



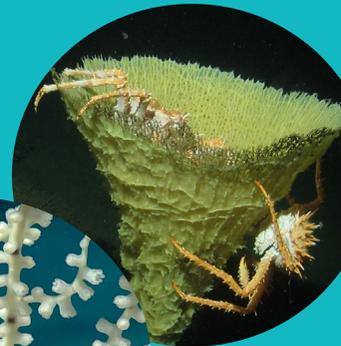
**NOAA
FISHERIES**

History of Deep-Sea Coral Protection in U.S. Waters

Heather Coleman, Tom Hourigan, Renee Eaton –
NOAA Fisheries - Office of Habitat Conservation

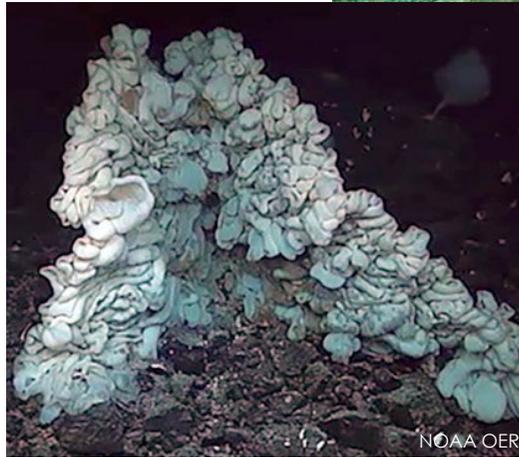
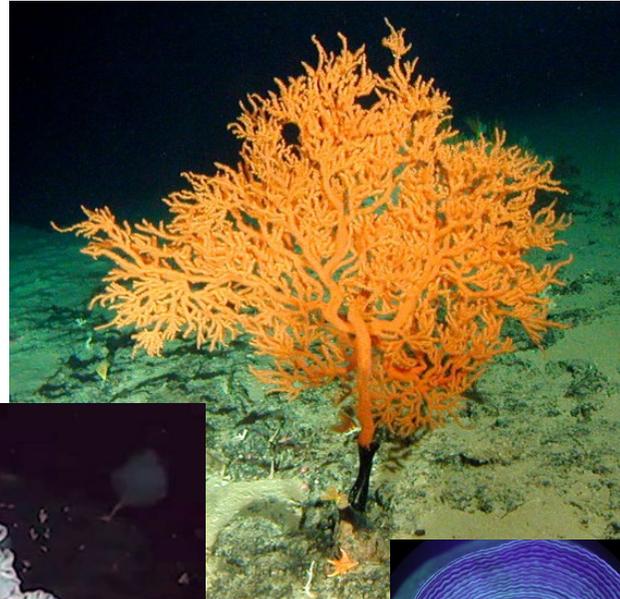
Robert McGuinn and Matt Dornback –
NOAA National Centers for Environmental Information

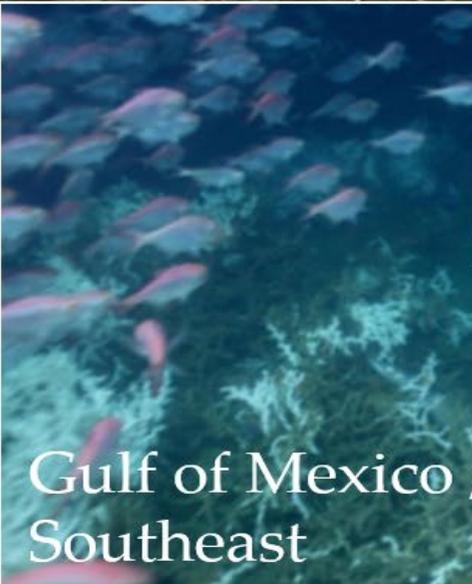
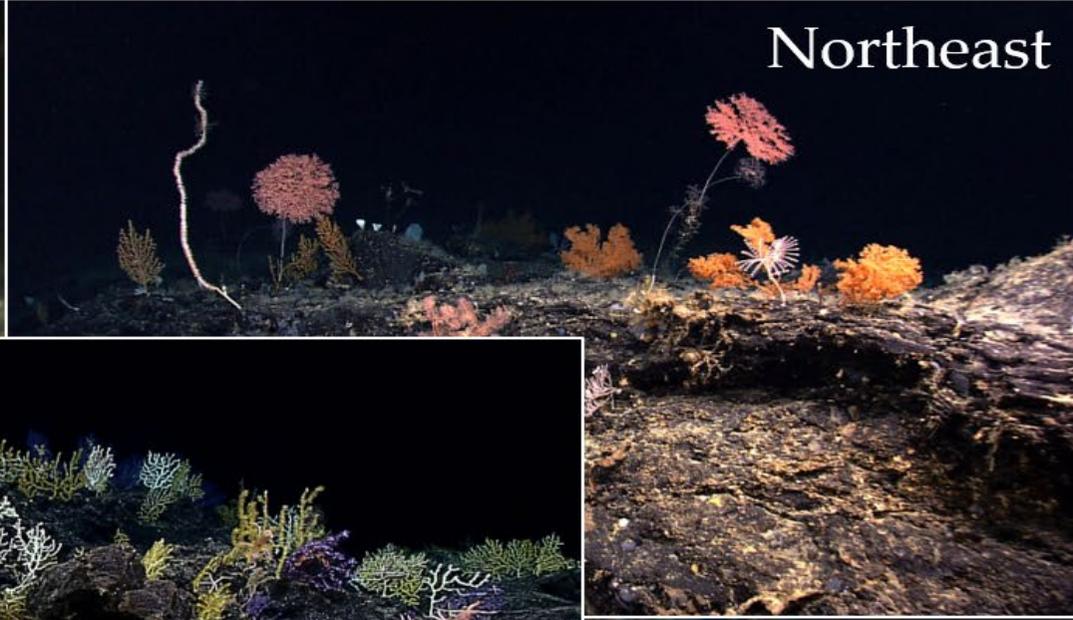
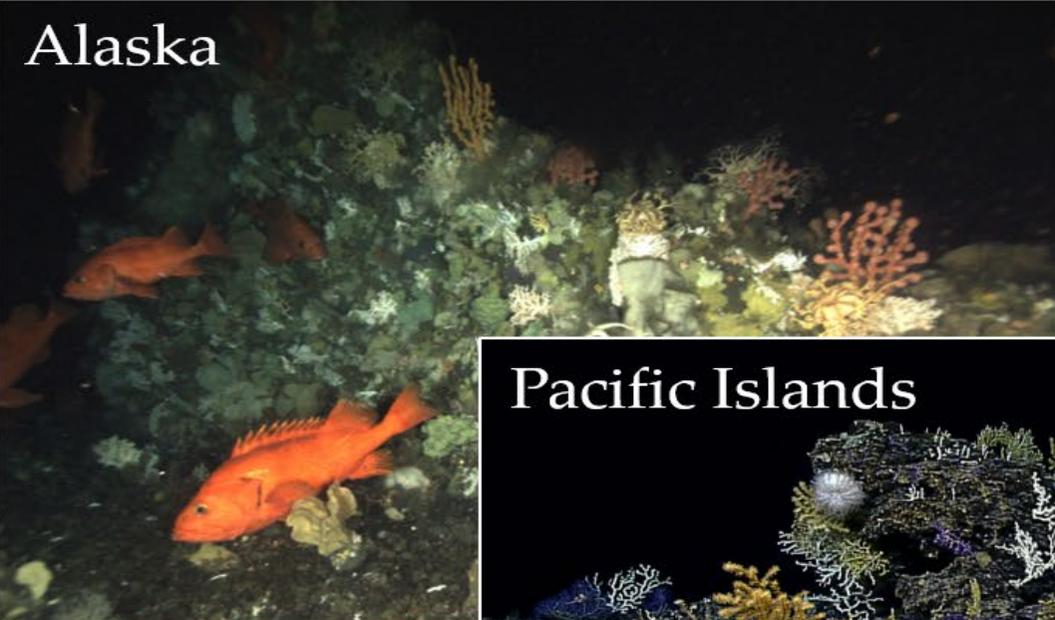
Deep Sea Coral Research and Technology Program



Deep-Sea Corals and Sponges

- Over 3,000 species
- Stony and soft types
- Temp range 1-12° C
- Grow ~4-25 mm/yr
- Biggest sponge ≈ a minivan
- Oldest > 4000 years
- Deepest > 20,000 ft
- Provide habitat and many other ecosystem services







Alaska



Northeast



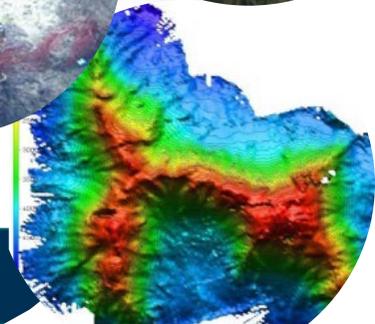
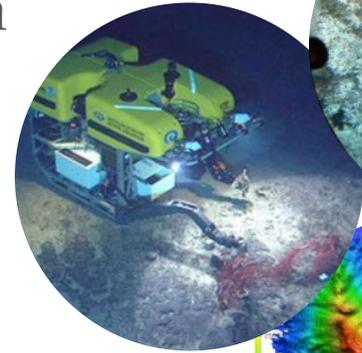
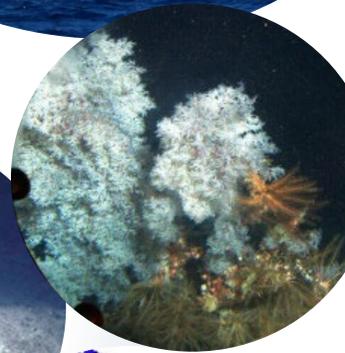
Gulf of Mexico / Southeast



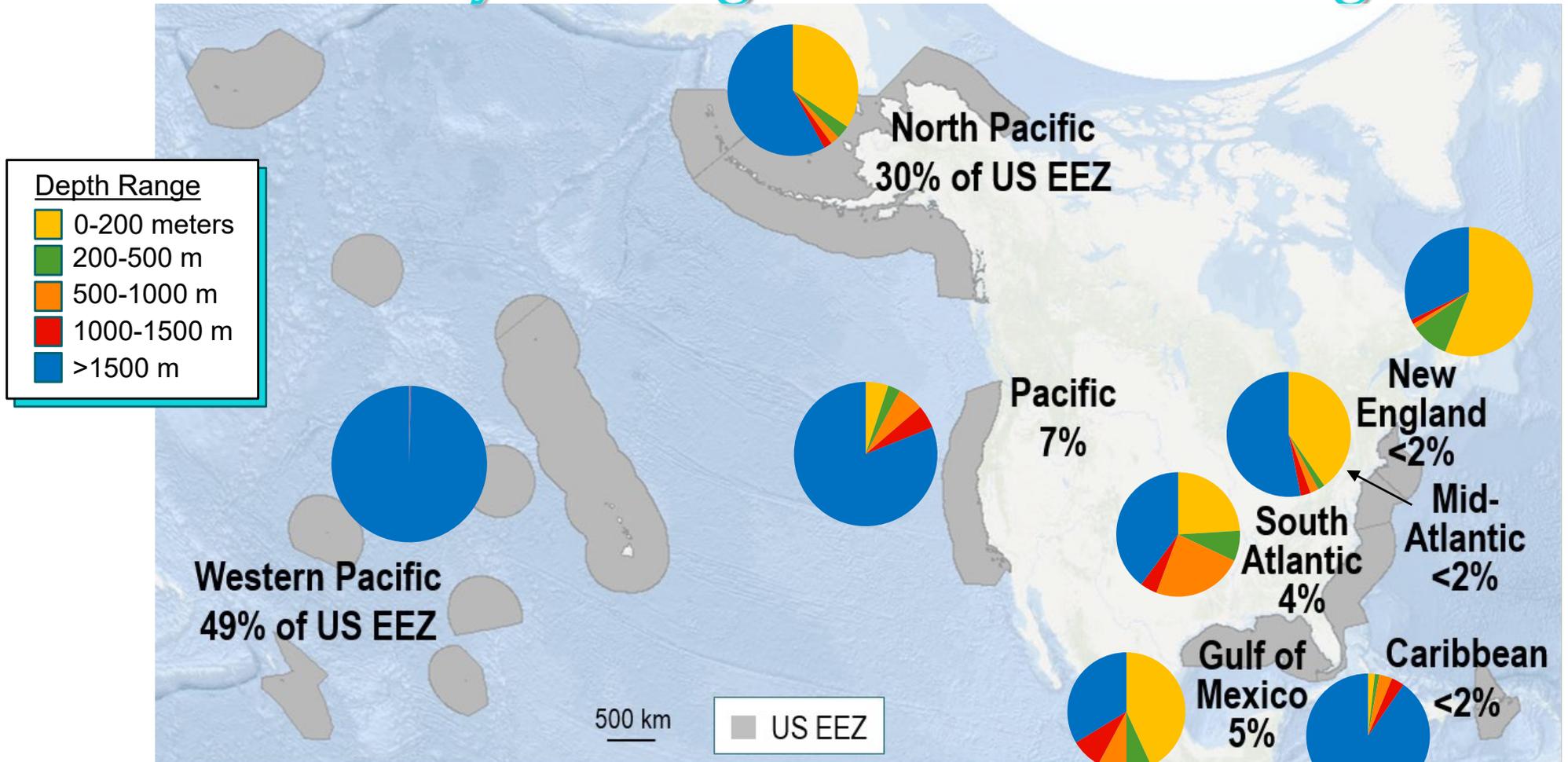
West Coast

Deep-Sea Coral Research & Technology Program

- Established following 2007 Magnuson-Stevens Fishery Conservation & Management Act reauthorization
- Spatially explicit research, exploration, analysis
- Addresses fishing and other threats to deep-sea corals and sponges with the NOAA Deep-Sea Coral Data Portal and interactive map
- Integrates expertise & resources across NOAA



U.S. Fishery Management Council Regions



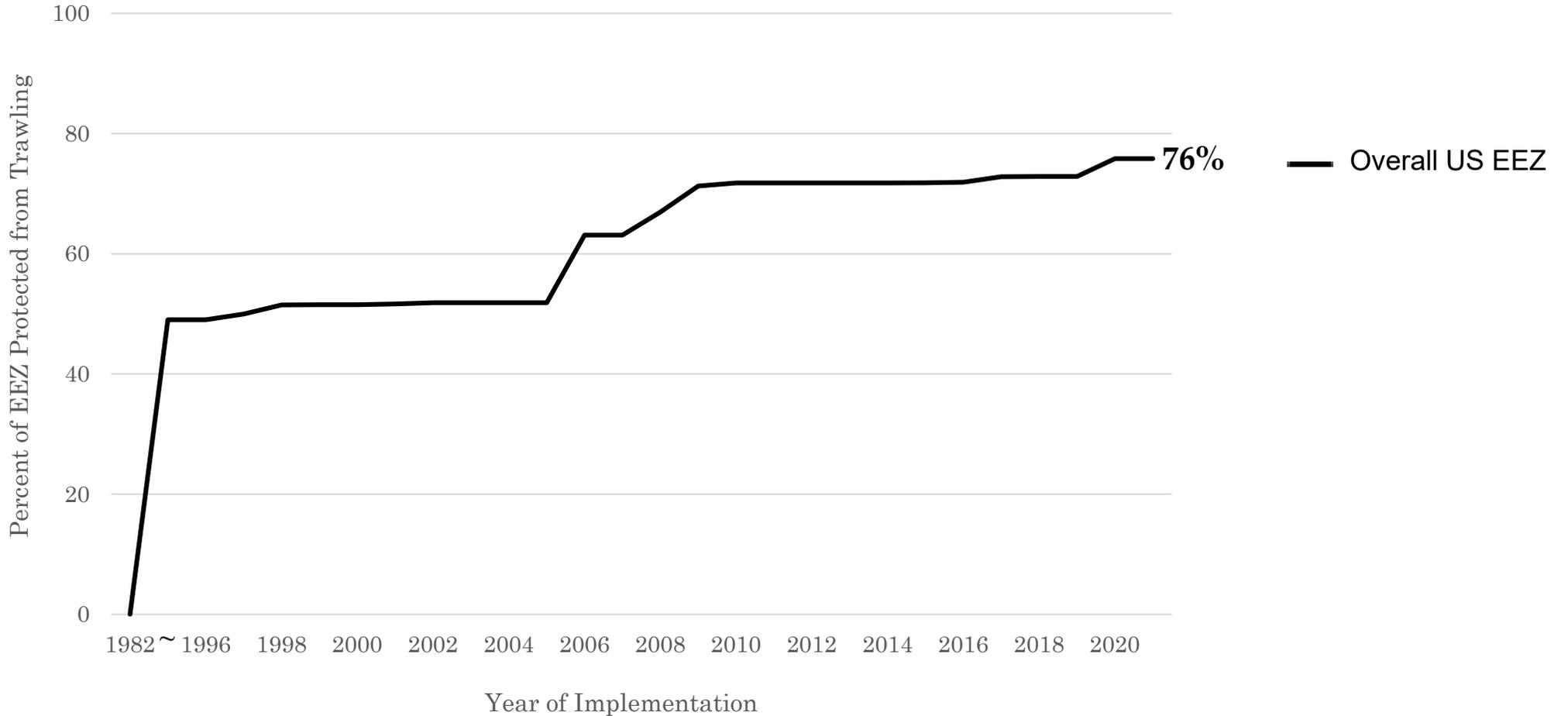
U.S. DSC Protection Mechanisms

- Fishery Management Plan (FMP)
 - 4/8 of the U.S. regional fishery management councils have coral-related FMPs
- Essential Fish Habitat (EFH)
 - FMPs must describe EFH, minimize adverse effects, identify conservation actions
 - Can establish Habitat Areas of Particular Concern (HAPC)
- Bycatch Provision (MSA National Standard 9)
 - Fisheries are required to minimize bycatch, including deep-sea corals & sponges
- Deep-Sea Coral Discretionary Authority
 - Councils can protect corals for their own sake from fishing activities

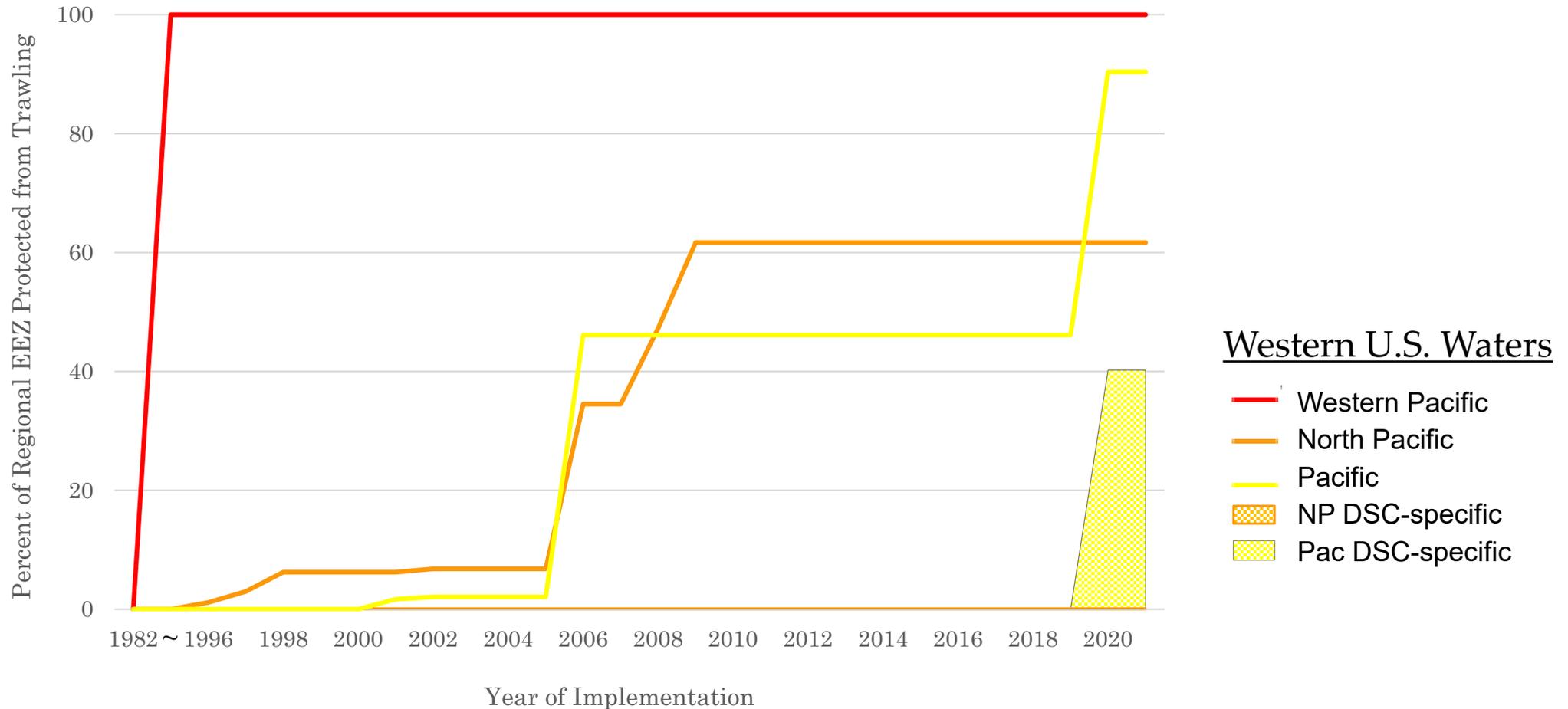


NOAA
FISHERIES

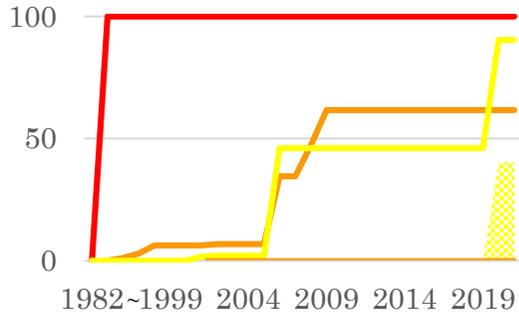
How Much of the U.S. Seafloor is Protected from Trawling?



