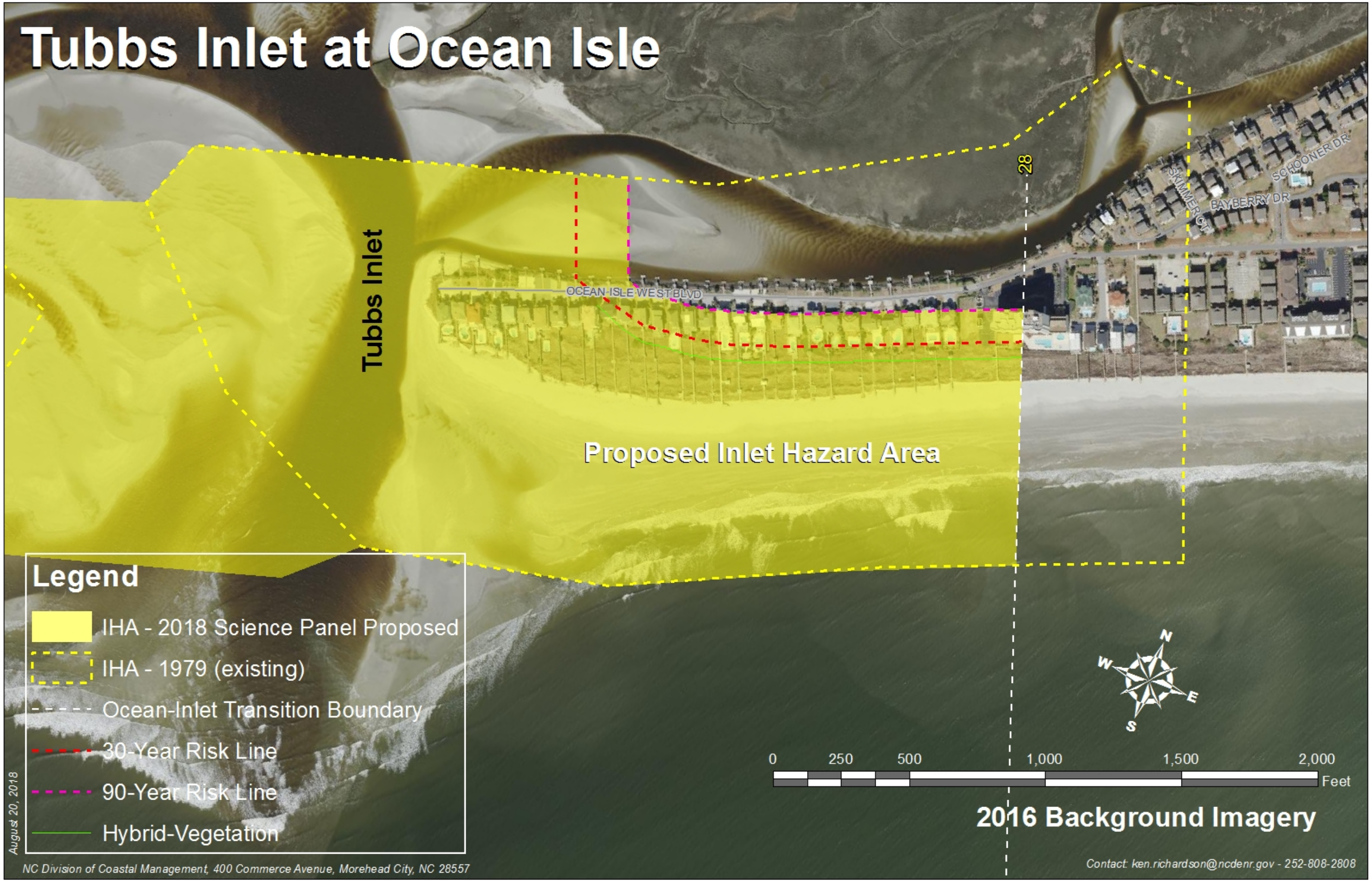


Figure 2. Proposed IHA Boundary at Tubbs Inlet - Ocean Isle

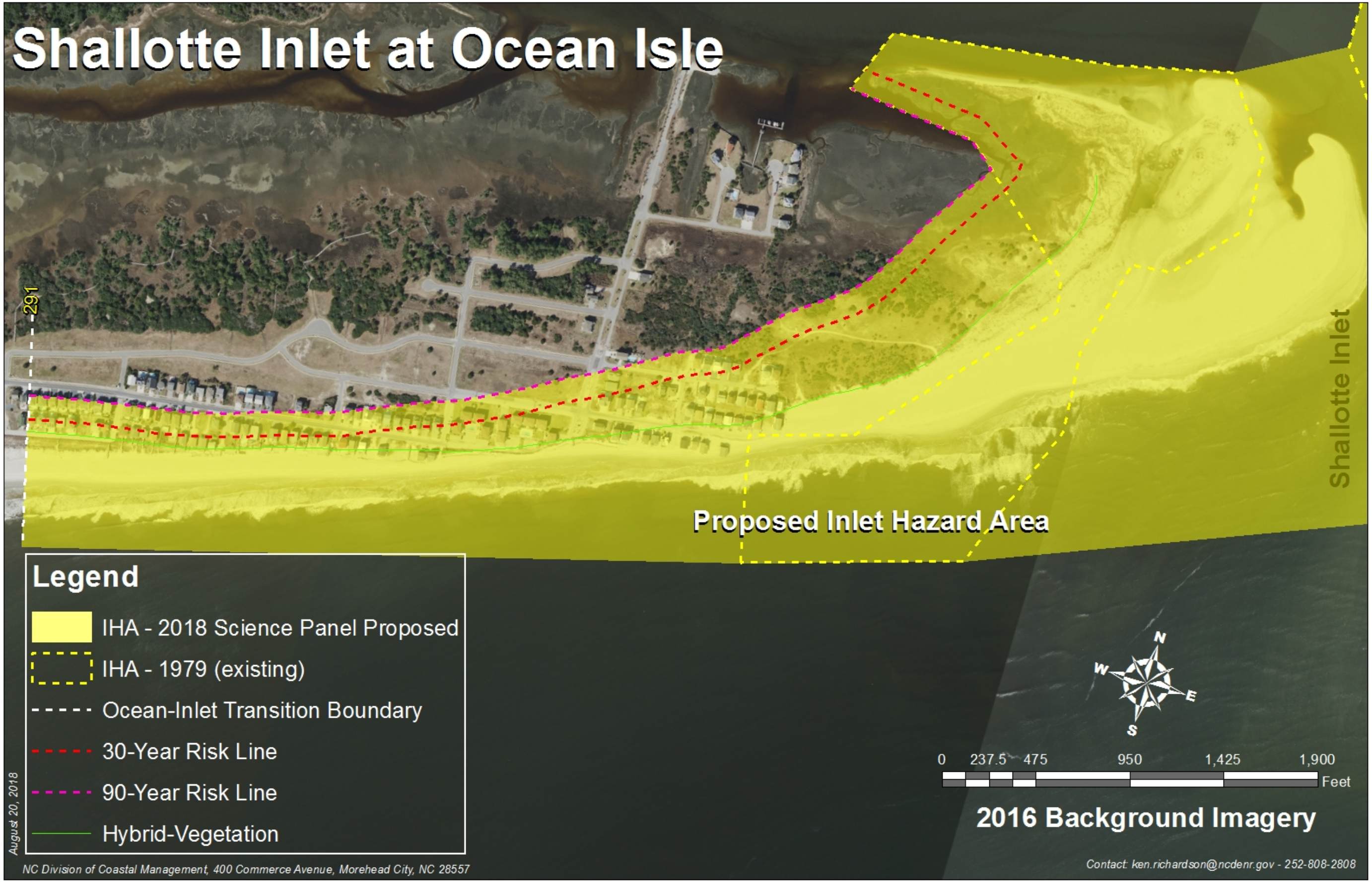


Figure 3. Proposed IHA Boundary Update at Shallotte Inlet - Ocean Isle

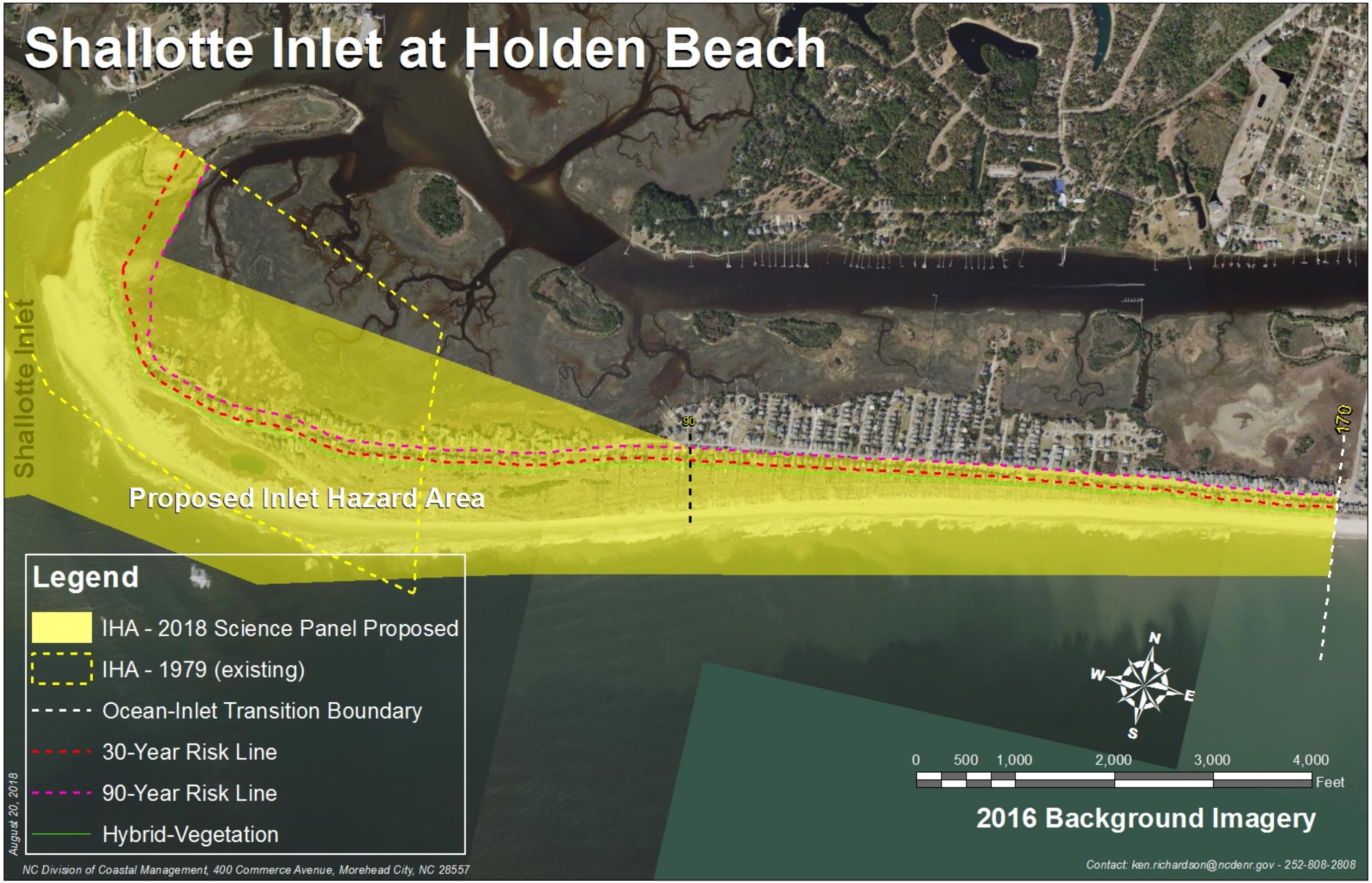


Figure 4. Proposed IHA Boundary Update at Shallotte Inlet - Holden Beach

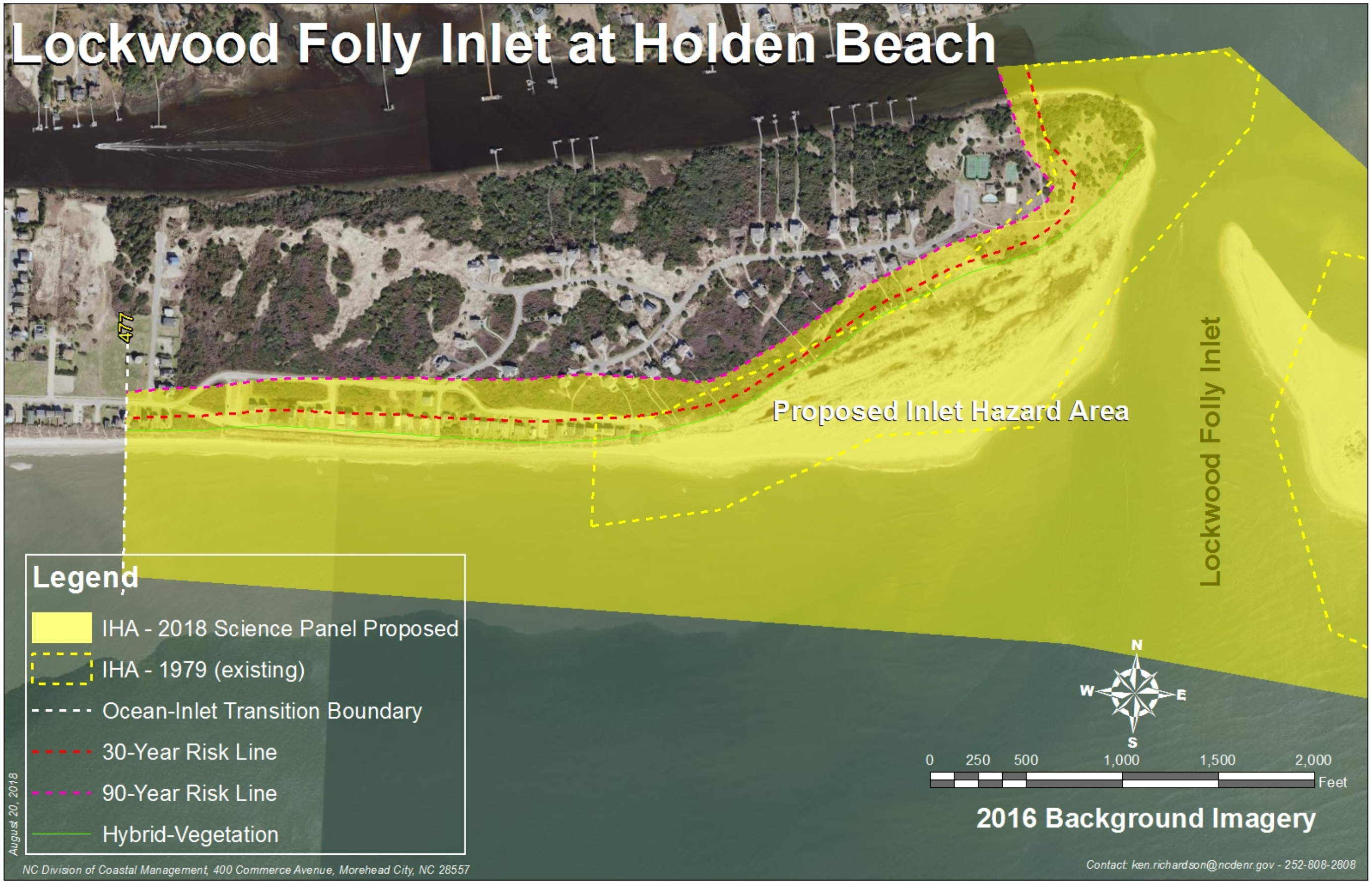