How Much of the U.S. Seafloor is Protected from Trawling?

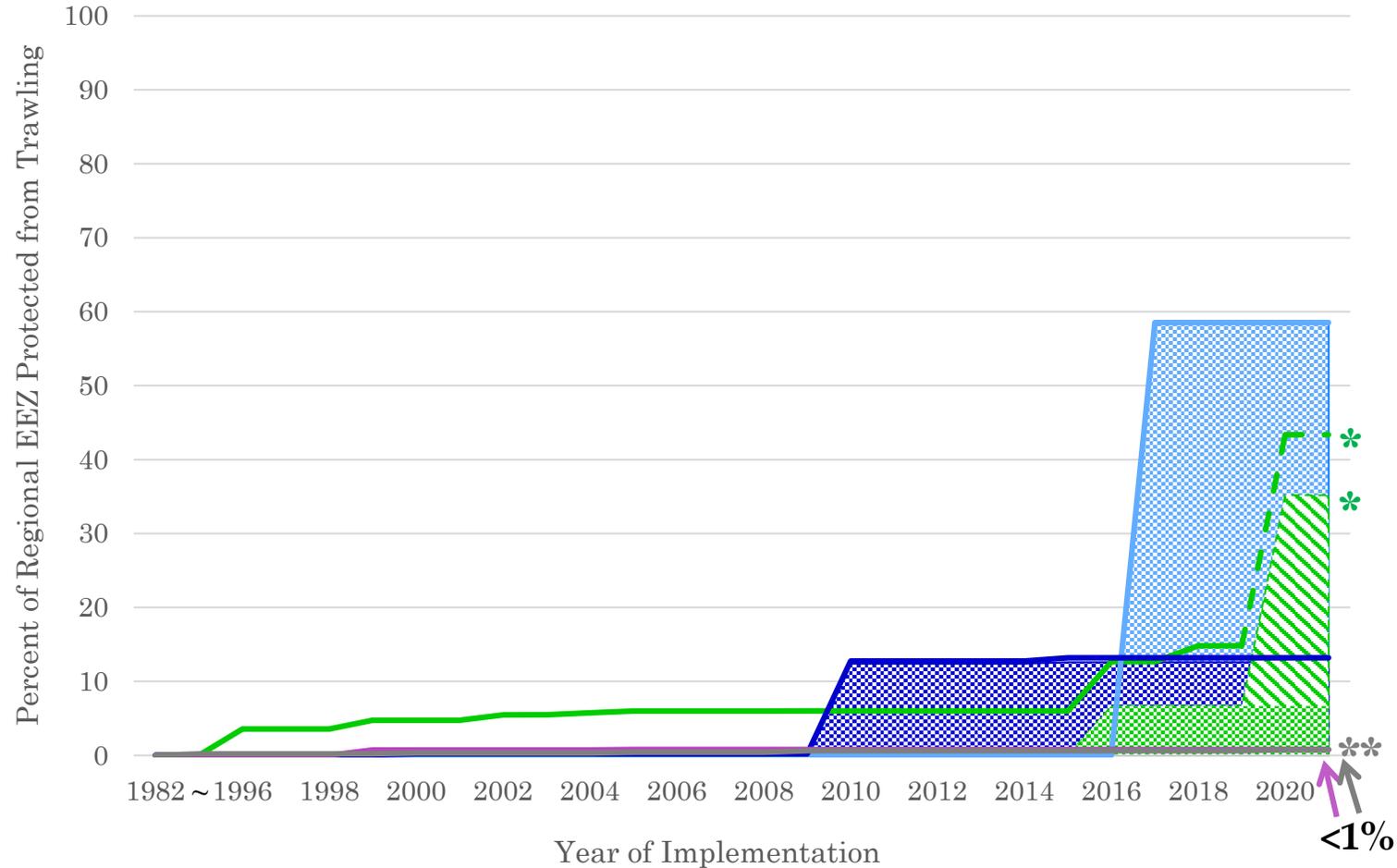


How Much of the U.S. Seafloor is Protected from Trawling?

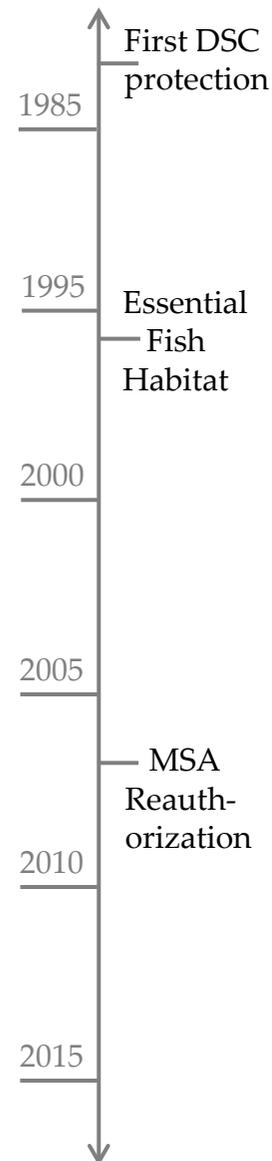
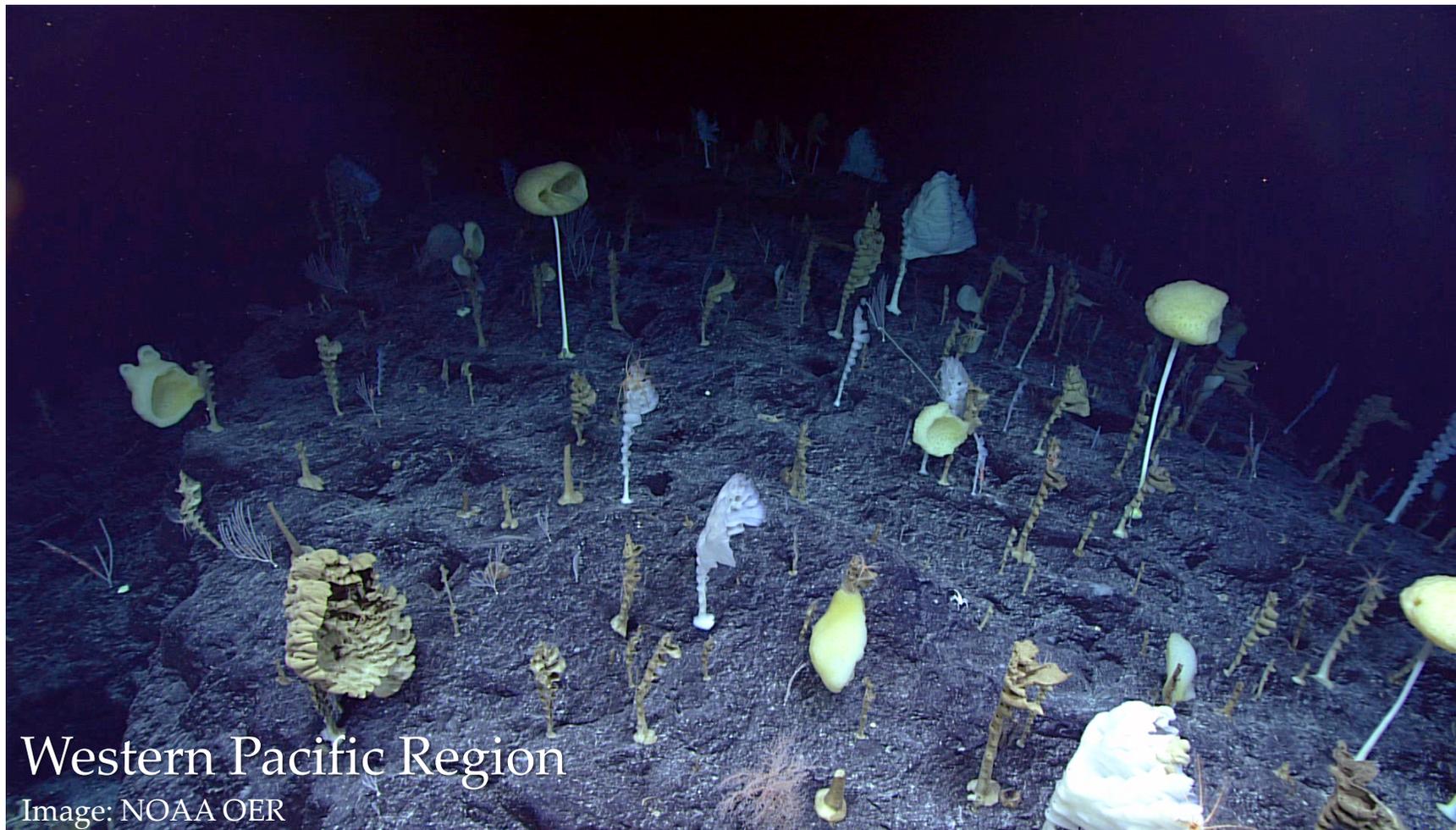


Eastern U.S. Waters

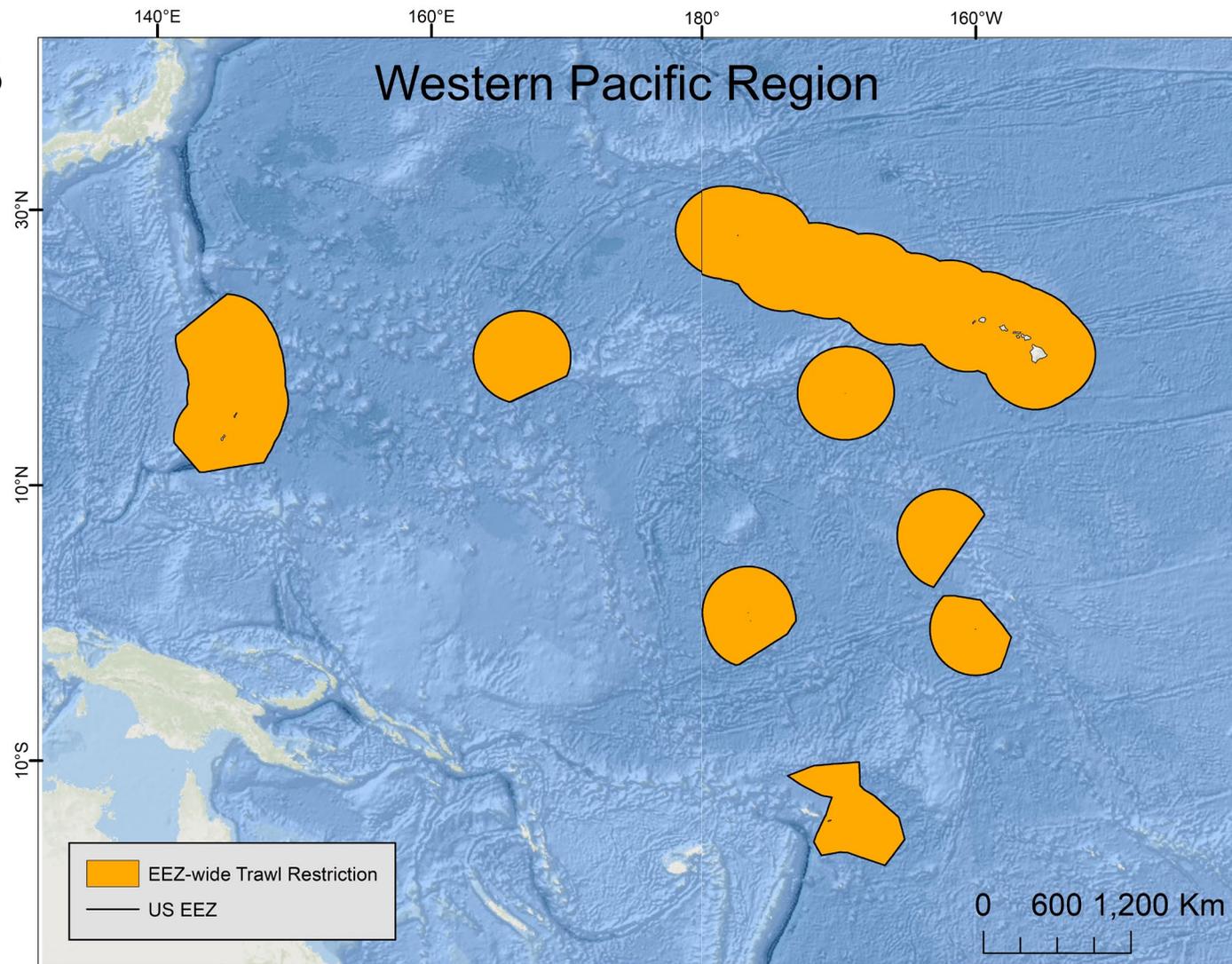
- New England *
- Mid-Atlantic
- South Atlantic
- Caribbean
- Gulf of Mexico **
- ▨ NE DSC-specific *
- ▨ MA DSC-specific
- ▨ SA DSC-specific
- ▨ GM DSC-specific **



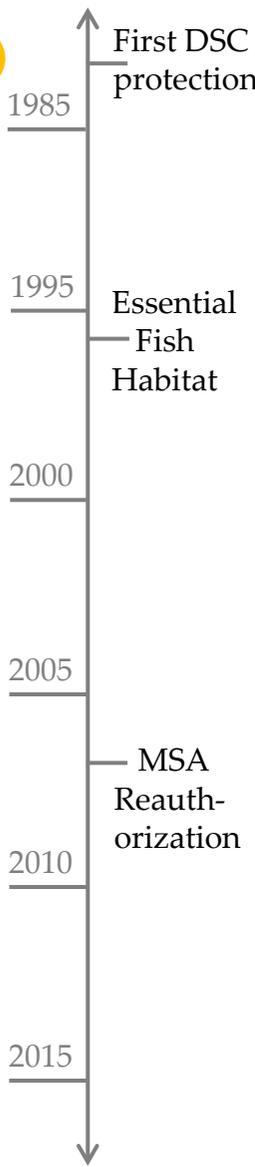
How is the Seafloor Protected?



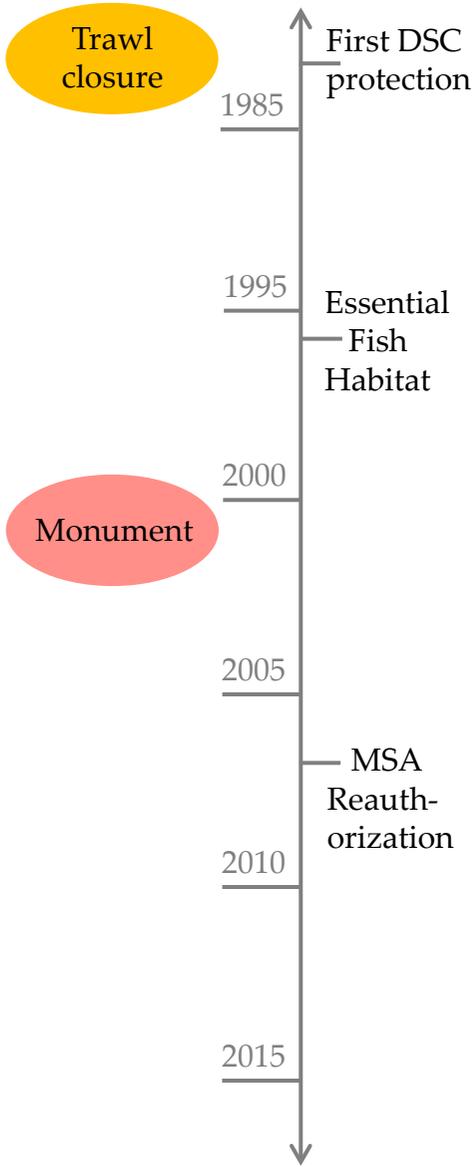
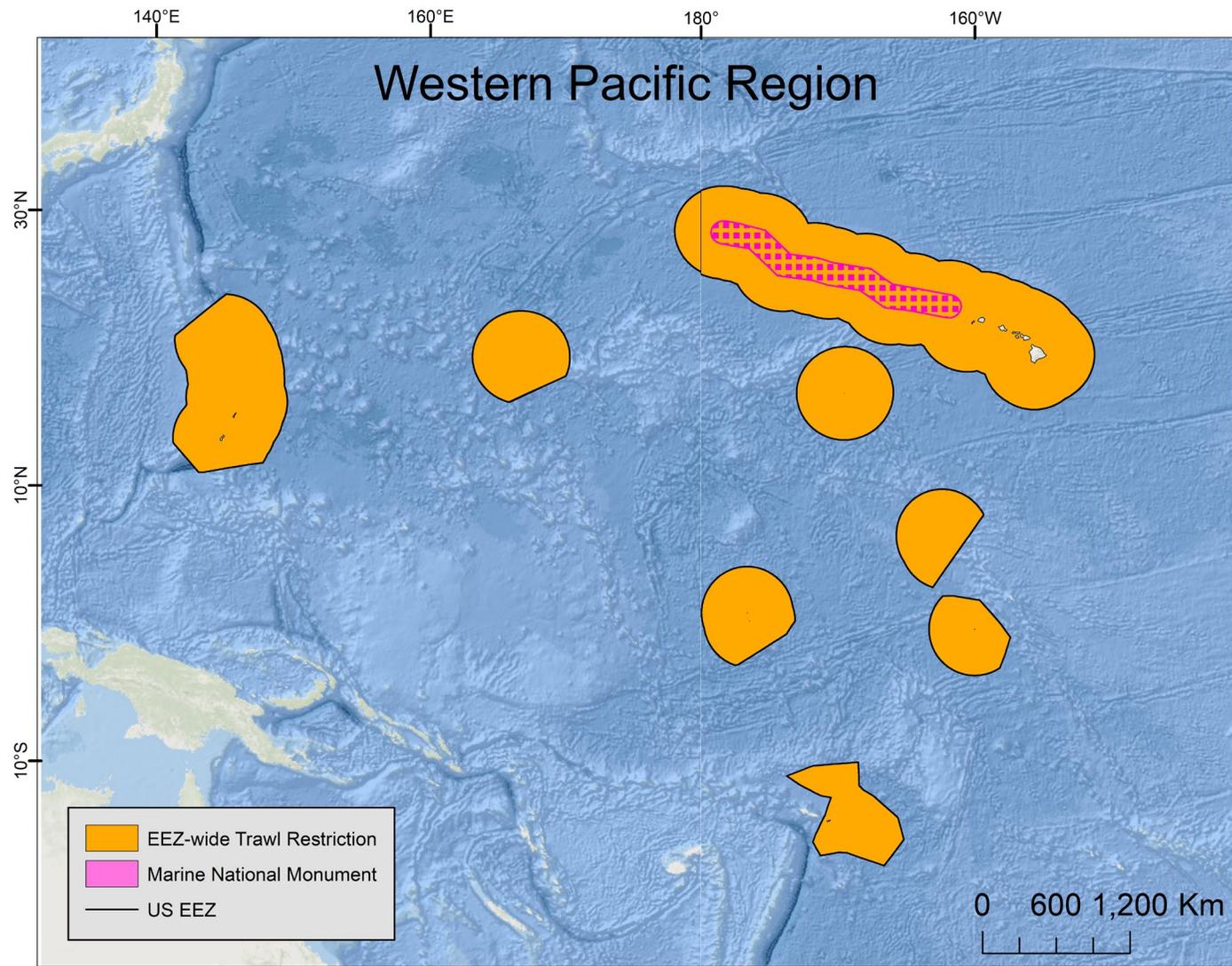
1983