Figure 5. Proposed IHA Boundary Update at Lockwood Folly Inlet - Holden Beach

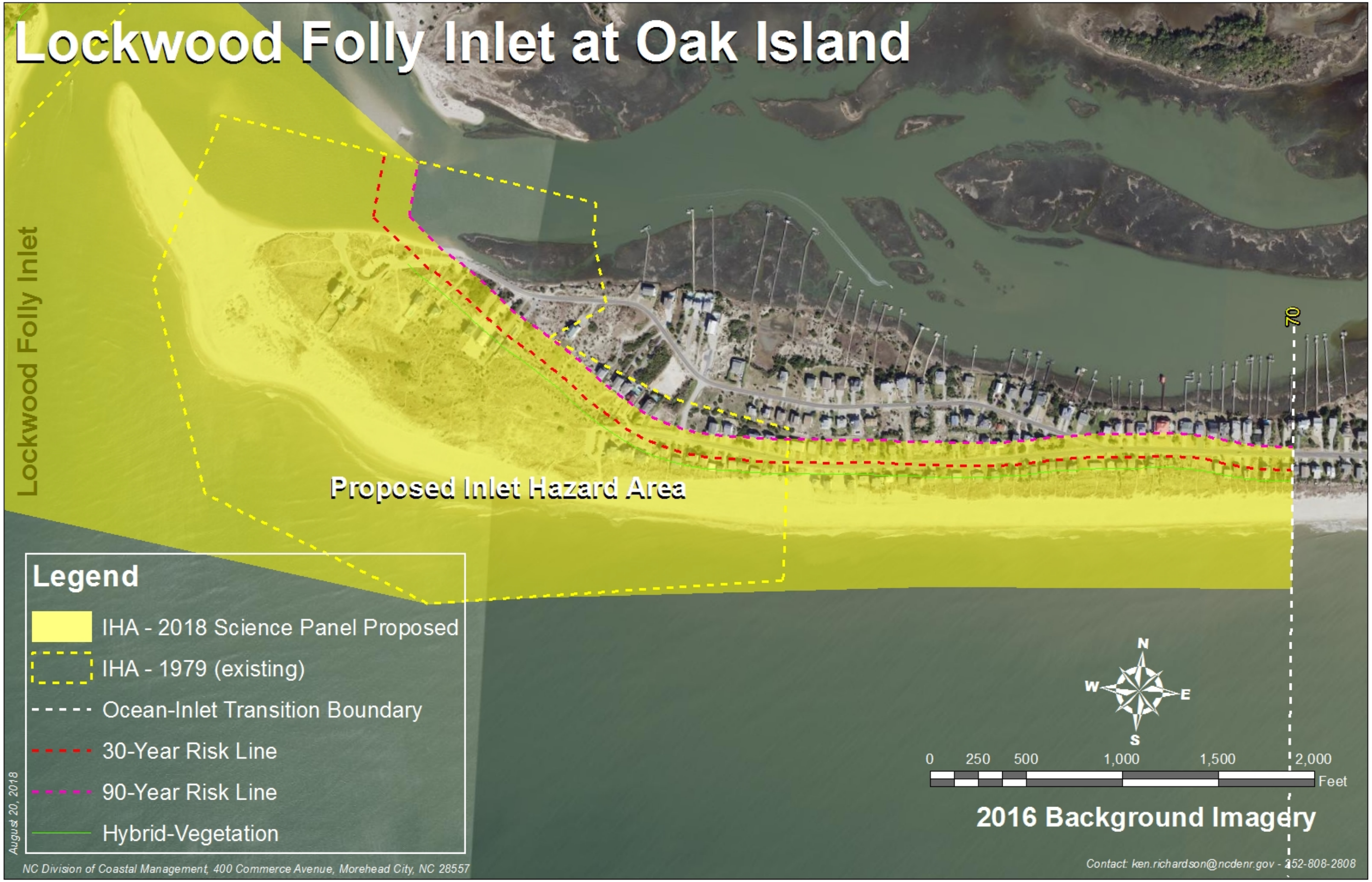


Figure 6. Proposed IHA Boundary Update at Lockwood Folly Inlet - Oak Island

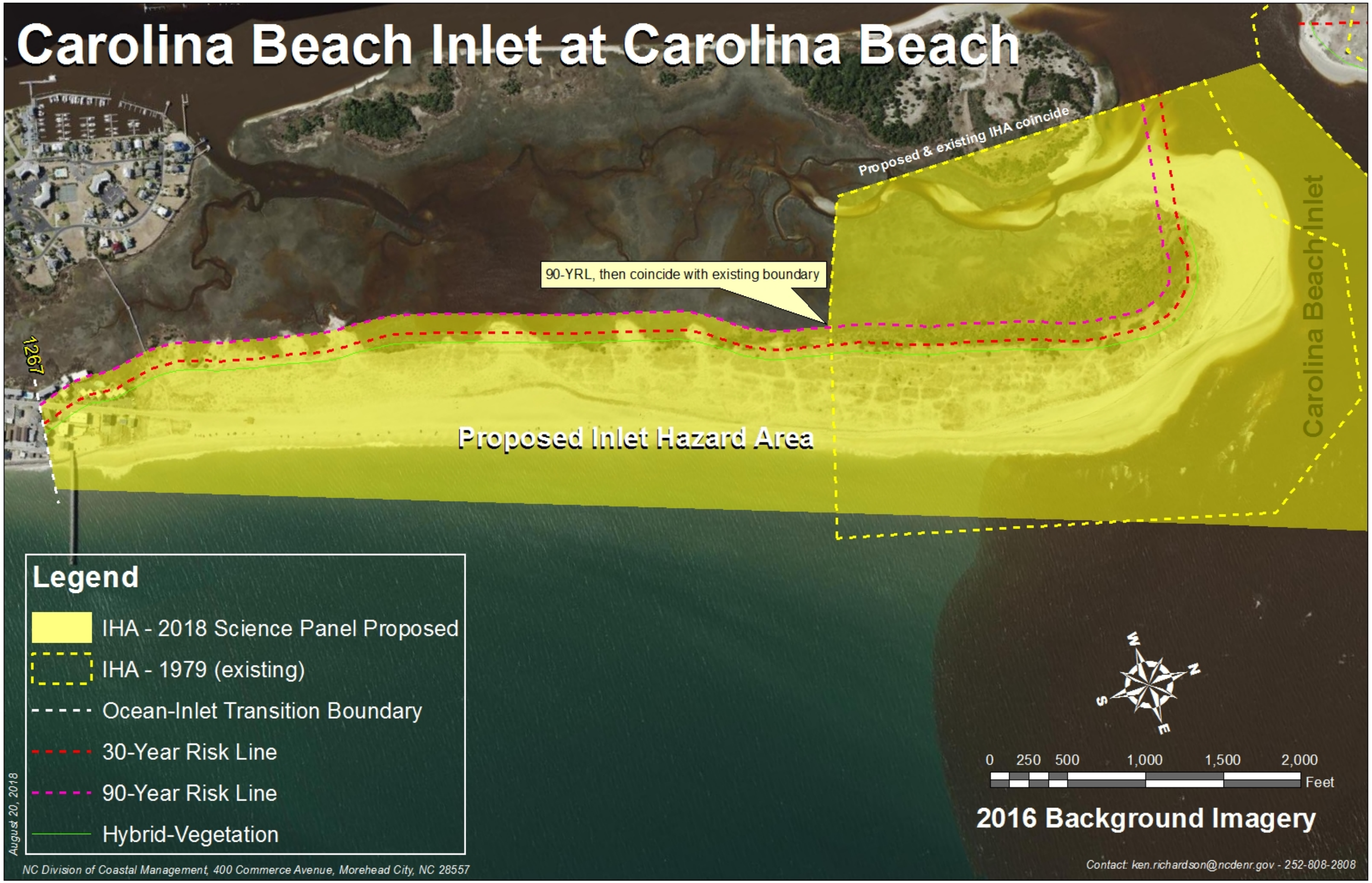


Figure 7. Proposed IHA Boundary Update at Carolina Beach Inlet - Carolina Beach

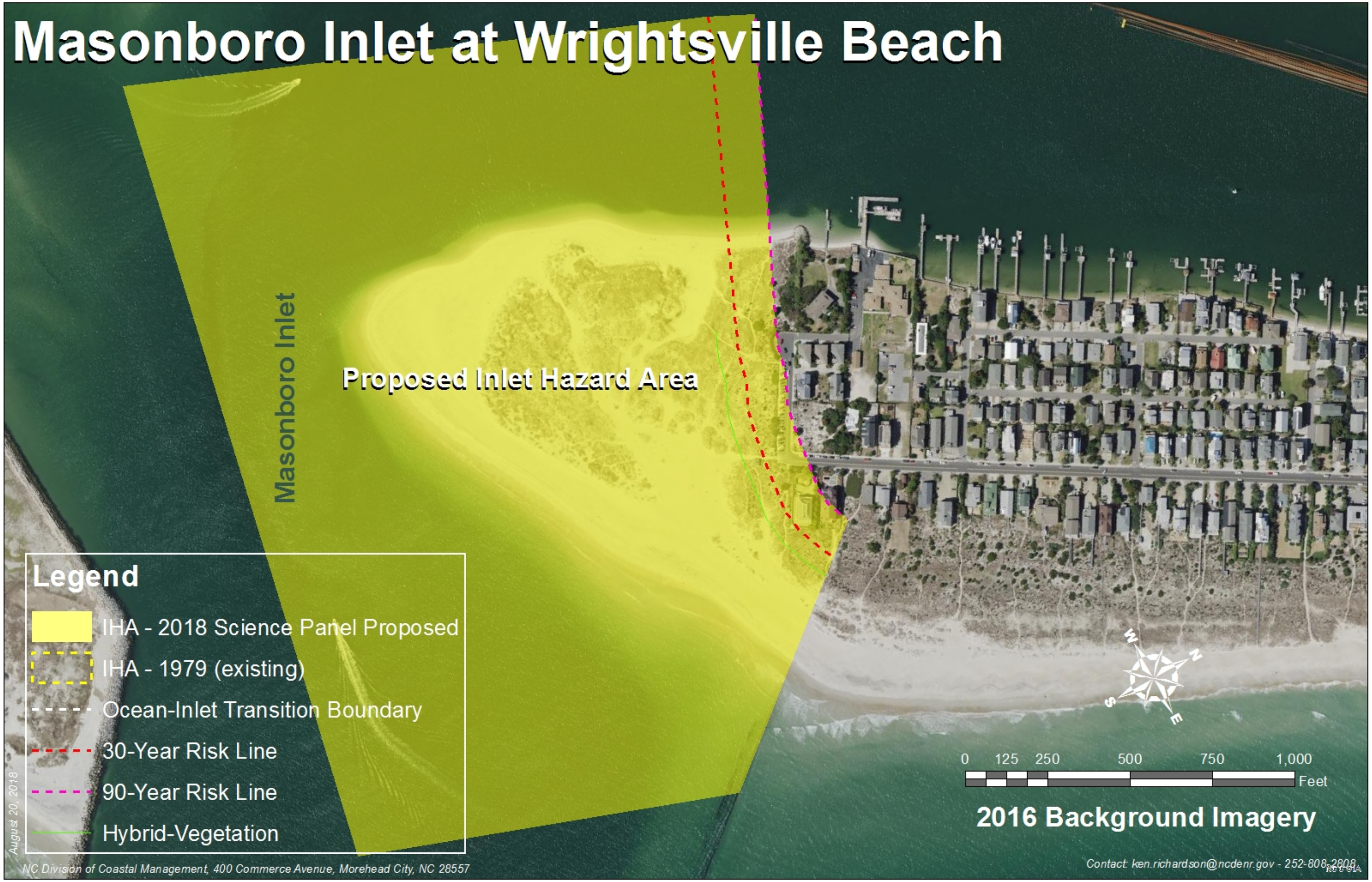


Figure 8. Proposed IHA Boundary