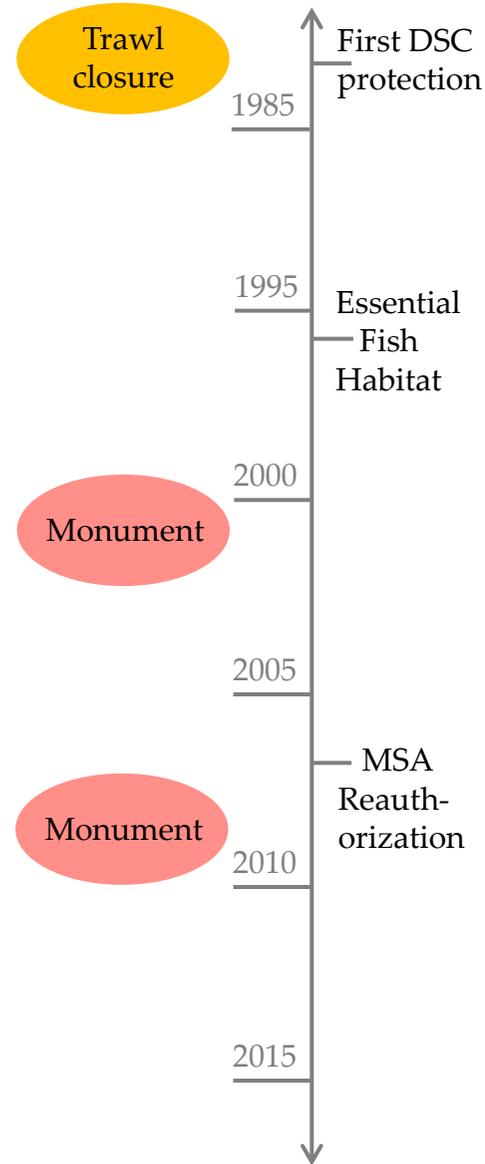
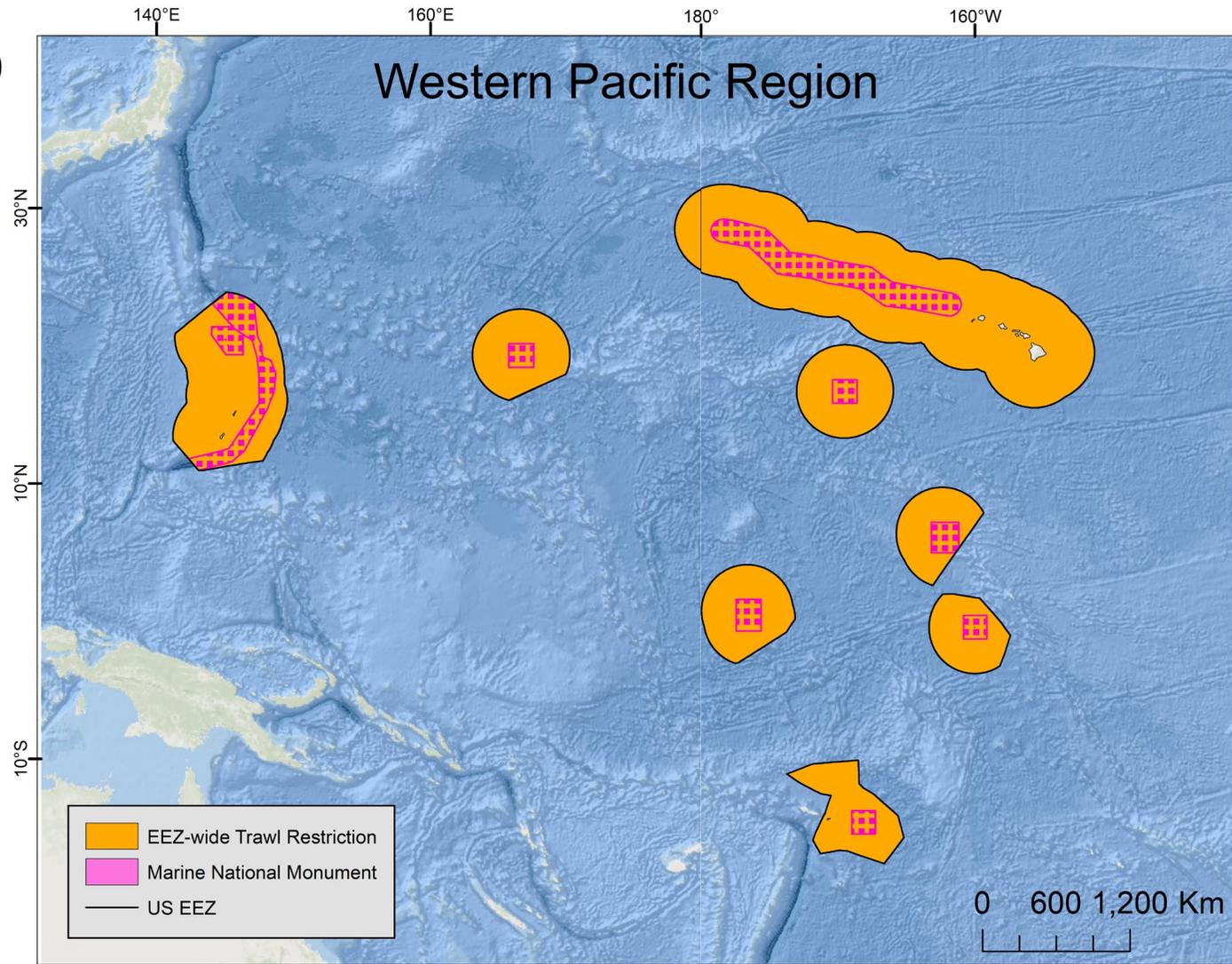
Trawl closure



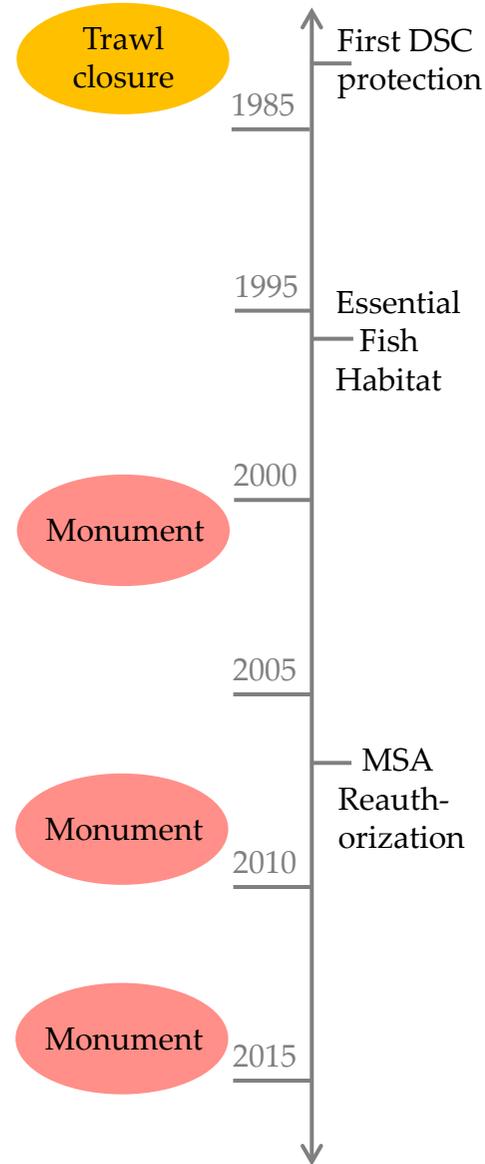
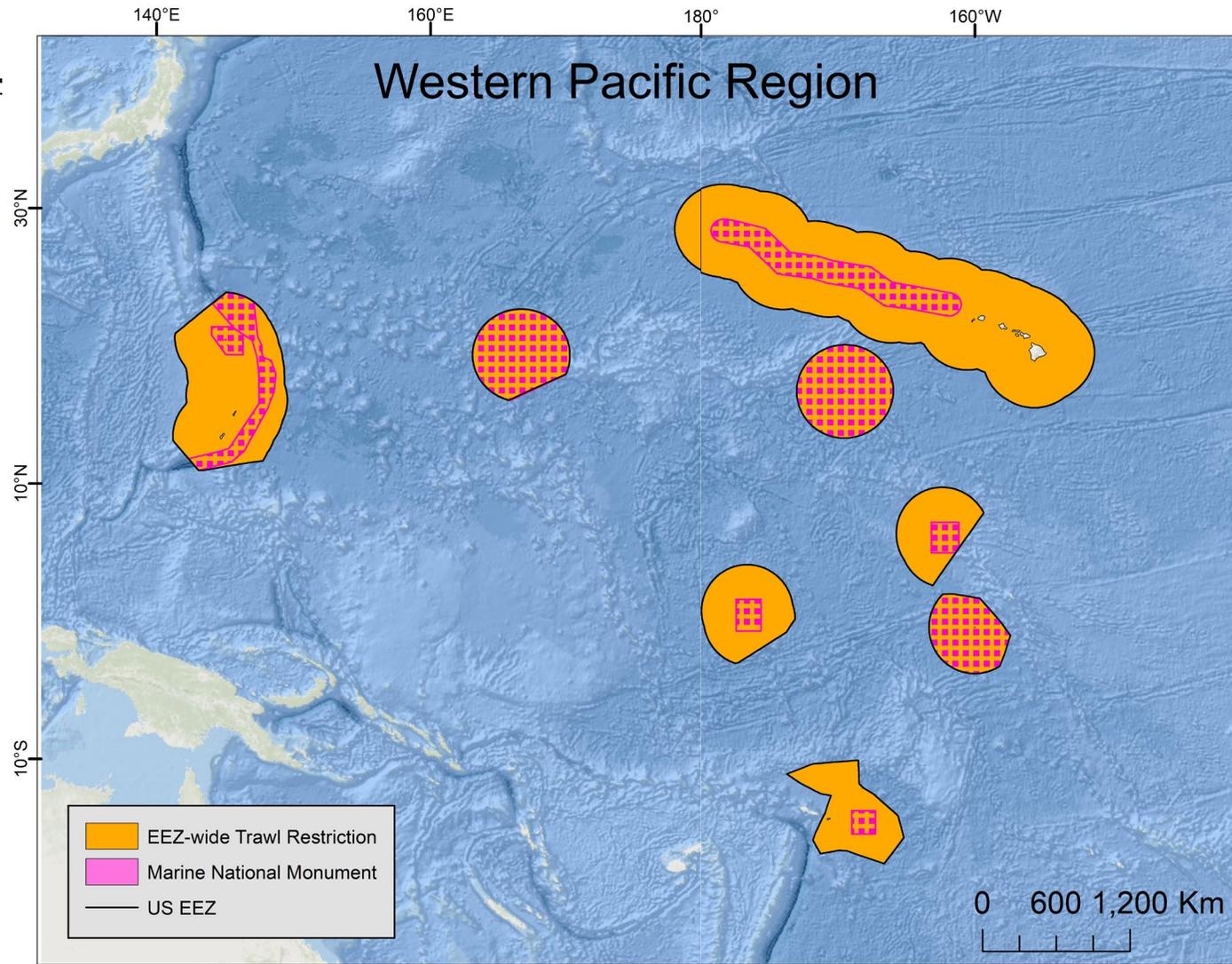
2001



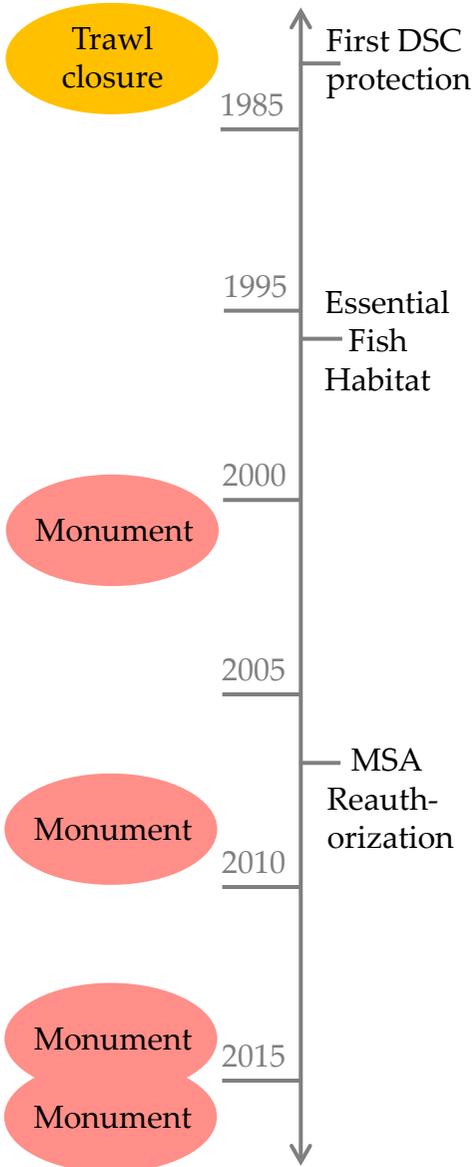
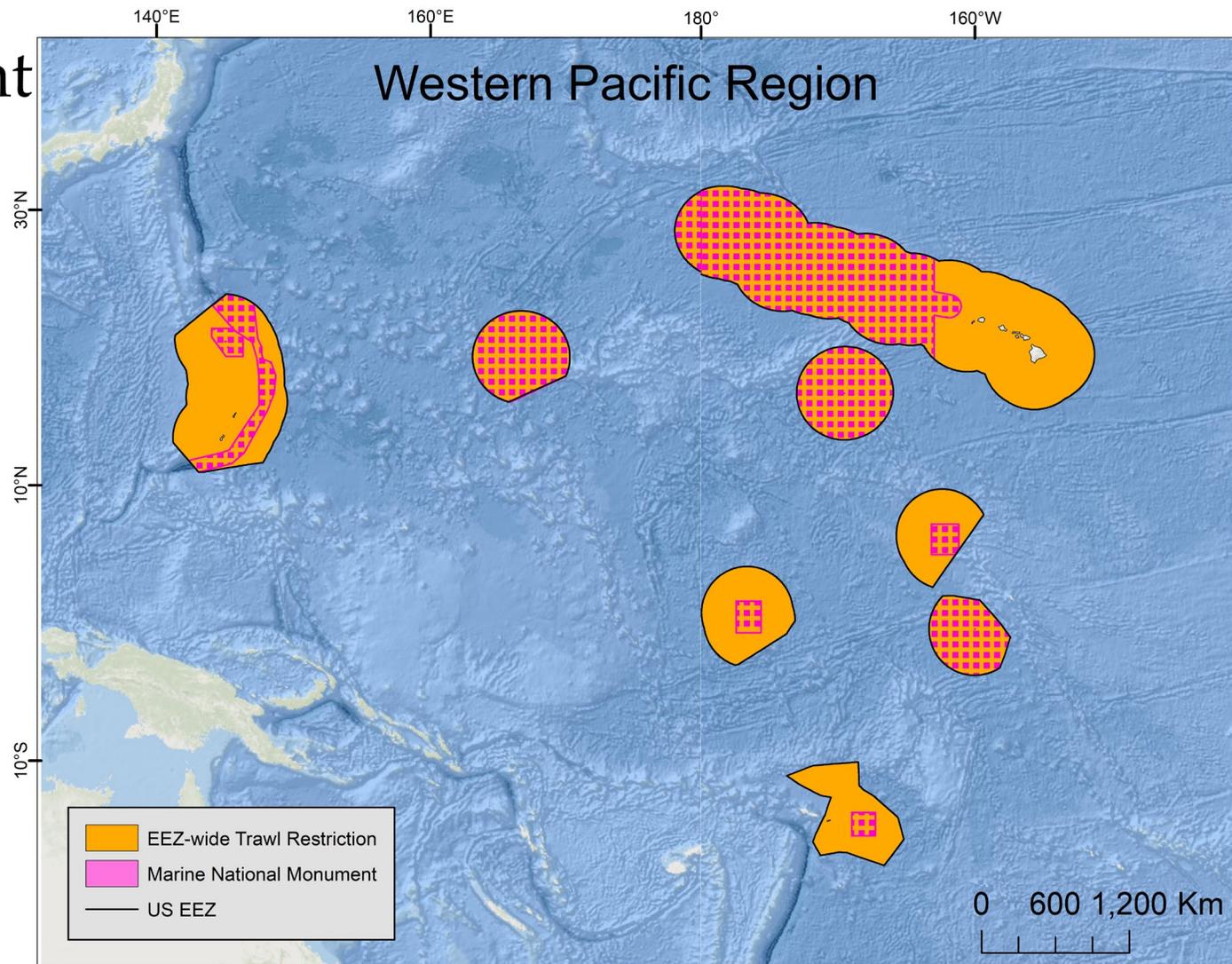
2009



2014

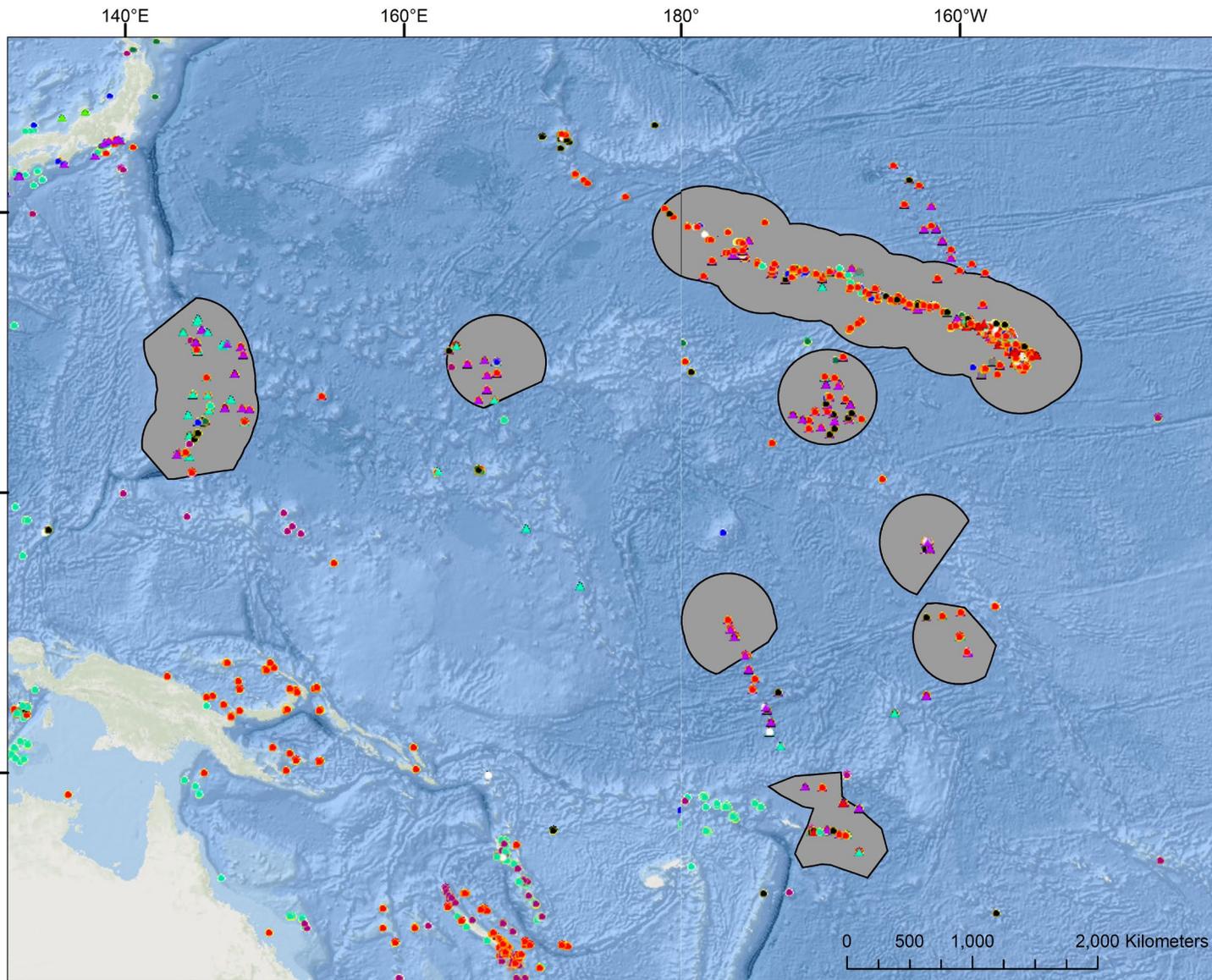


Current



Western Pacific

Deep-sea coral and sponge taxa

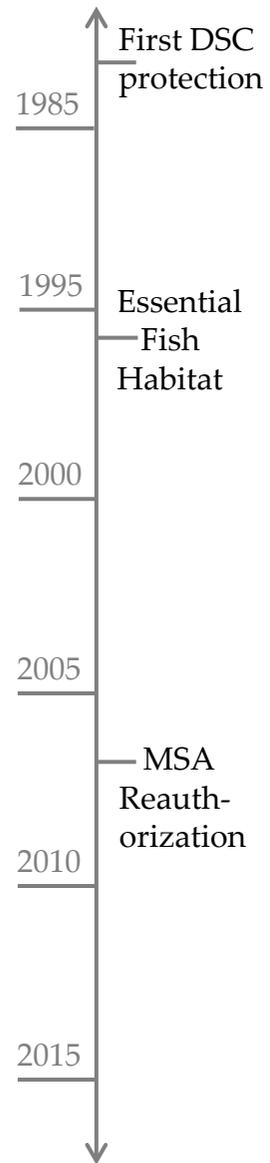


- black coral
- ▲ calcareous sponge
- ▲ demosponge
- ▲ glass sponge
- gold coral
- gorgonian coral
- ▲ homoscleromorph sponge
- lace coral
- lithoteleostid coral
- other coral-like hydrozoan
- sea pen
- soft coral
- ▲ sponge (unspecified)
- stoloniferan coral
- stony coral (branching)
- stony coral (cup coral)
- stony coral (unspecified)

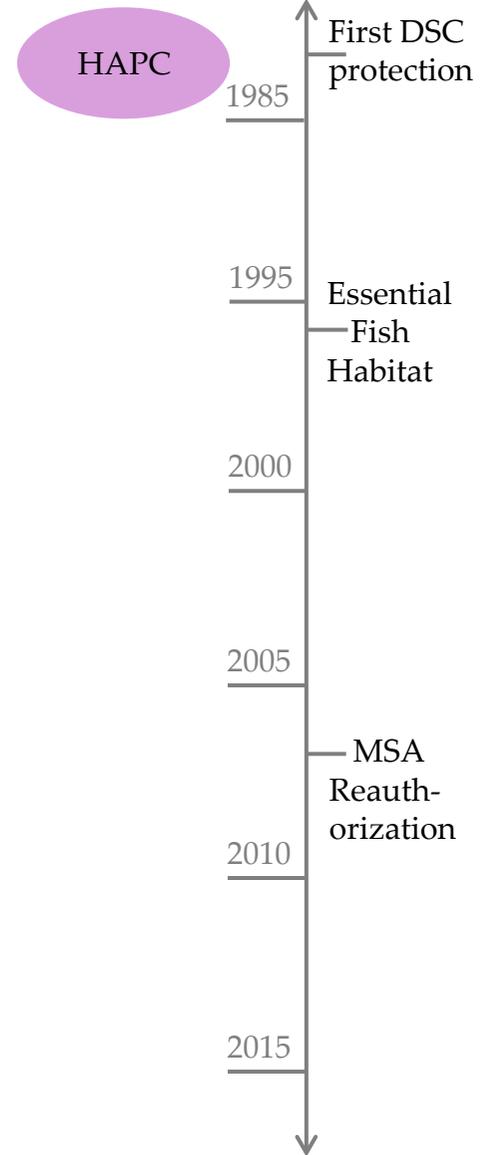
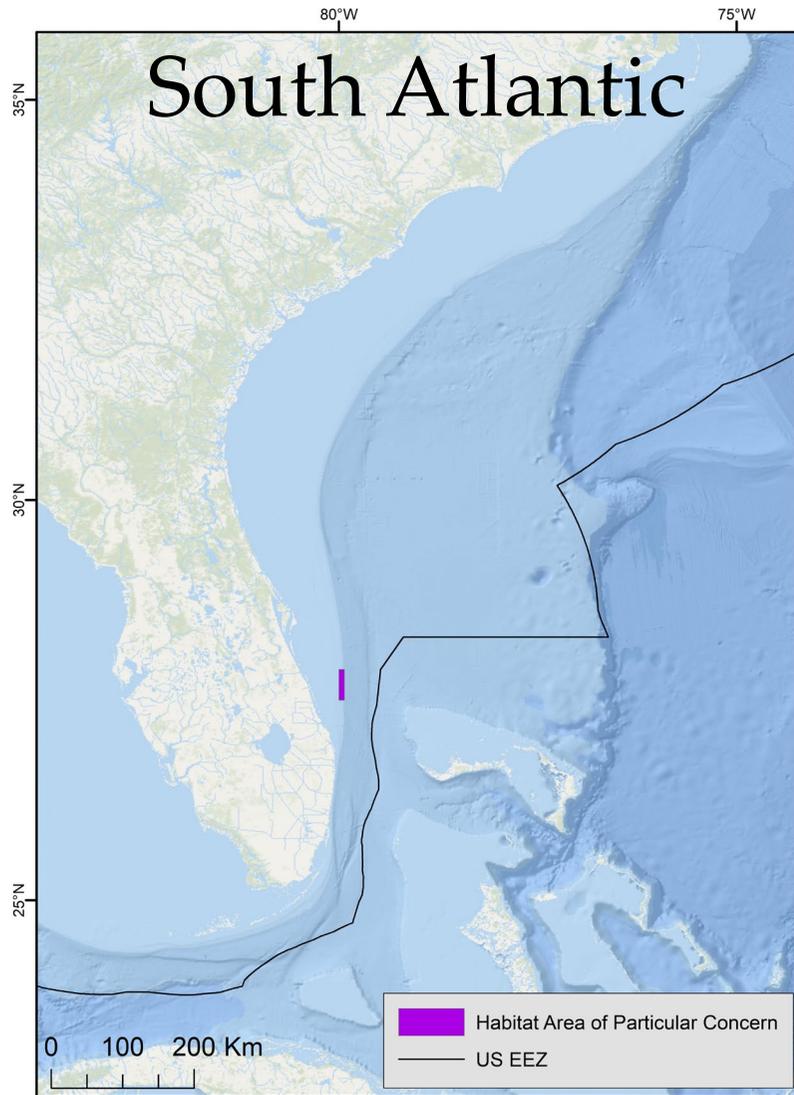
South Atlantic



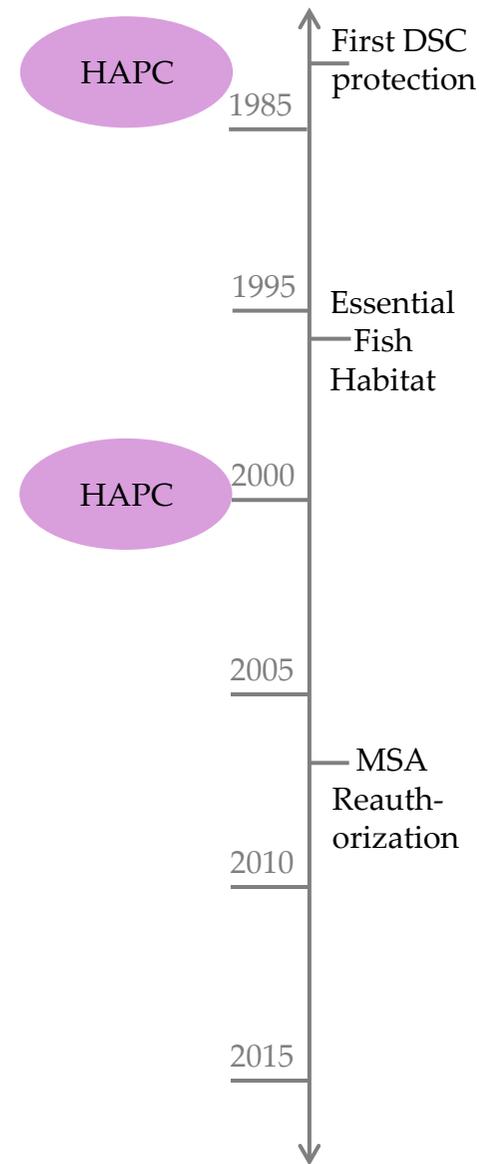
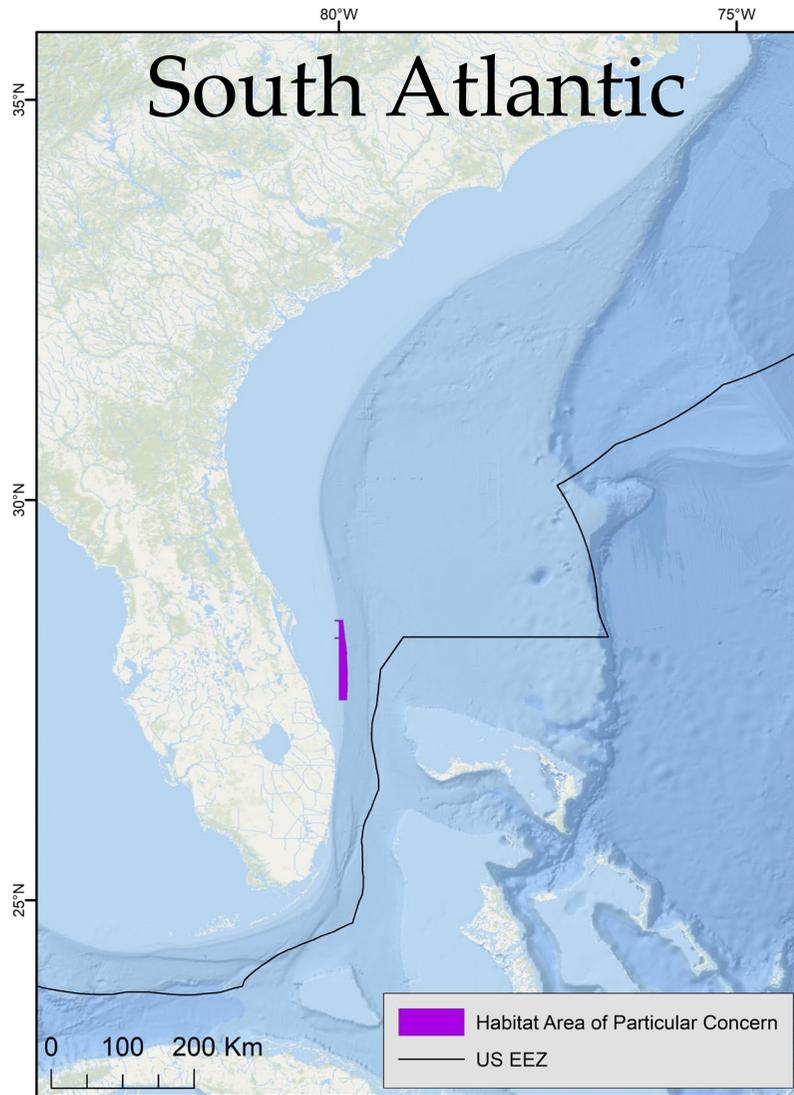
Image: NOAA OER



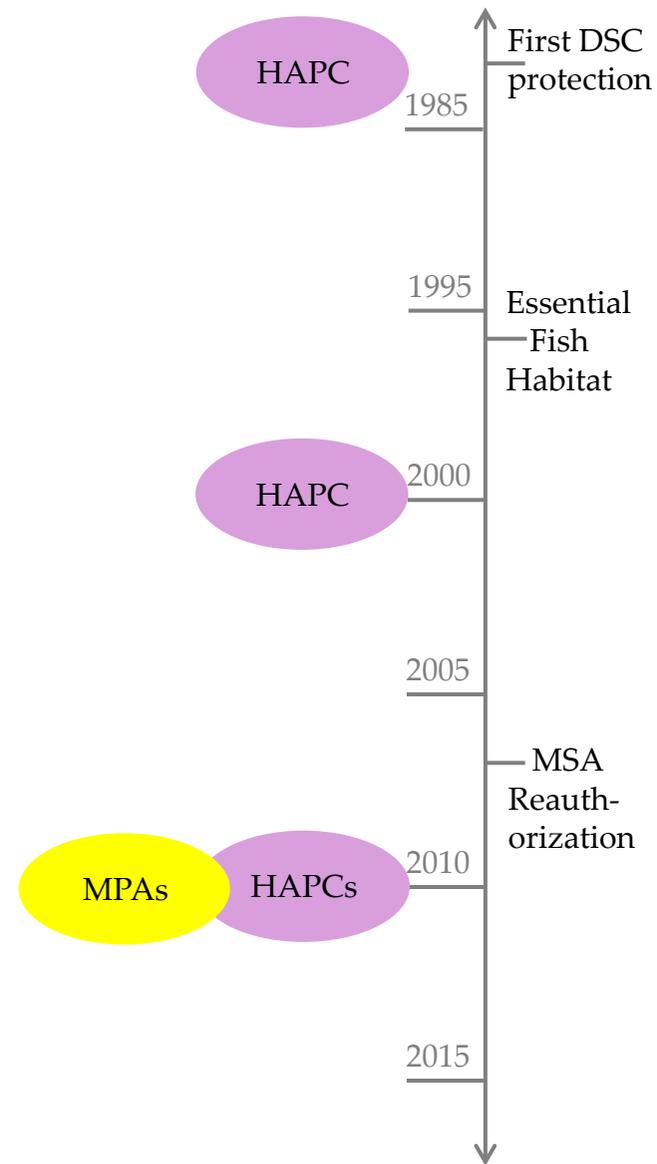
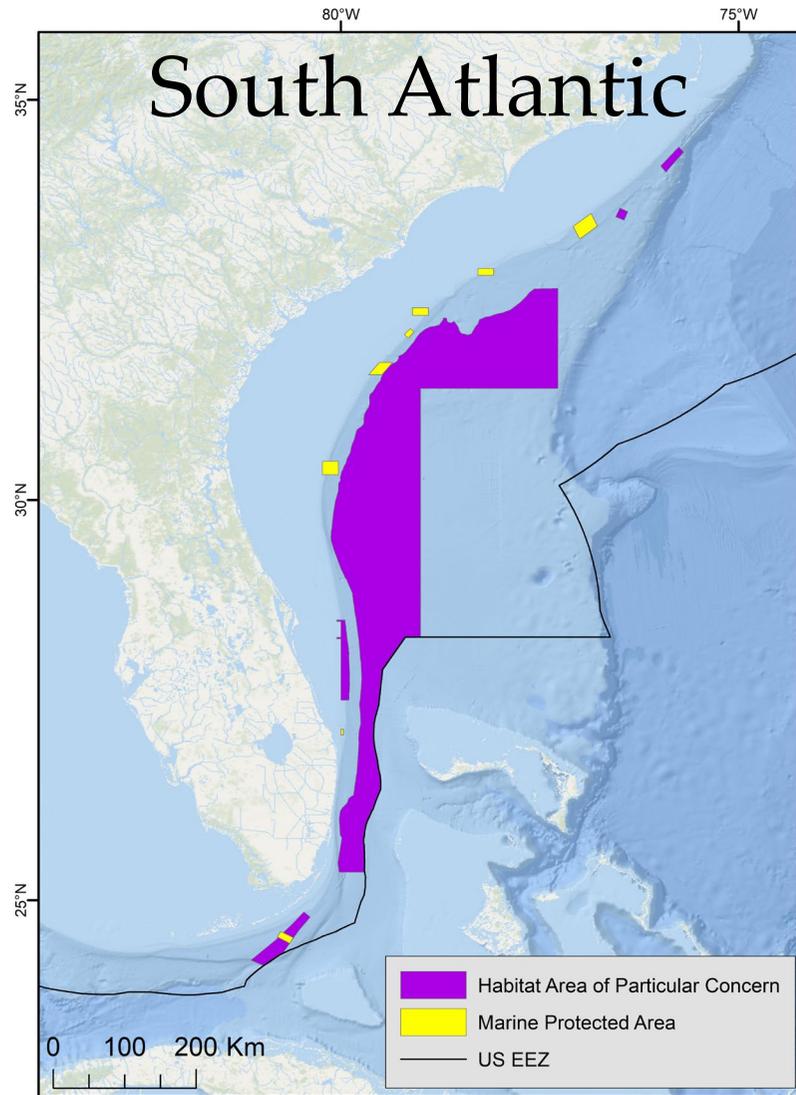
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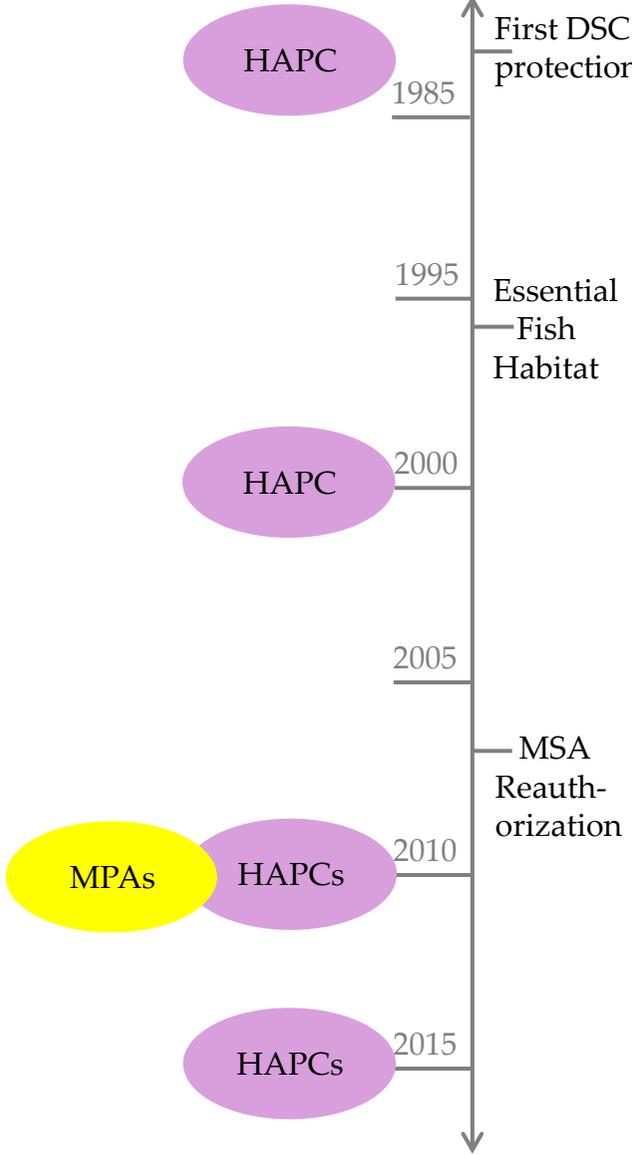
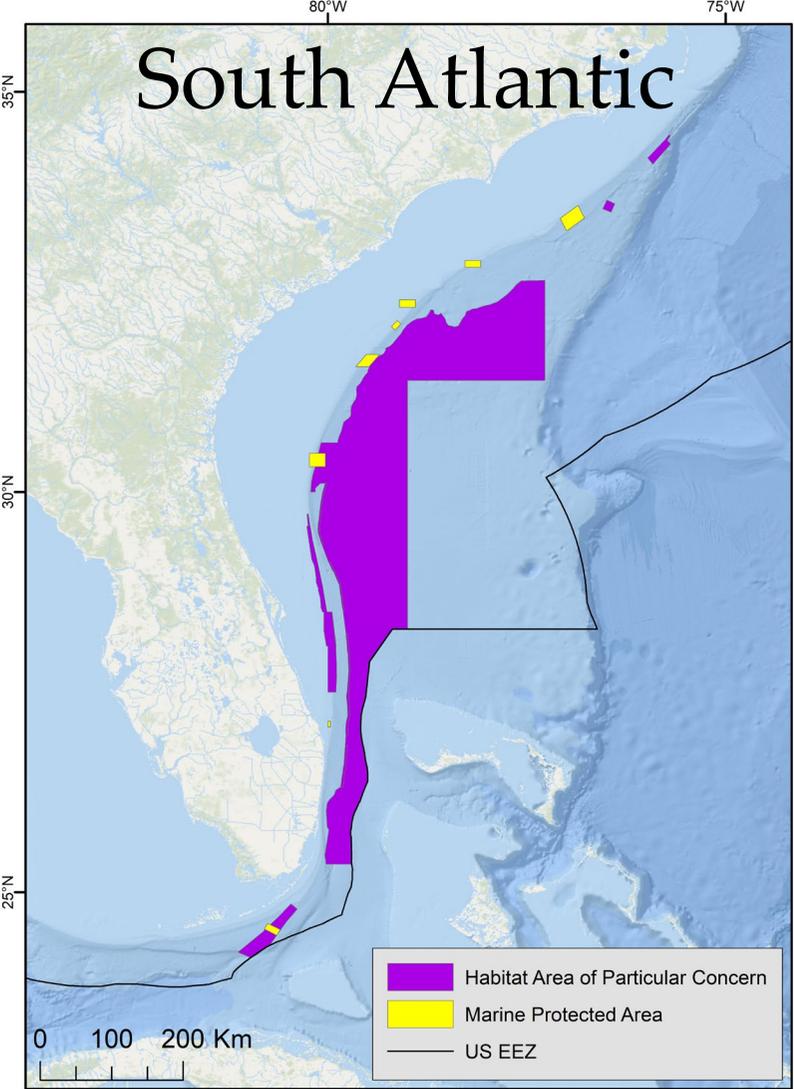
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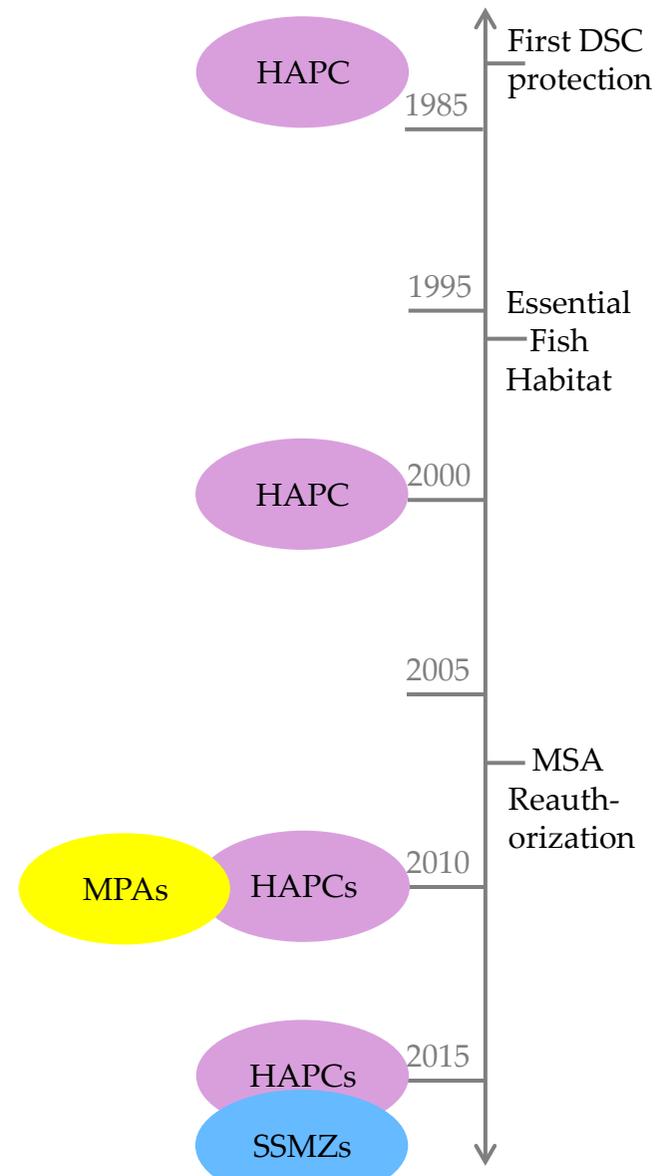
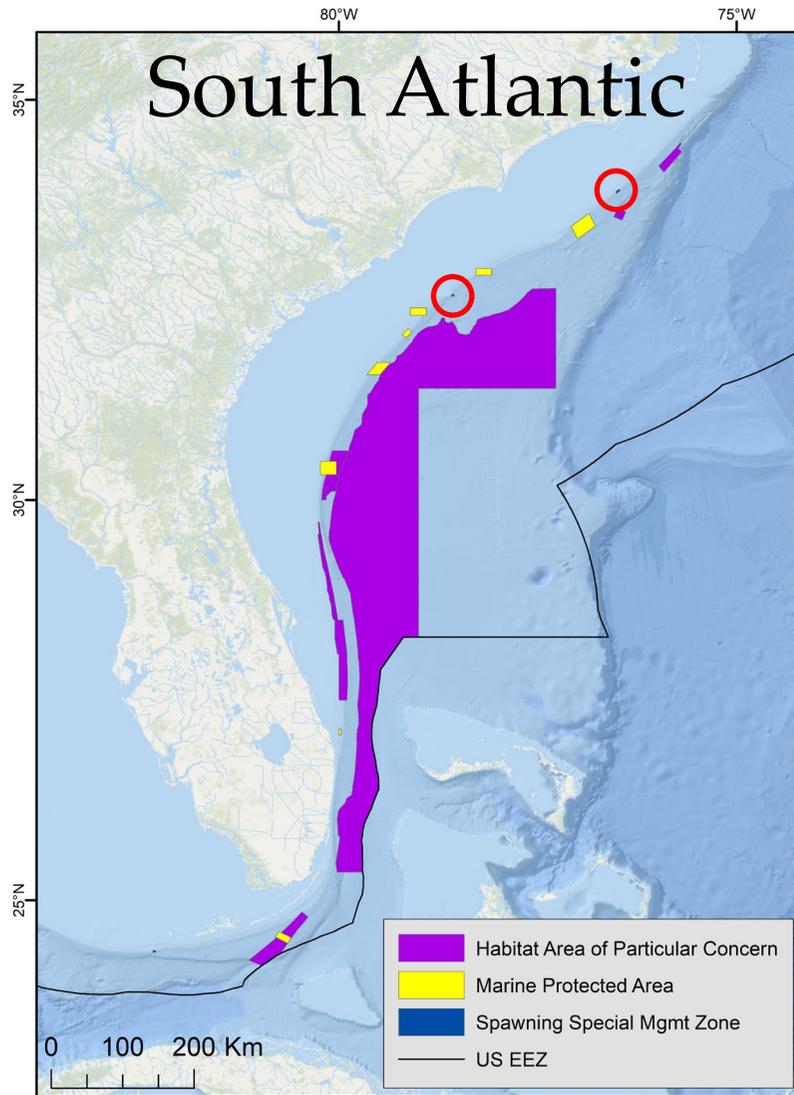
2010