Update at Masonboro Inlet - Wrightsville Beach

Figure 9. Proposed IHA Boundary Update at Mason Inlet - Wrightsville Beach

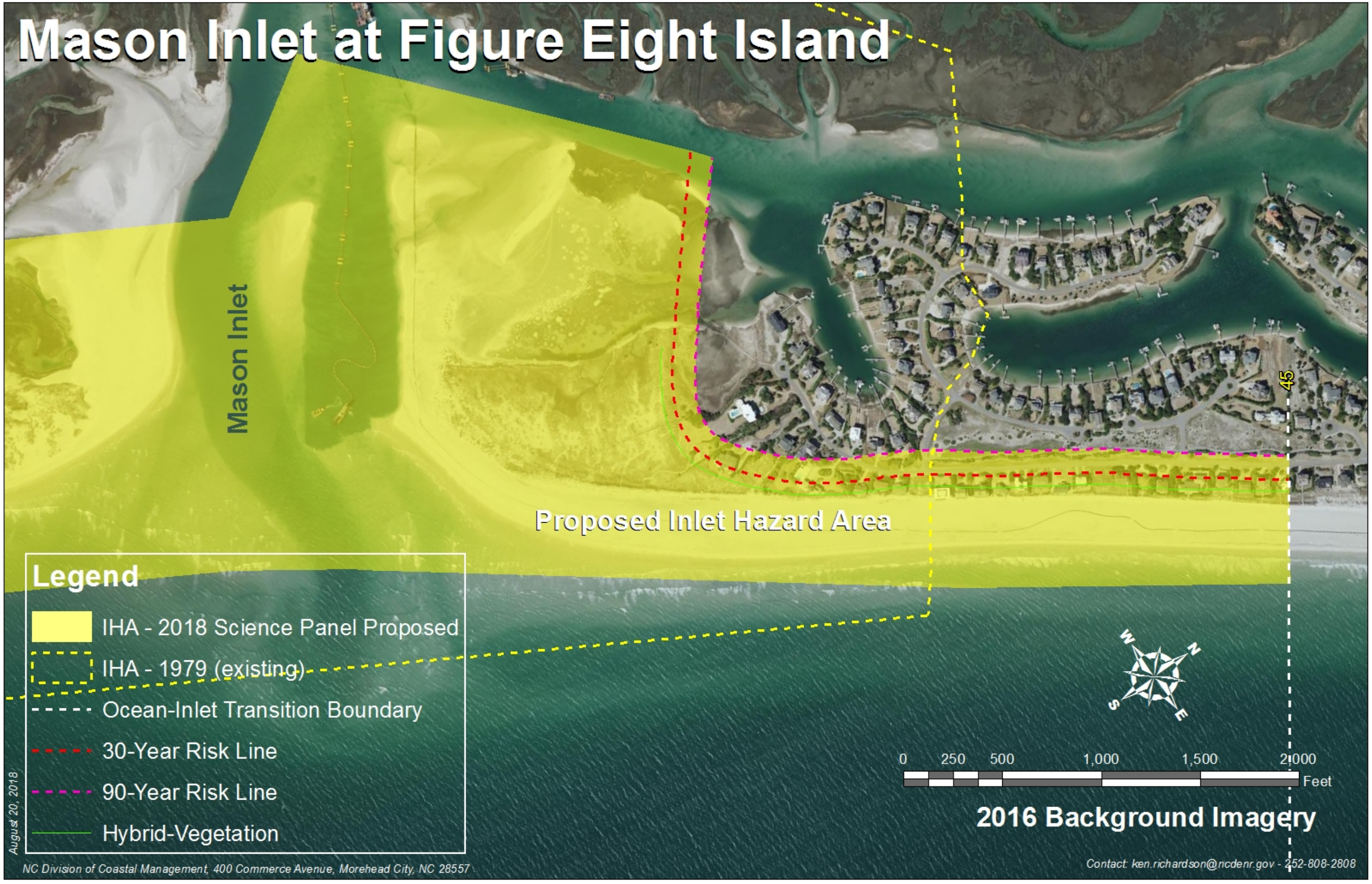


Figure 10. Proposed IHA Boundary Update at Mason Inlet - Figure Eight Island

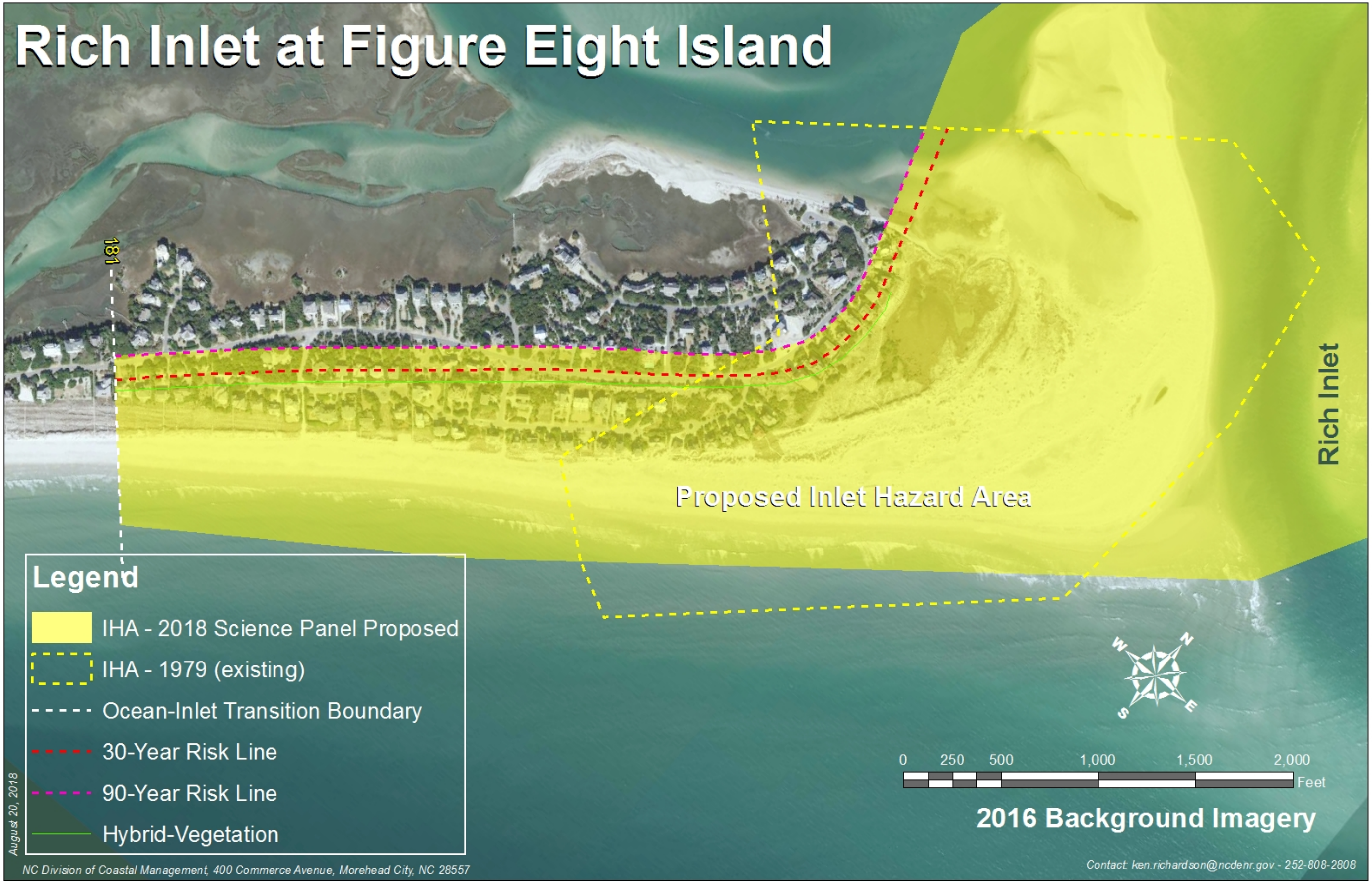


Figure 11. Proposed IHA Boundary Update at Rich Inlet - Figure Eight Island

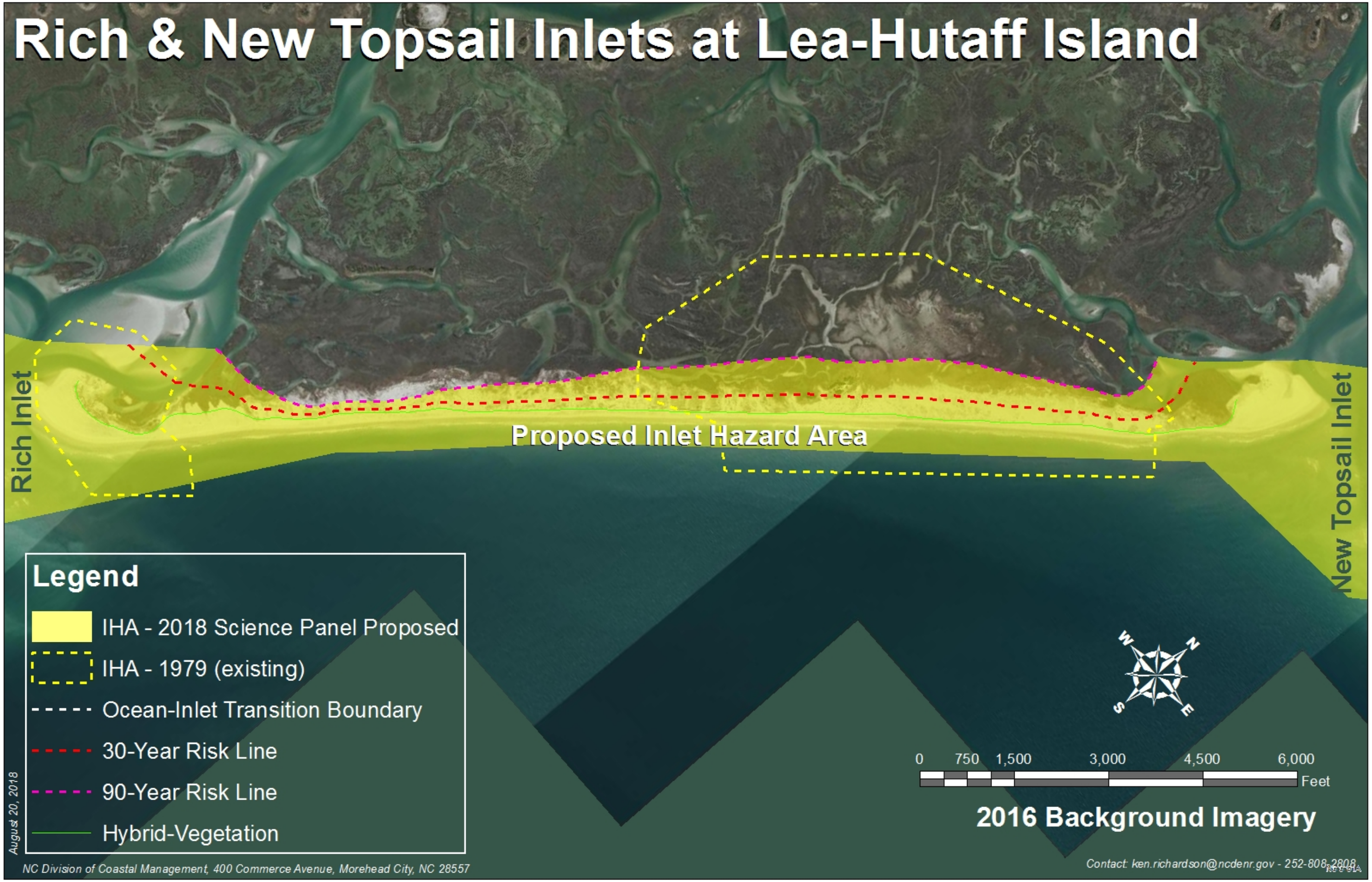