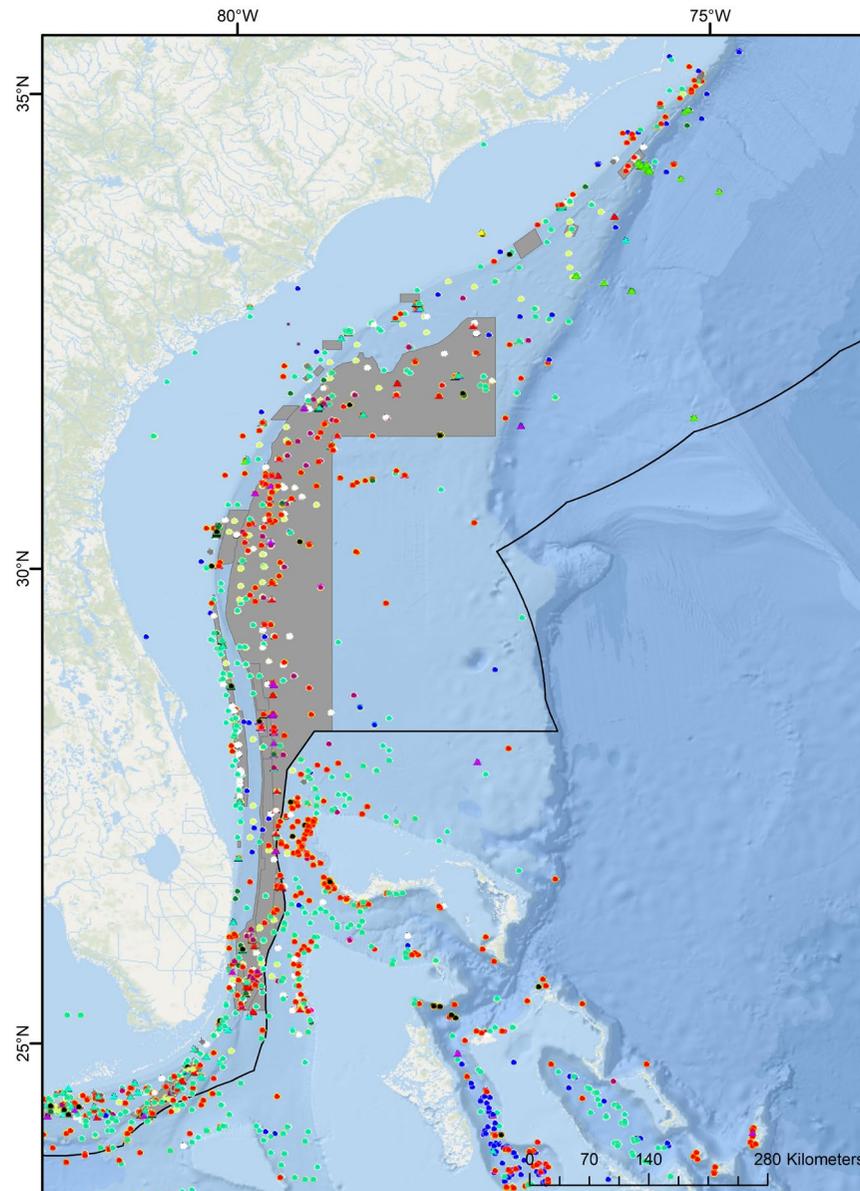
2015



Current



South Atlantic



Deep-sea coral and sponge taxa

- black coral
- ▲ calcareous sponge
- ▲ demosponge
- ▲ glass sponge
- gold coral
- gorgonian coral
- ▲ homoscleromorph sponge
- lace coral
- lithotelestial coral
- other coral-like hydrozoan
- sea pen
- soft coral
- ▲ sponge (unspecified)
- stoloniferan coral
- stony coral (branching)
- stony coral (cup coral)
- stony coral (unspecified)

Gulf of Mexico

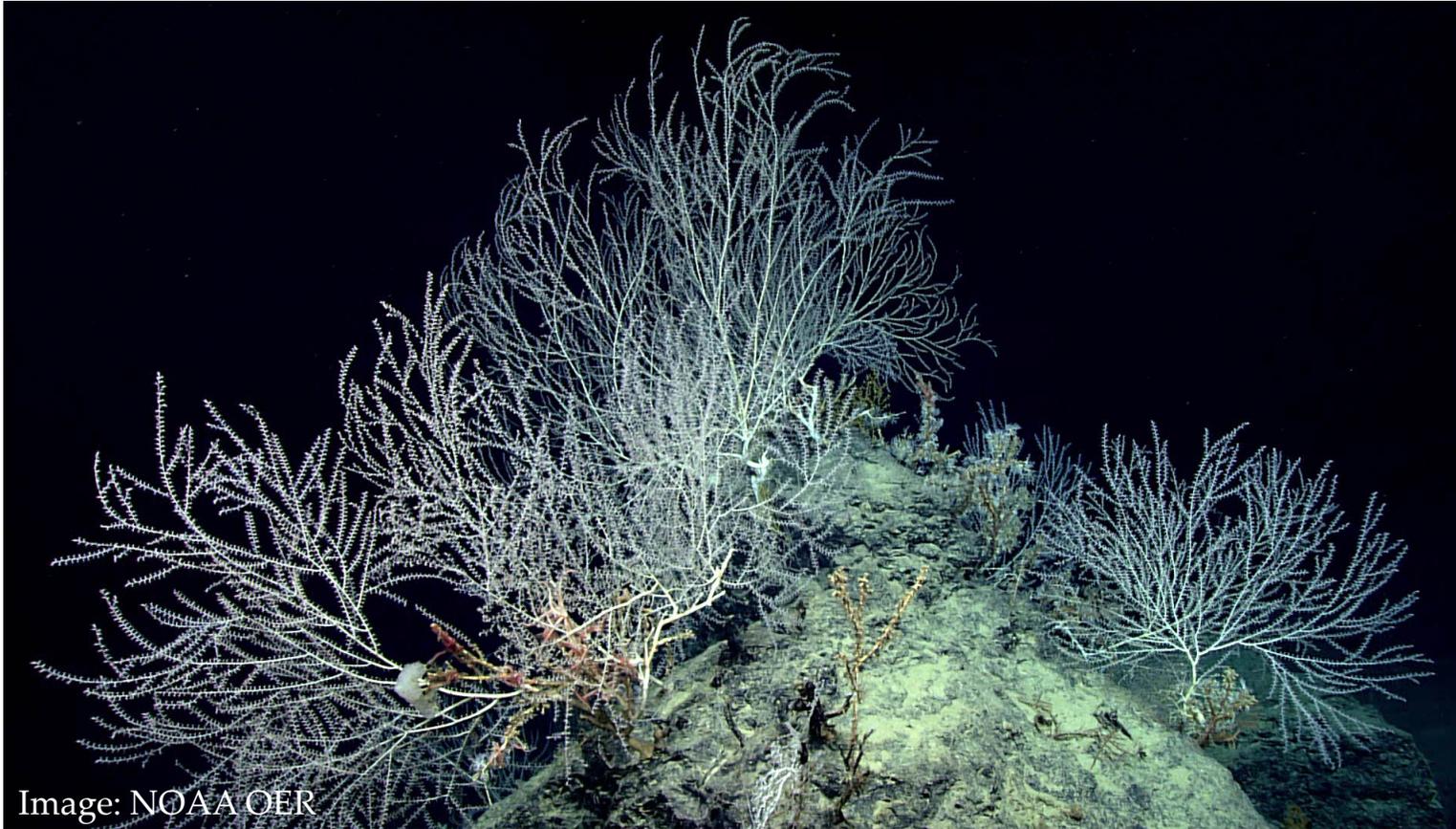
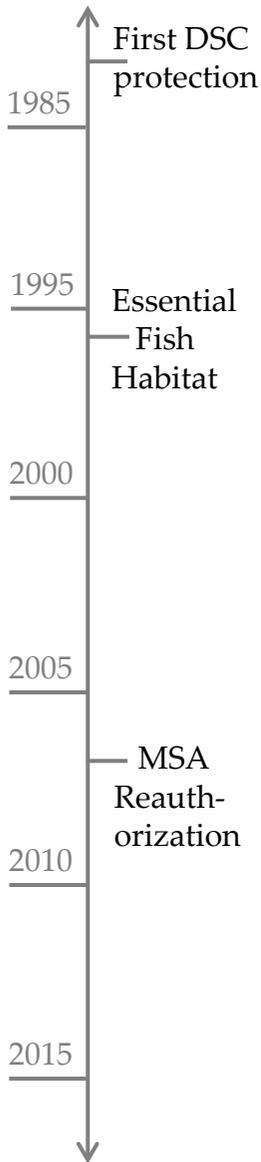