Figure 12. Proposed IHA Boundary Update at Rich & New Topsail Inlets - Lea-Hutaff Island

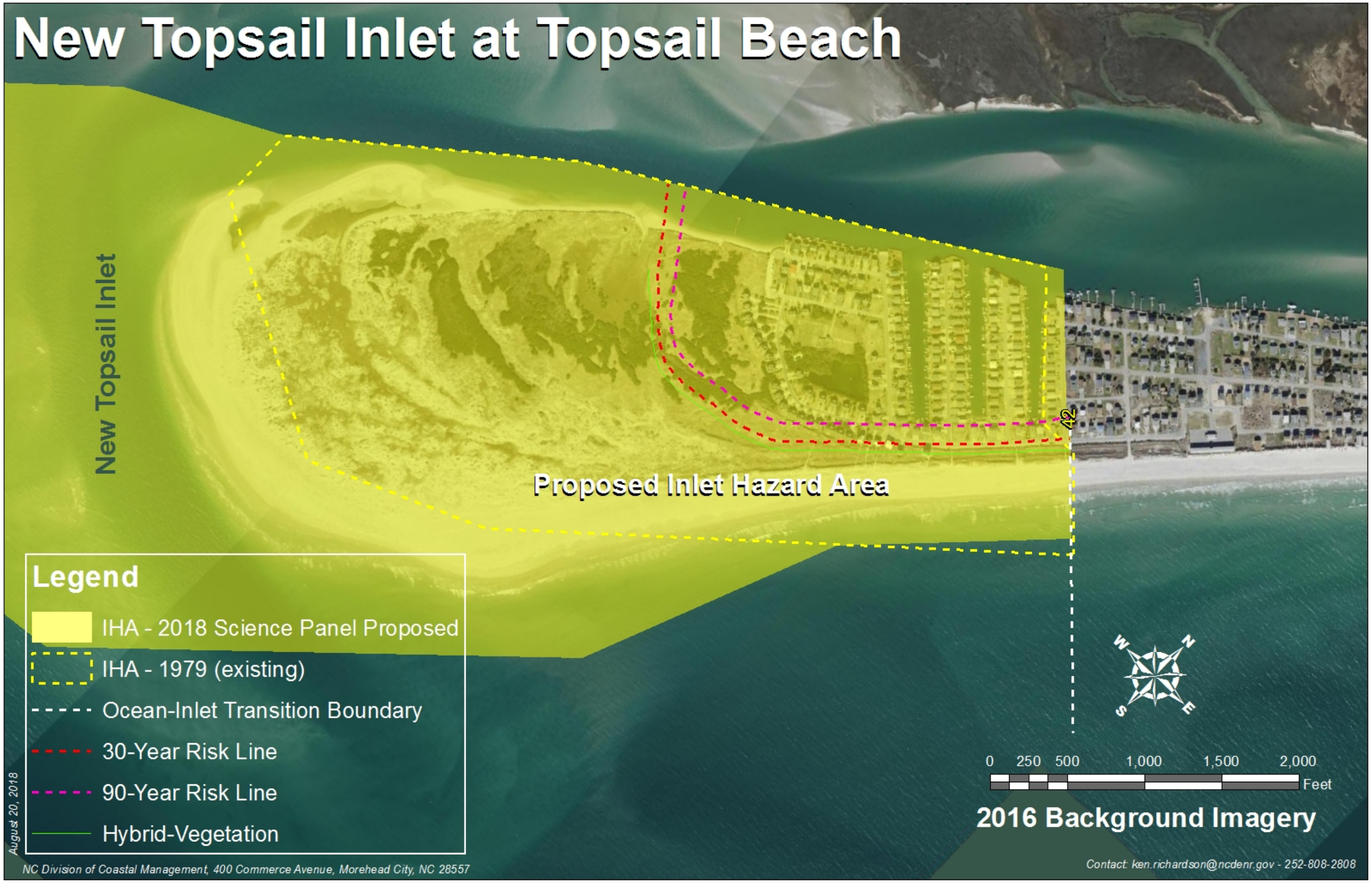
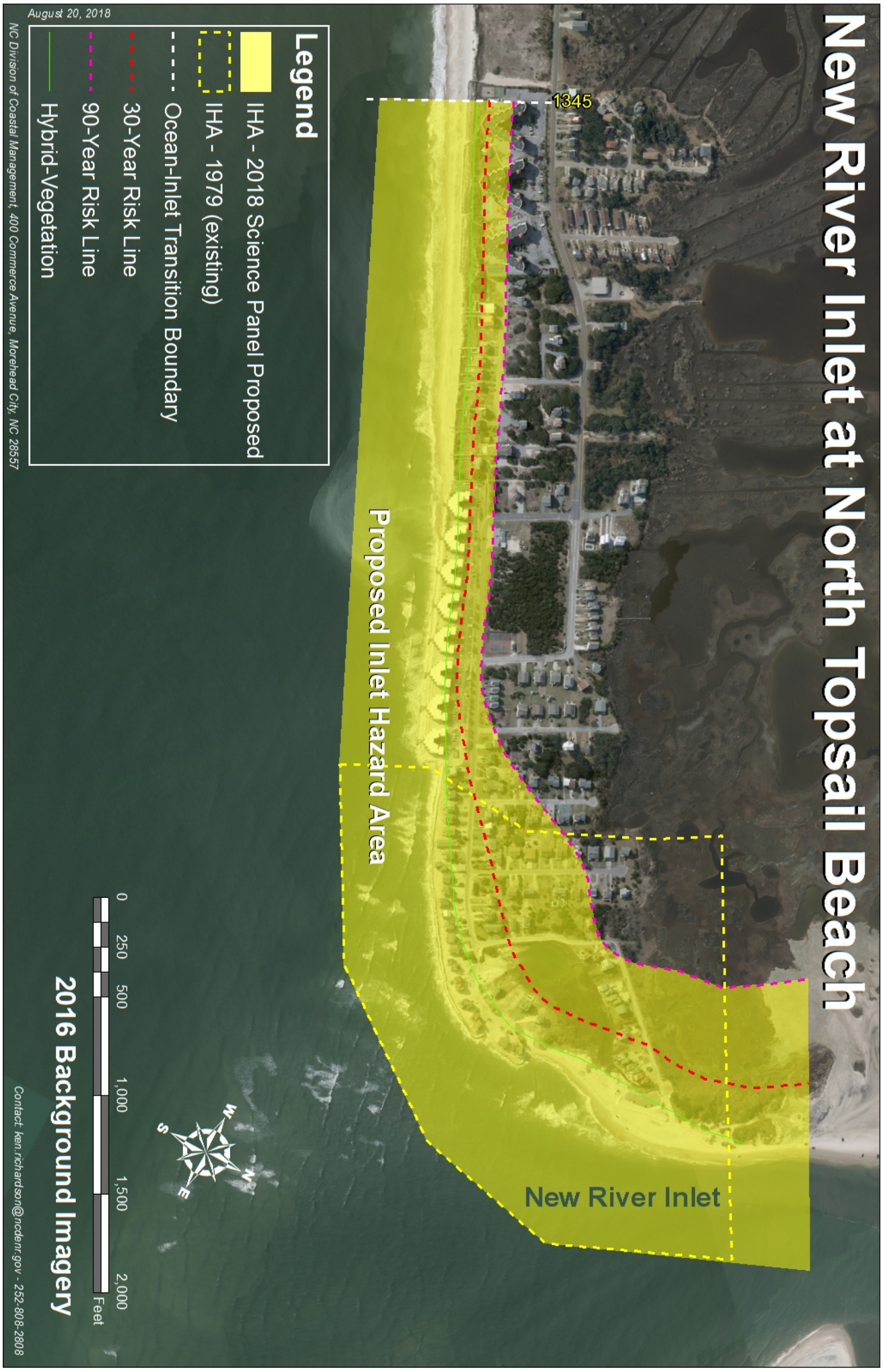