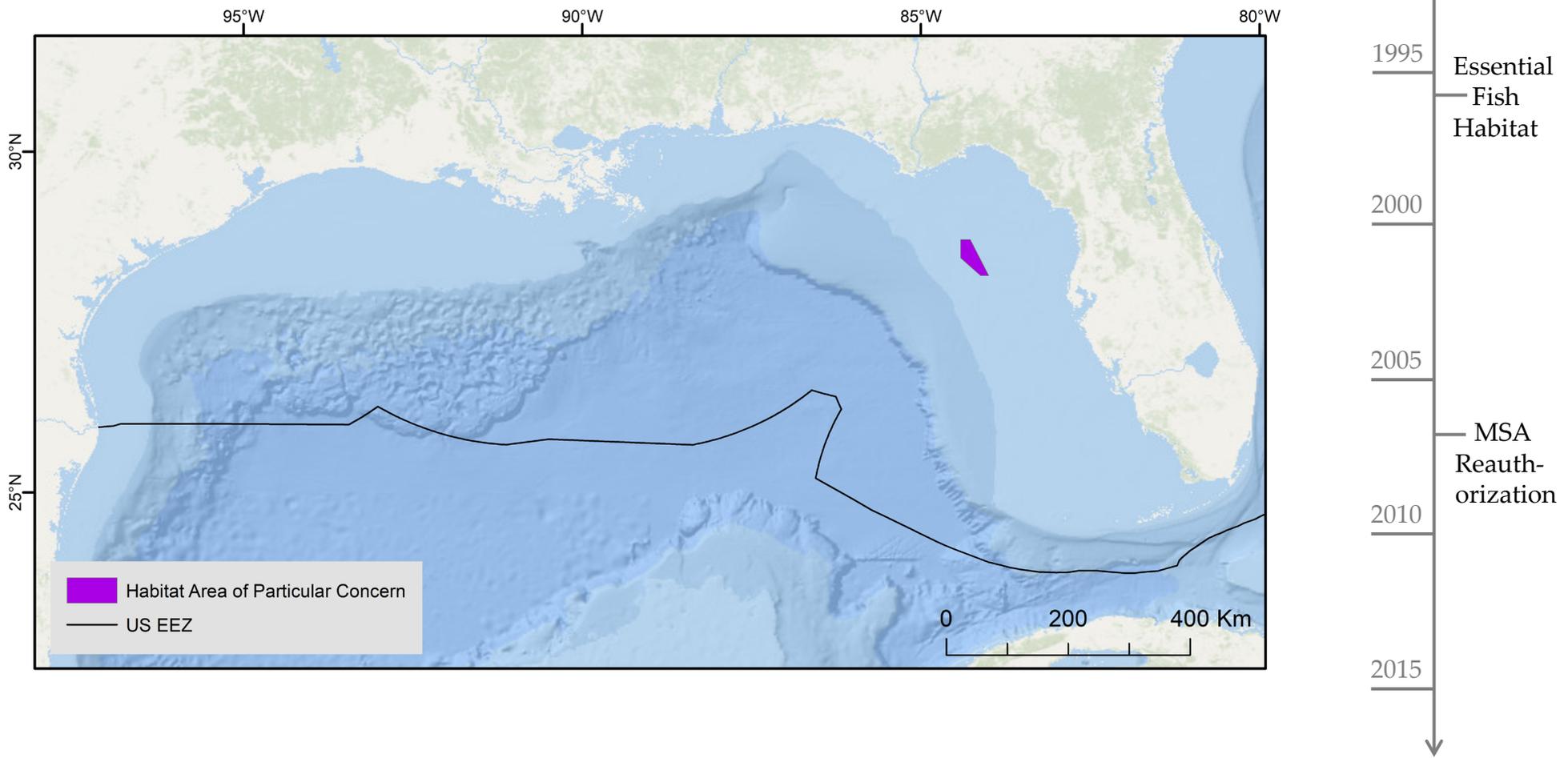
Image: NOAA OER



1984

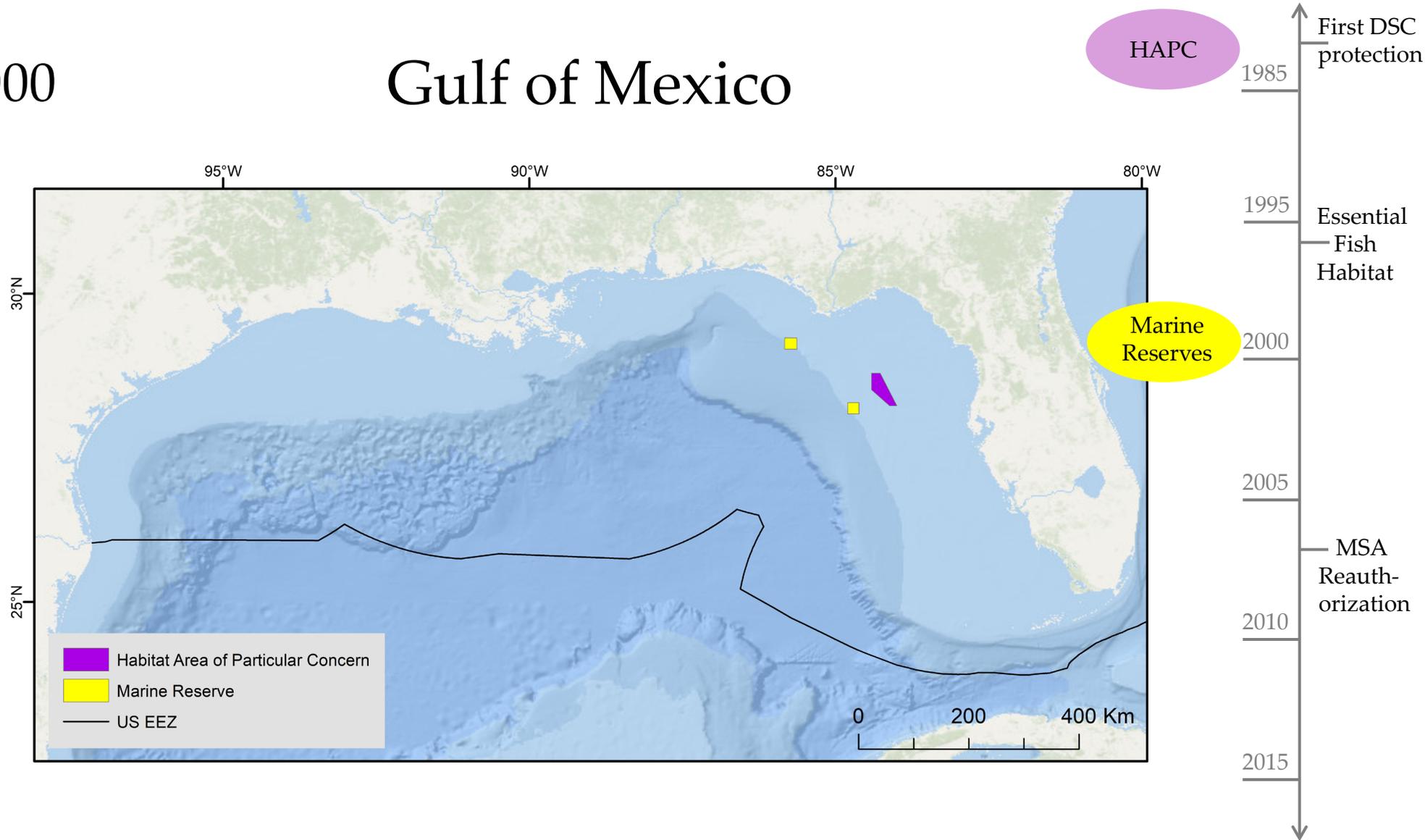
Gulf of Mexico

HAPC



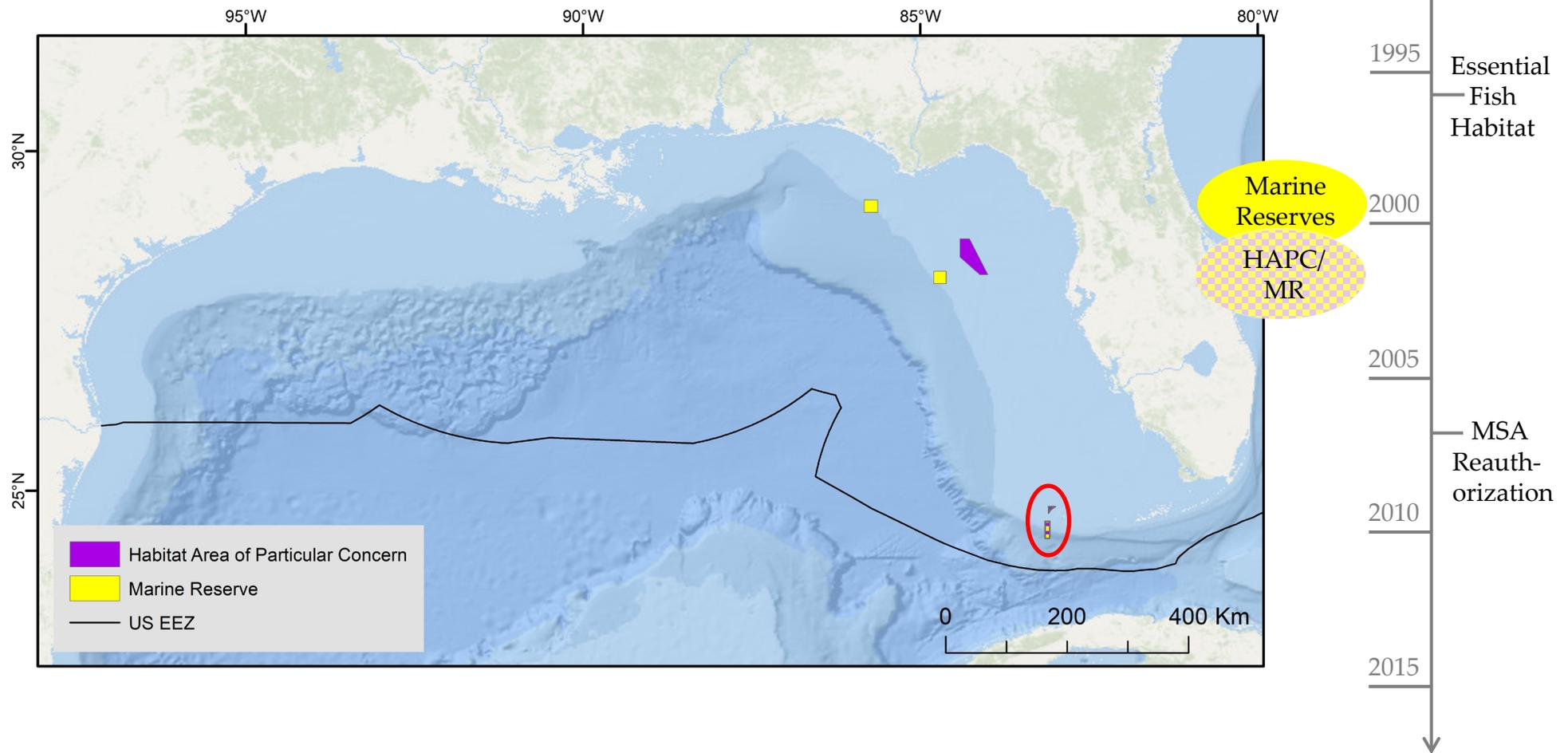
2000

Gulf of Mexico



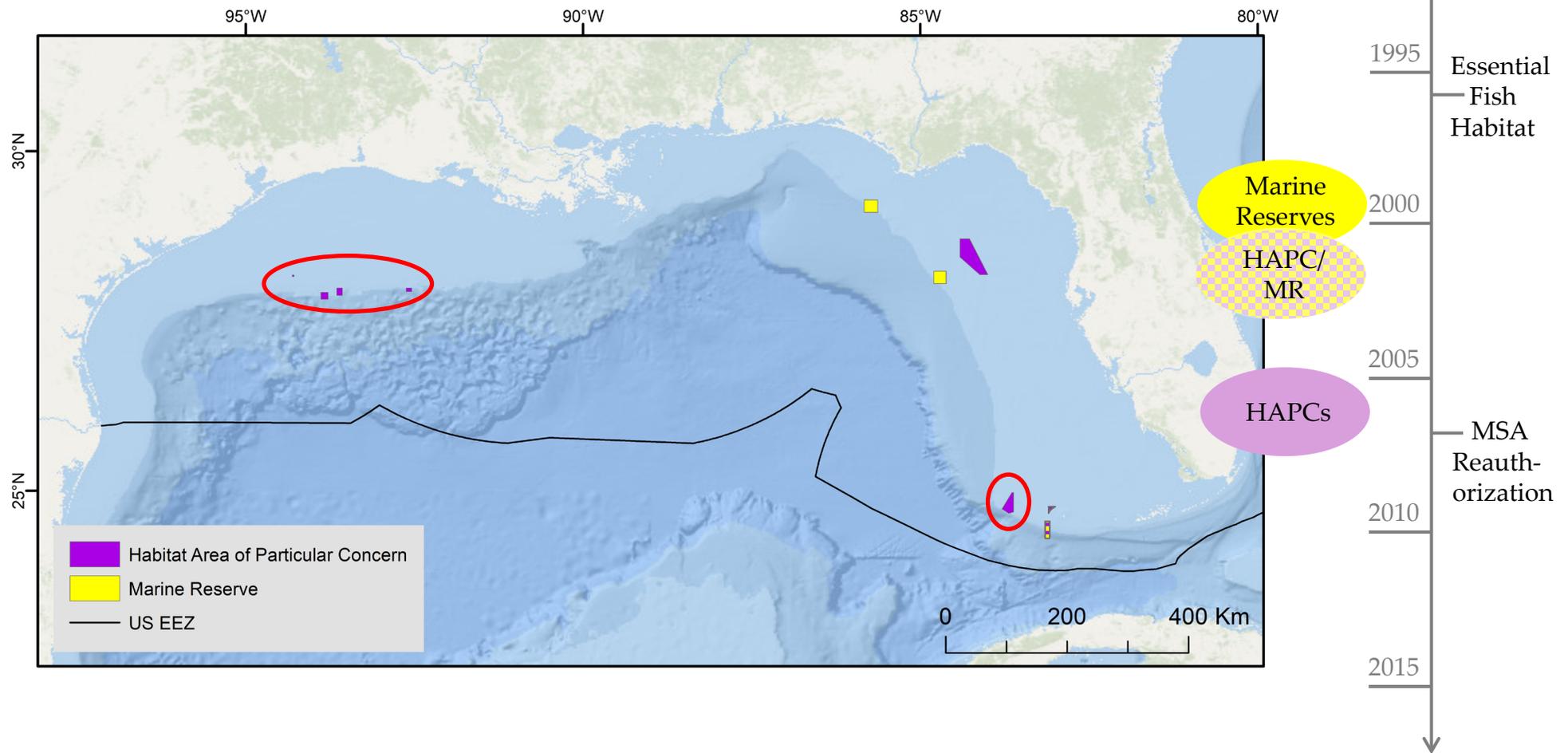
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Gulf of Mexico



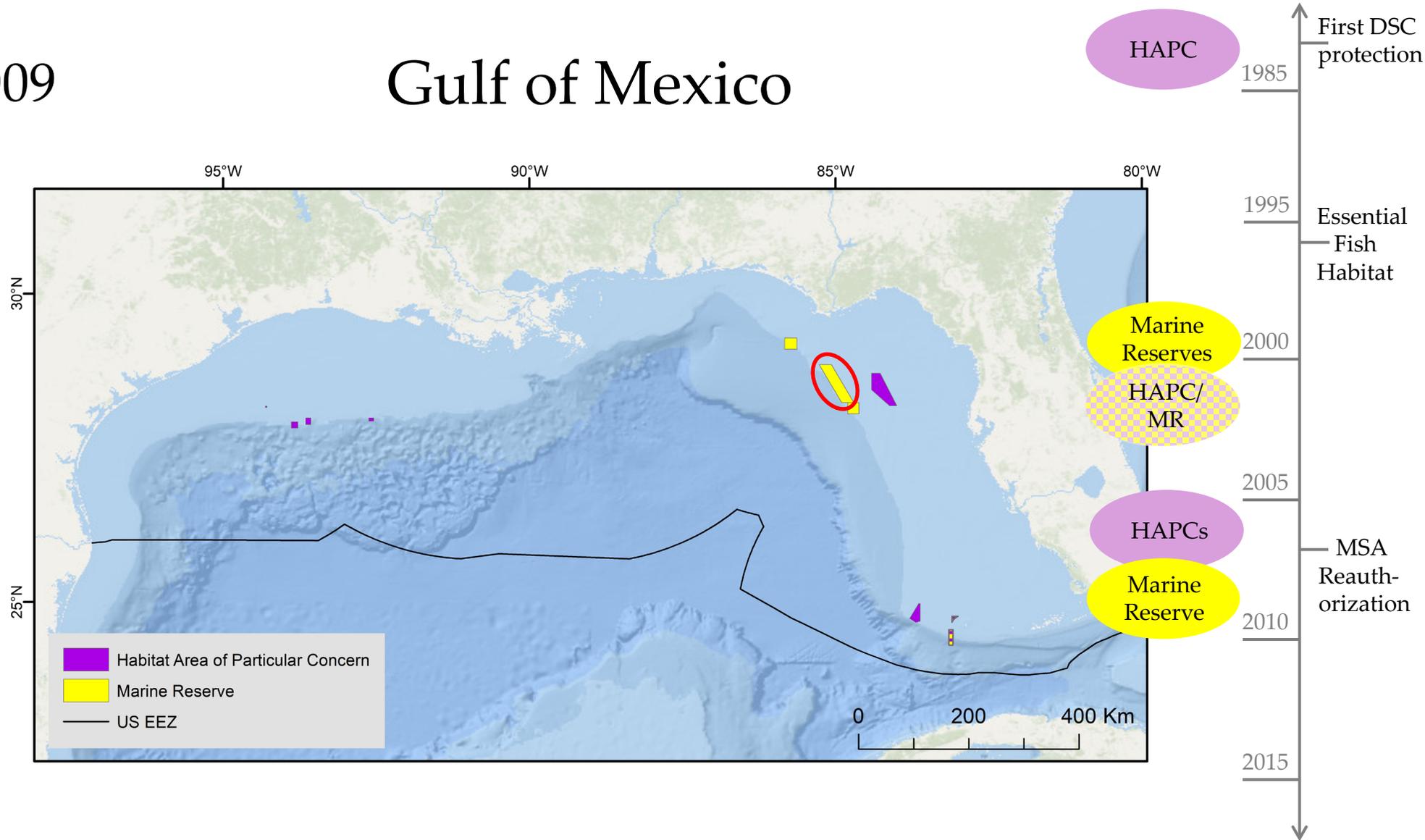
2006

Gulf of Mexico



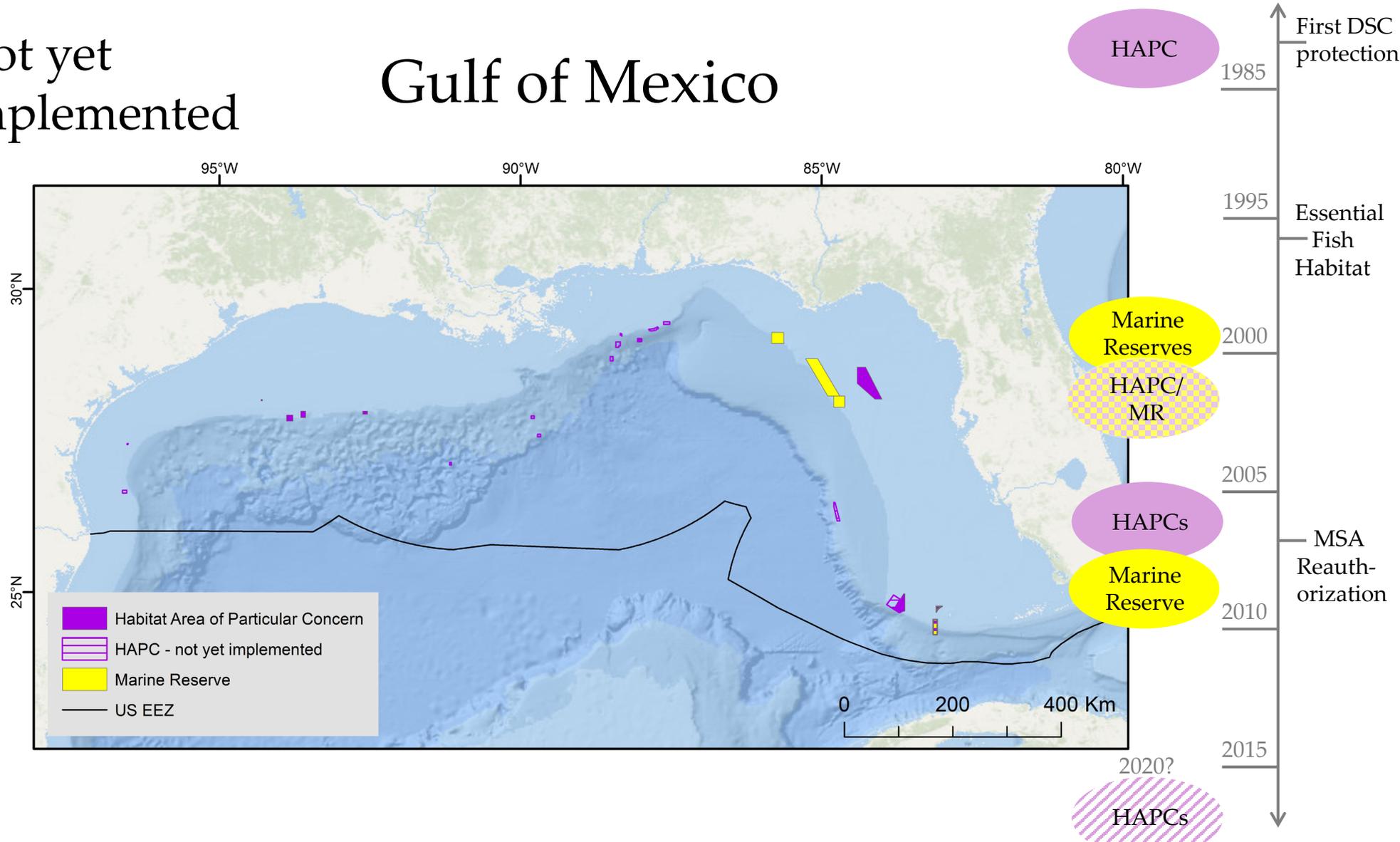
2009

Gulf of Mexico



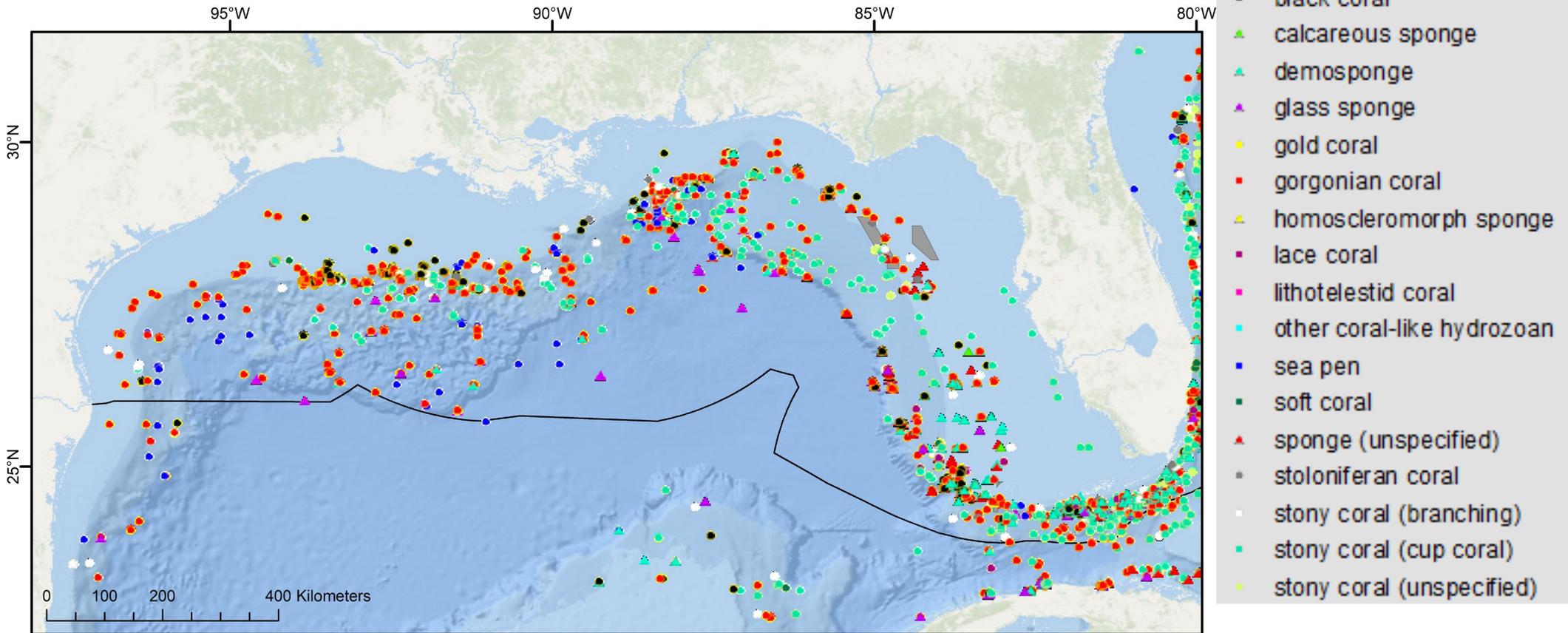
Not yet
implemented

Gulf of Mexico

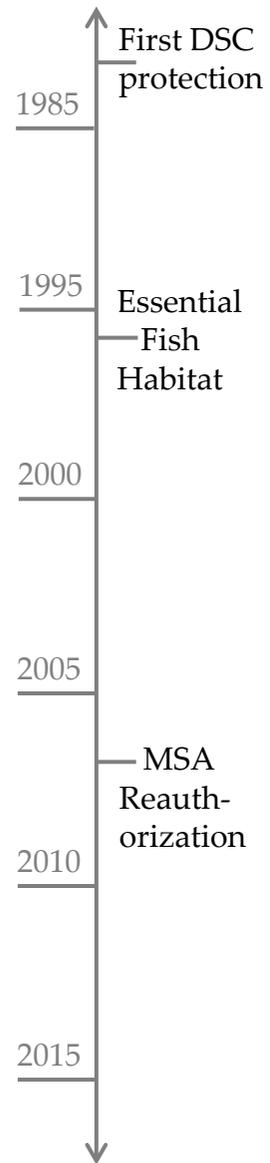
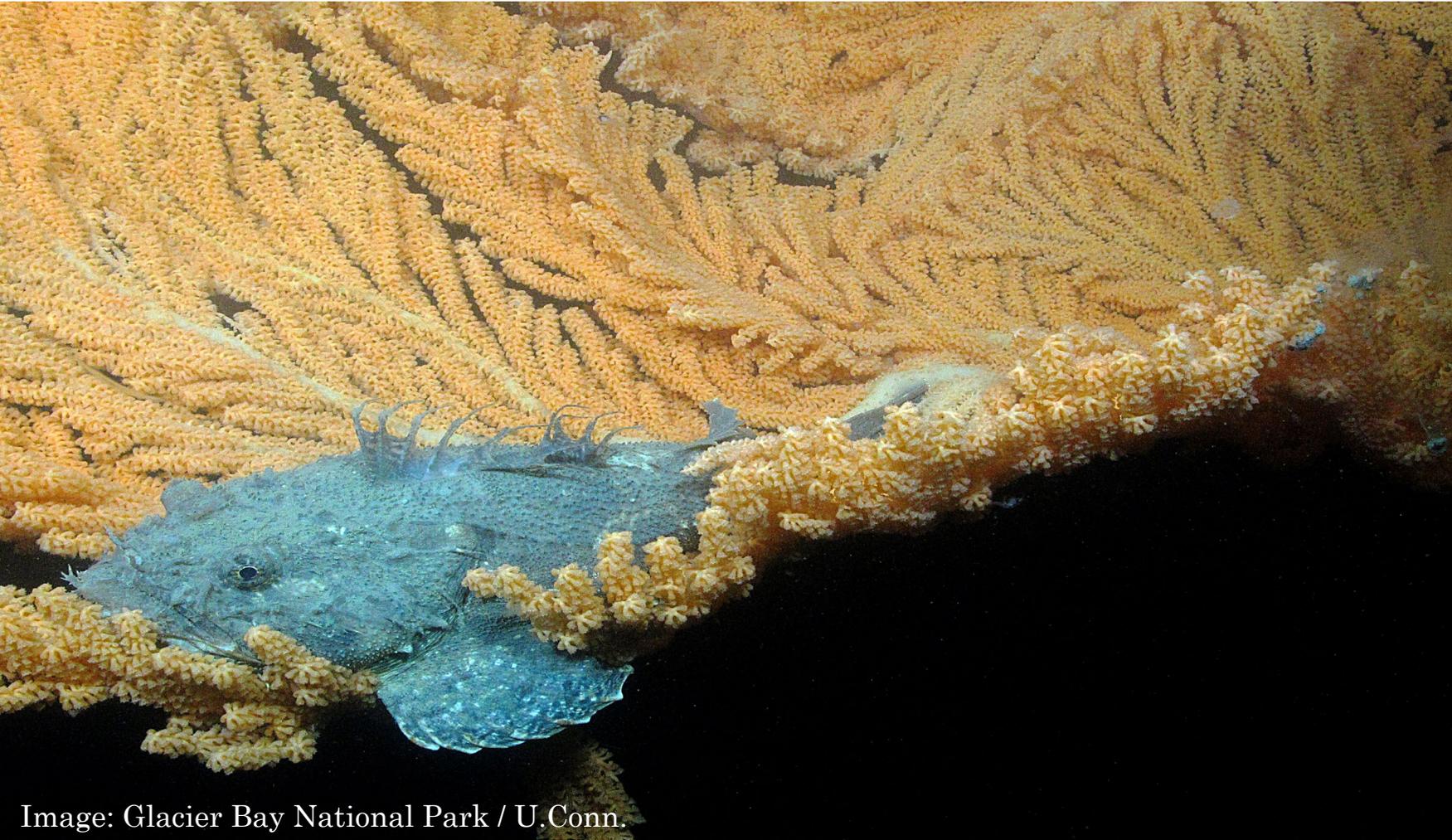


Gulf of Mexico

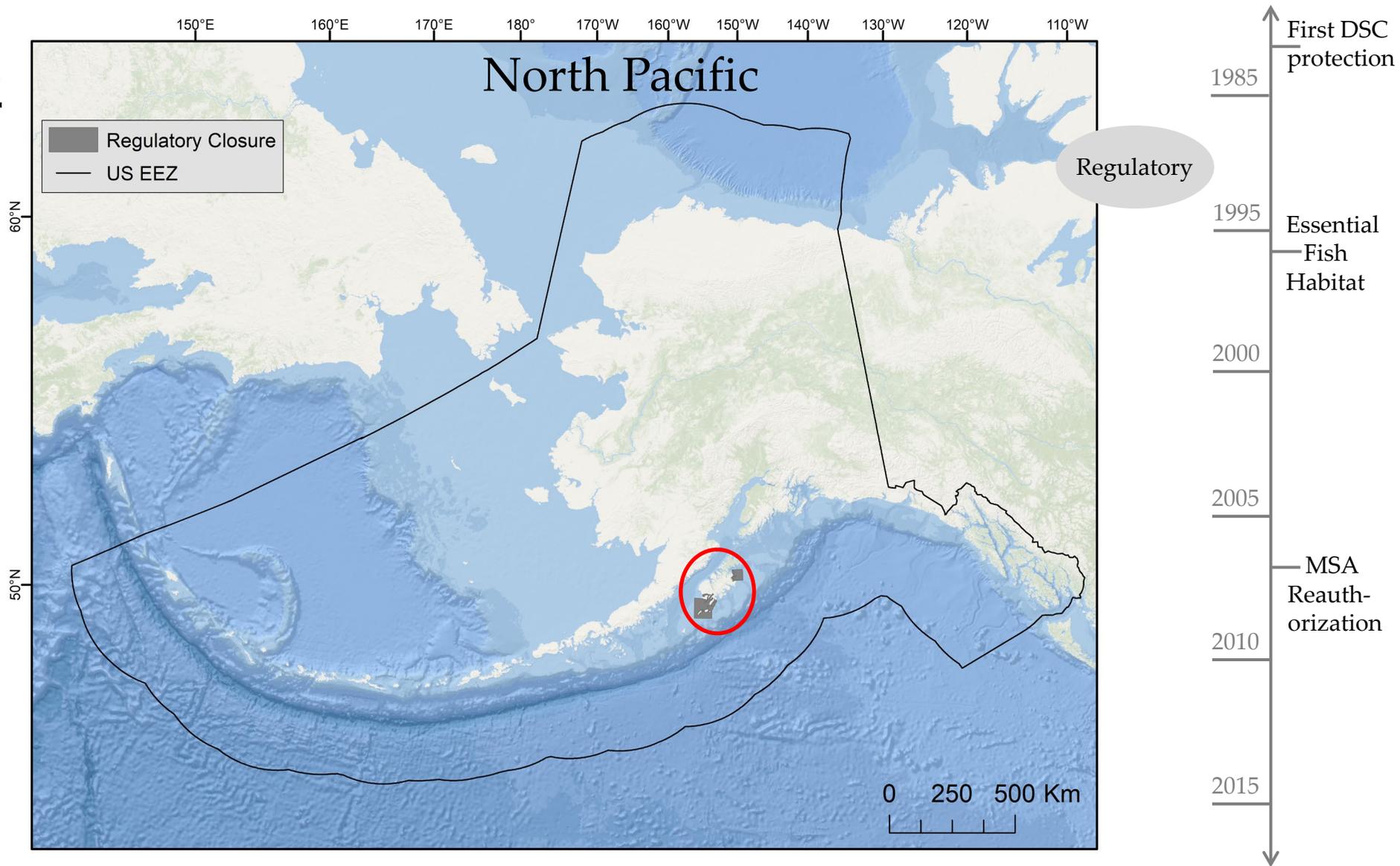
Deep-sea coral and sponge taxa



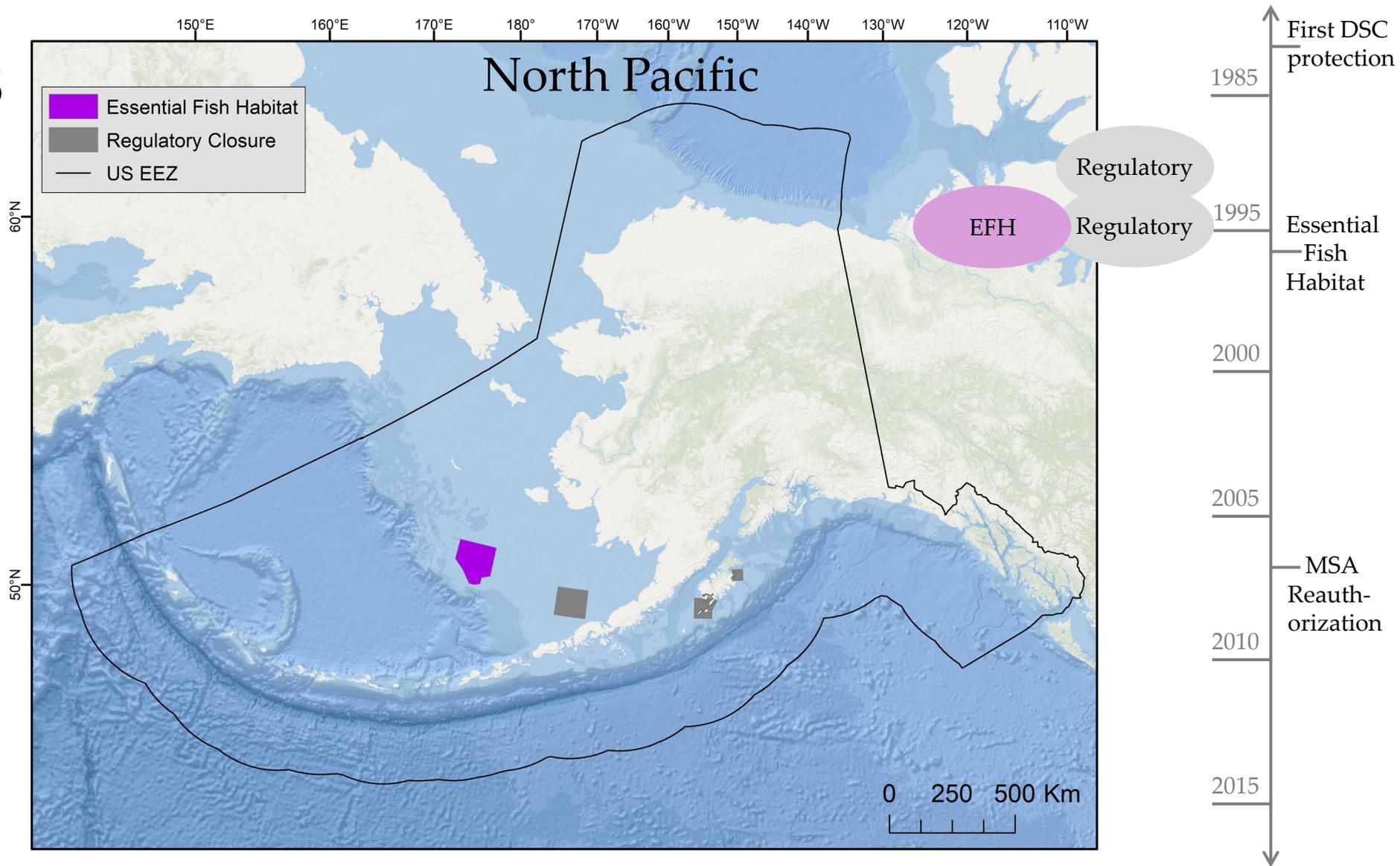
North Pacific



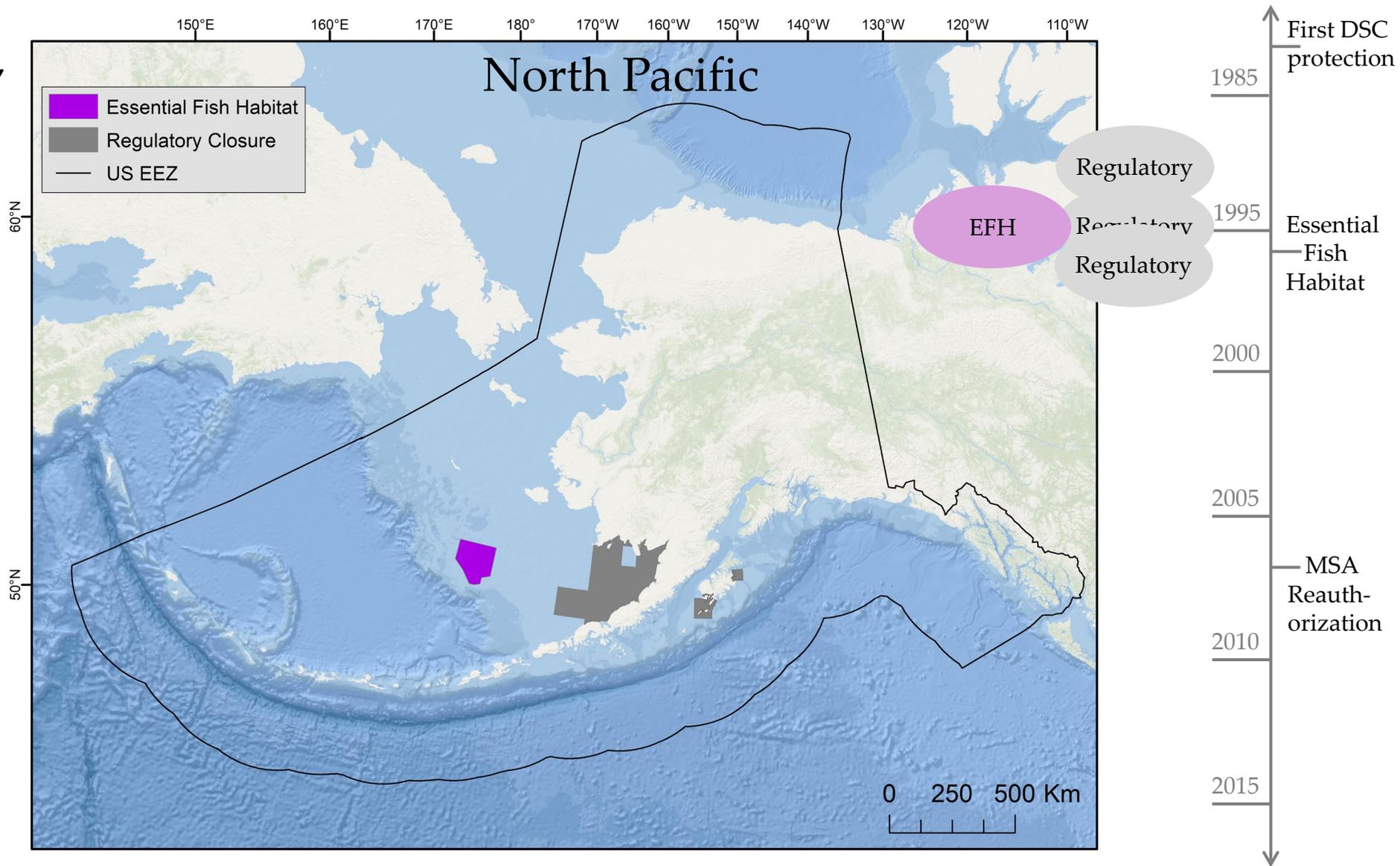
1992



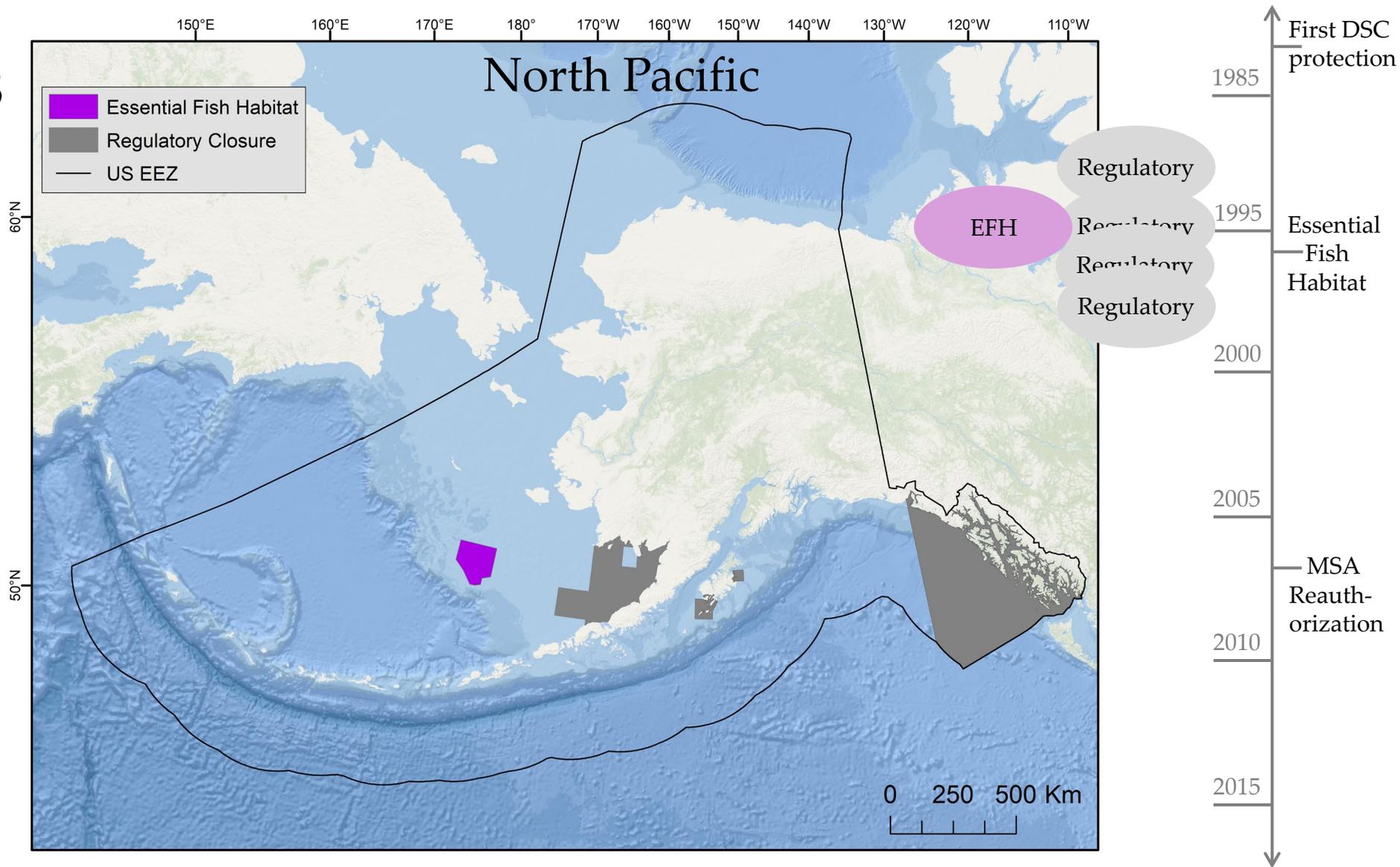
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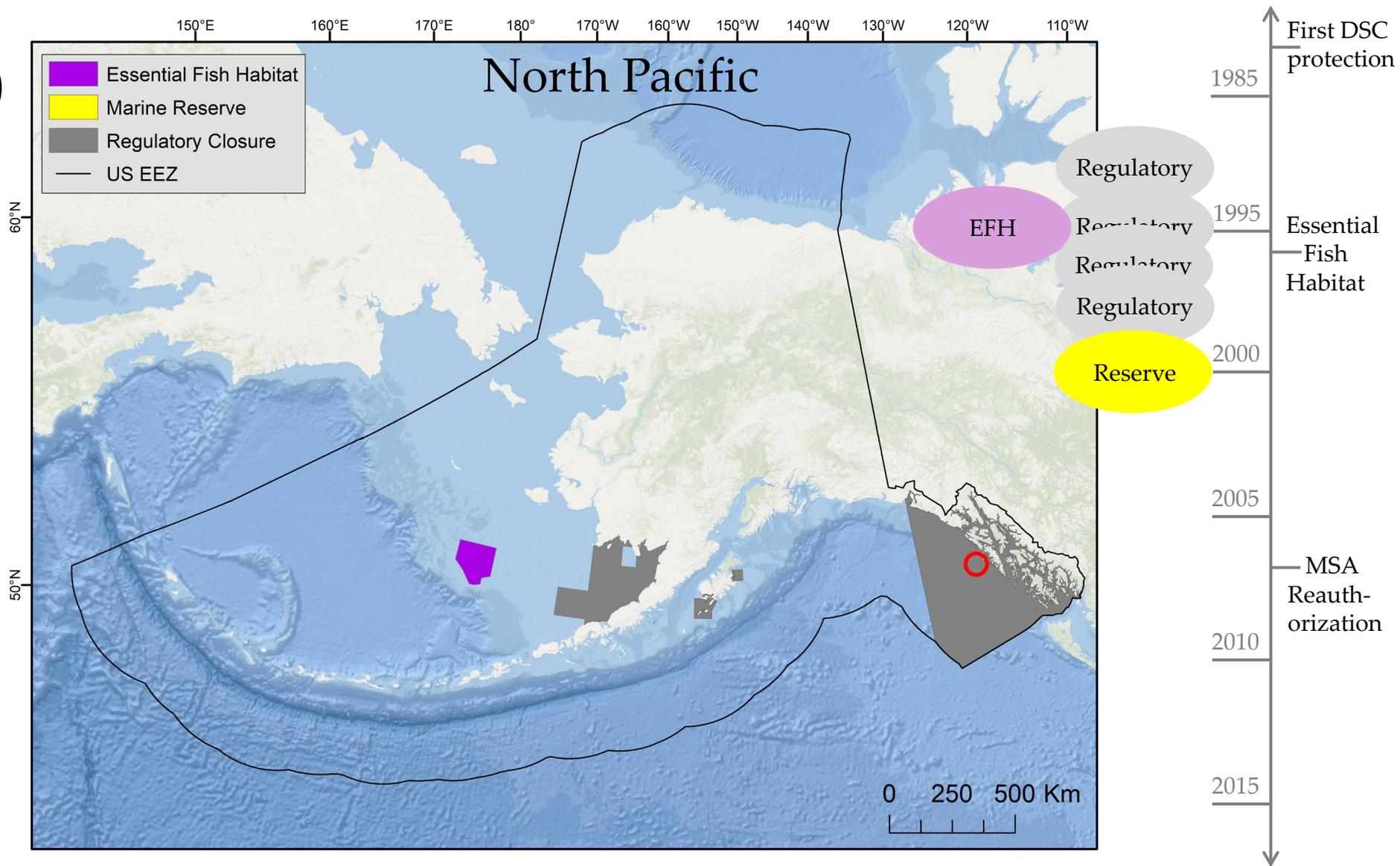
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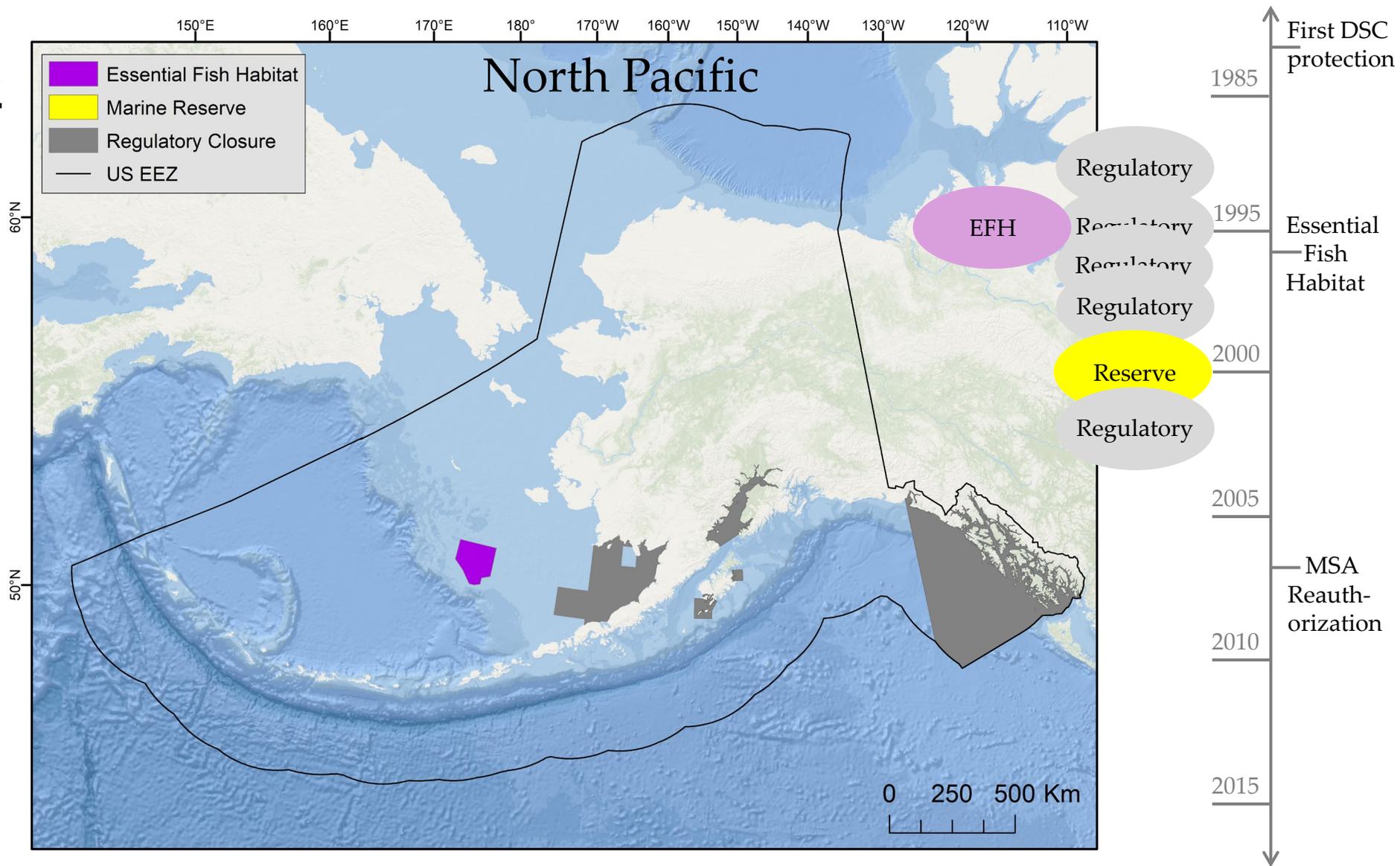
1998