Figure 13. Proposed IHA Boundary Update at New Topsail Inlet - Topsail Beach

Figure 14. Proposed IHA Boundary Update at New River Inlet - North Topsail Beach



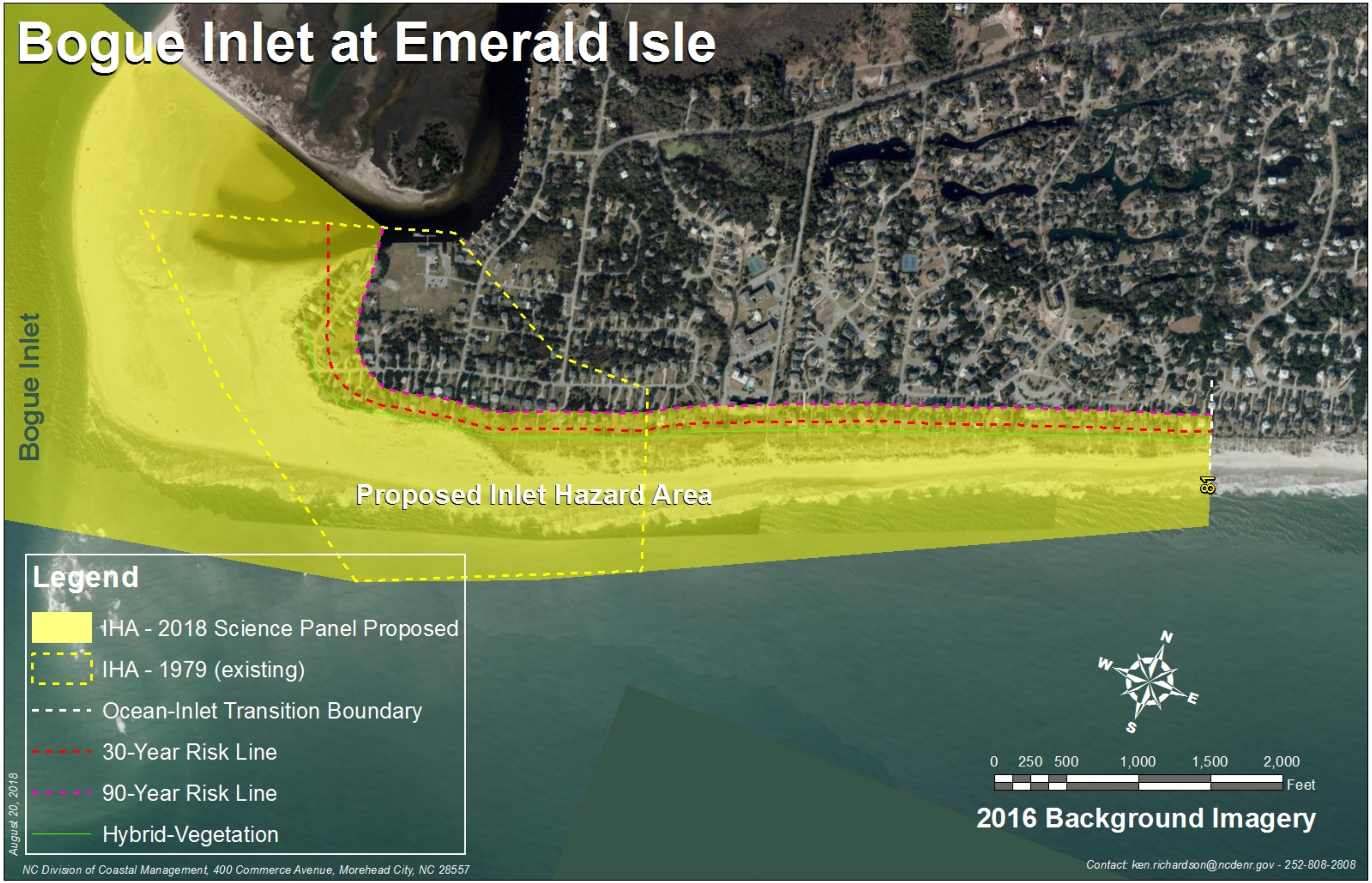


Figure 15. Proposed IHA Boundary Update at Bogue Inlet - Emerald Isle