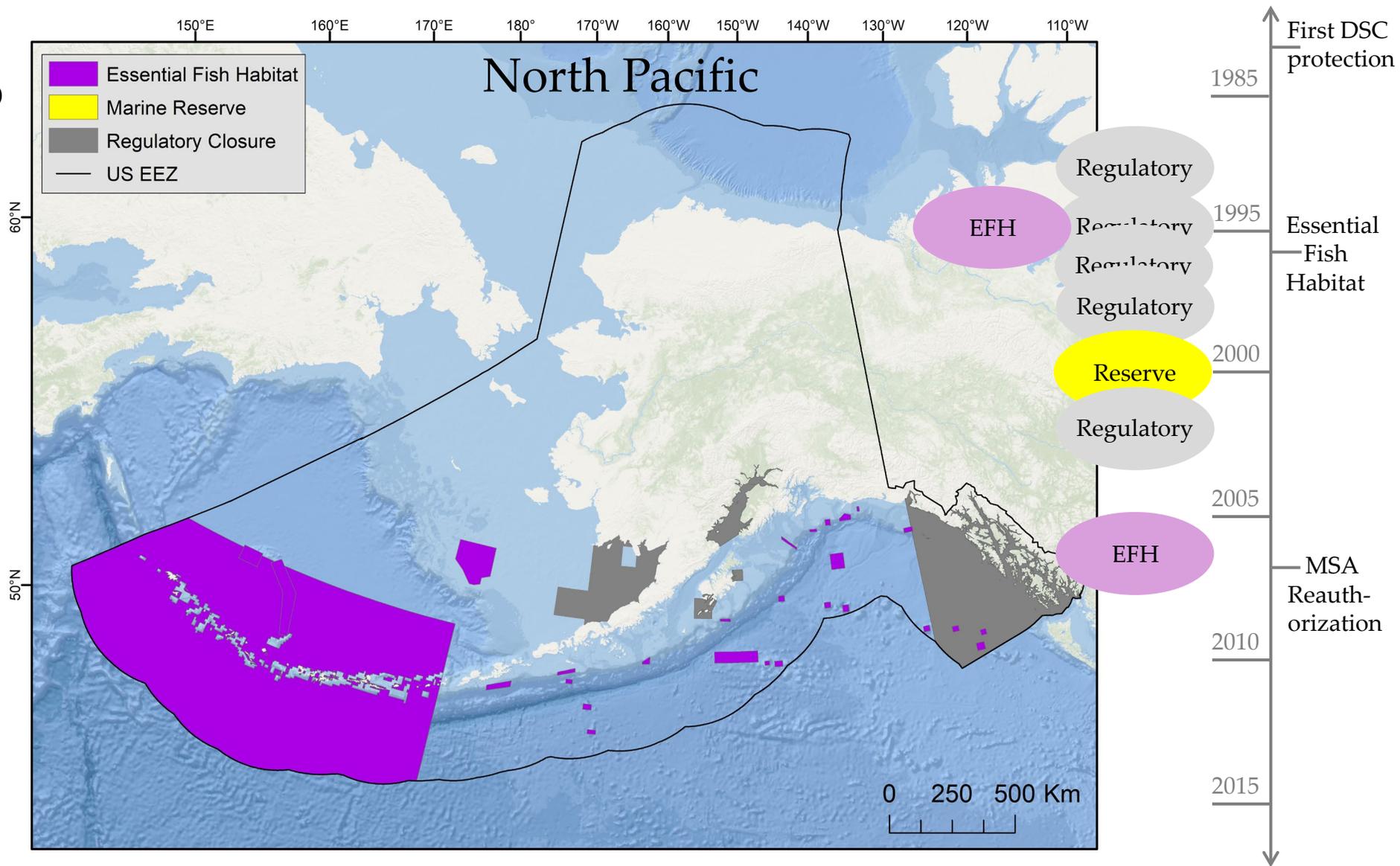
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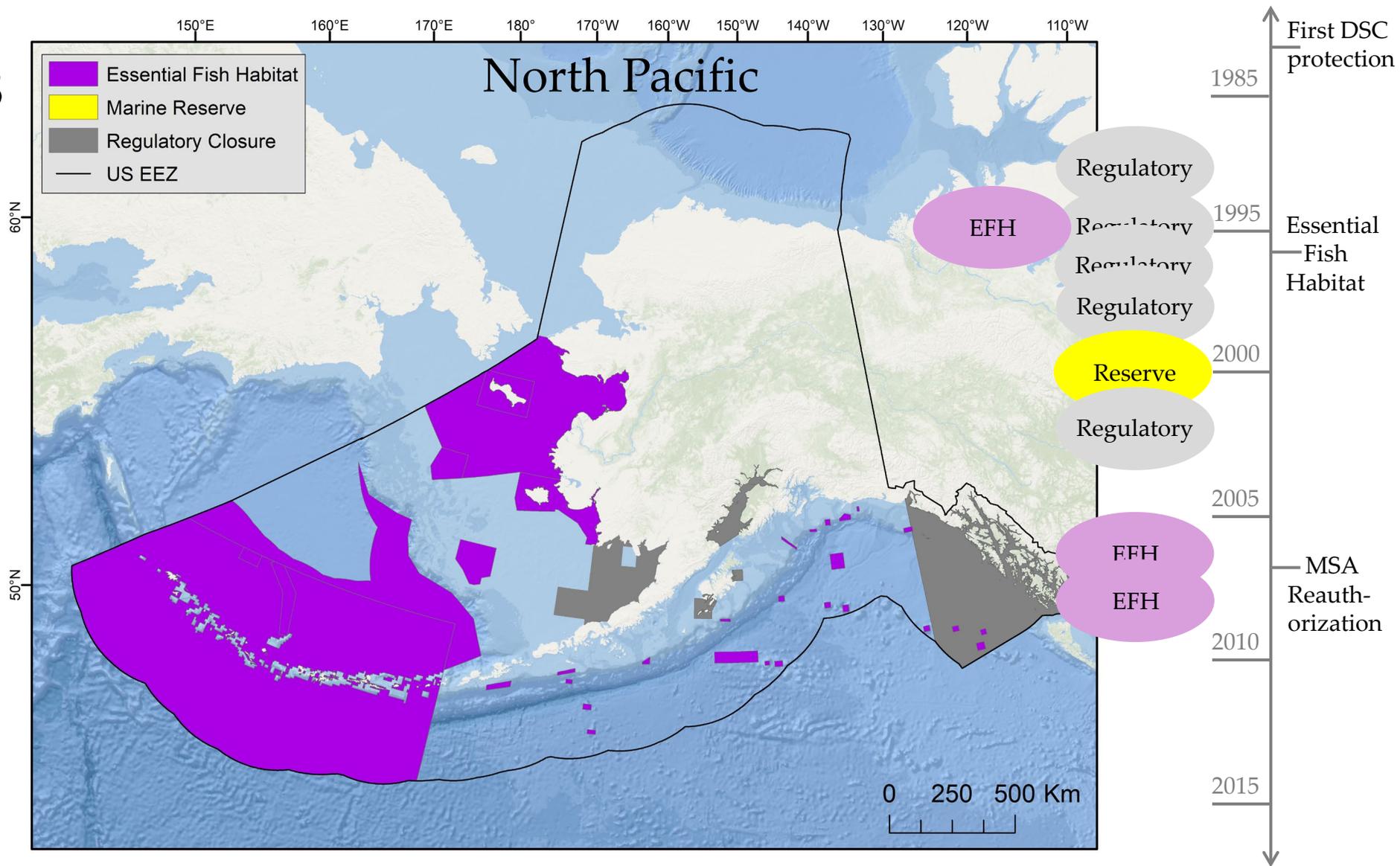
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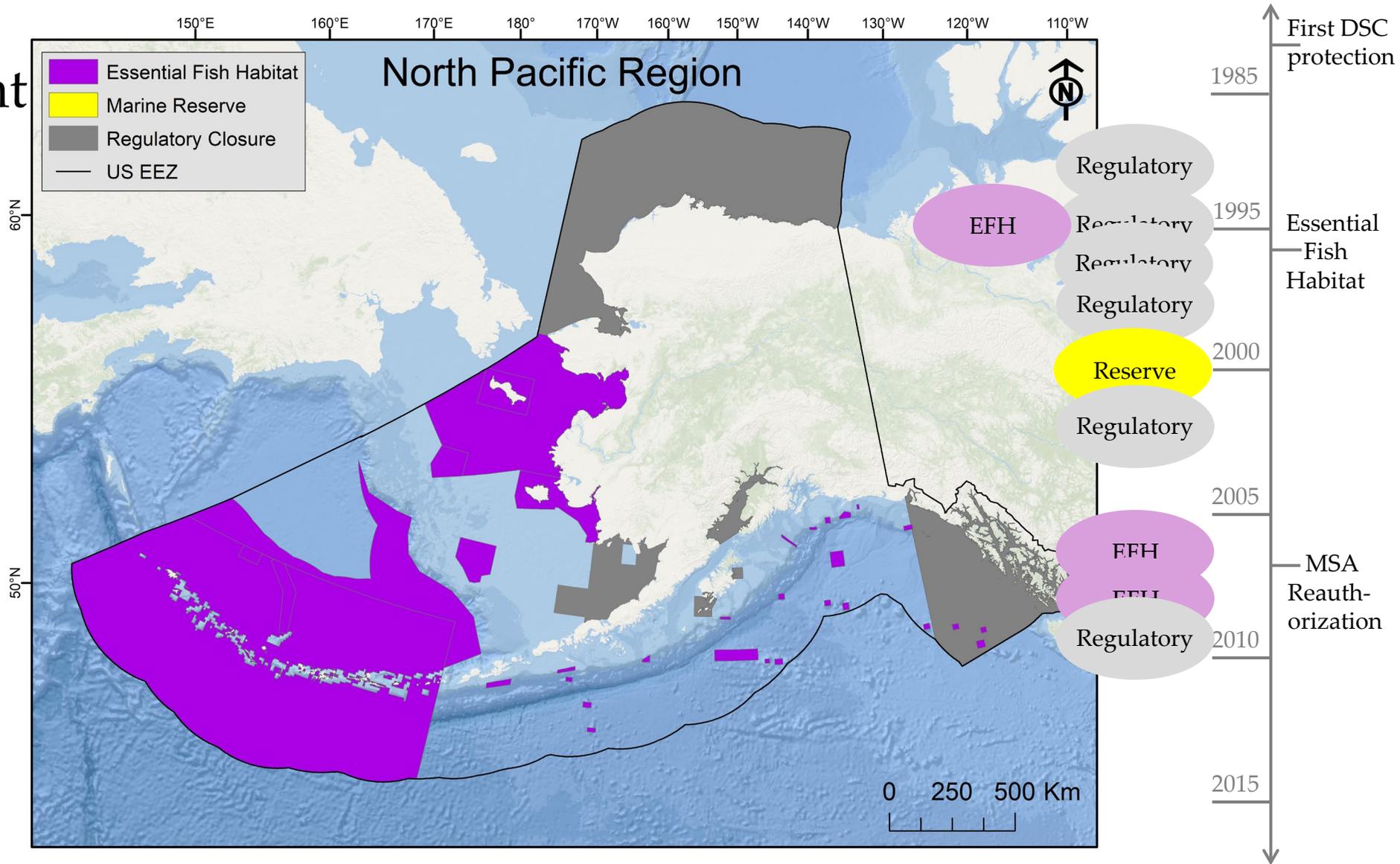
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2008

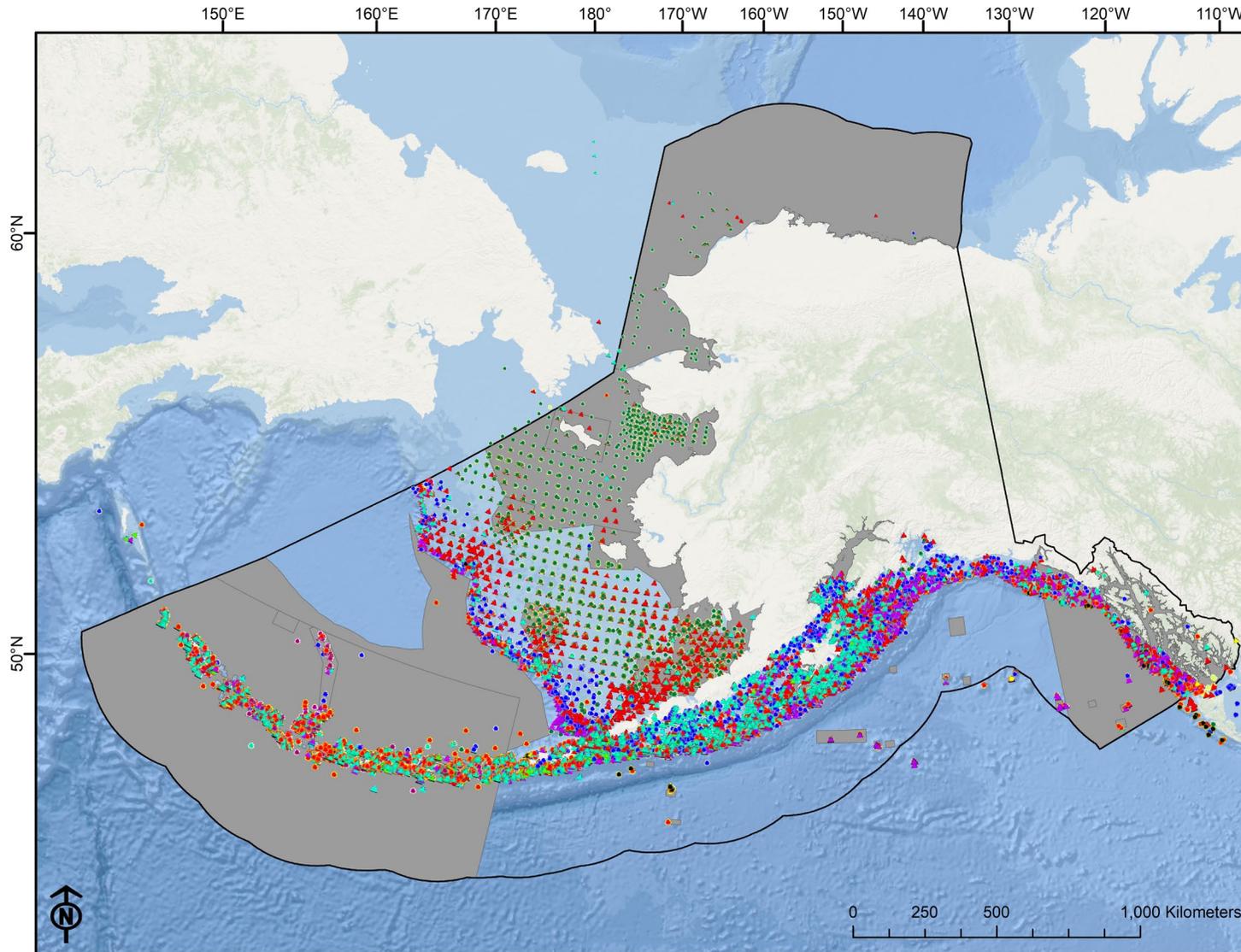


Current



North Pacific

Deep-sea coral and sponge taxa



<https://deepseacoraldata.noaa.gov>

New England and Mid-Atlantic

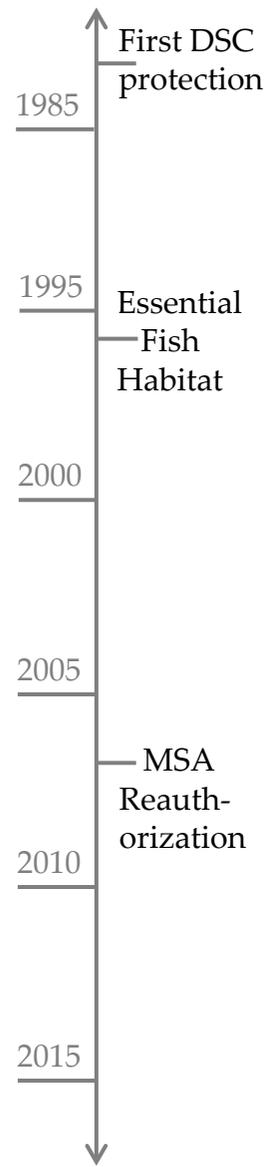
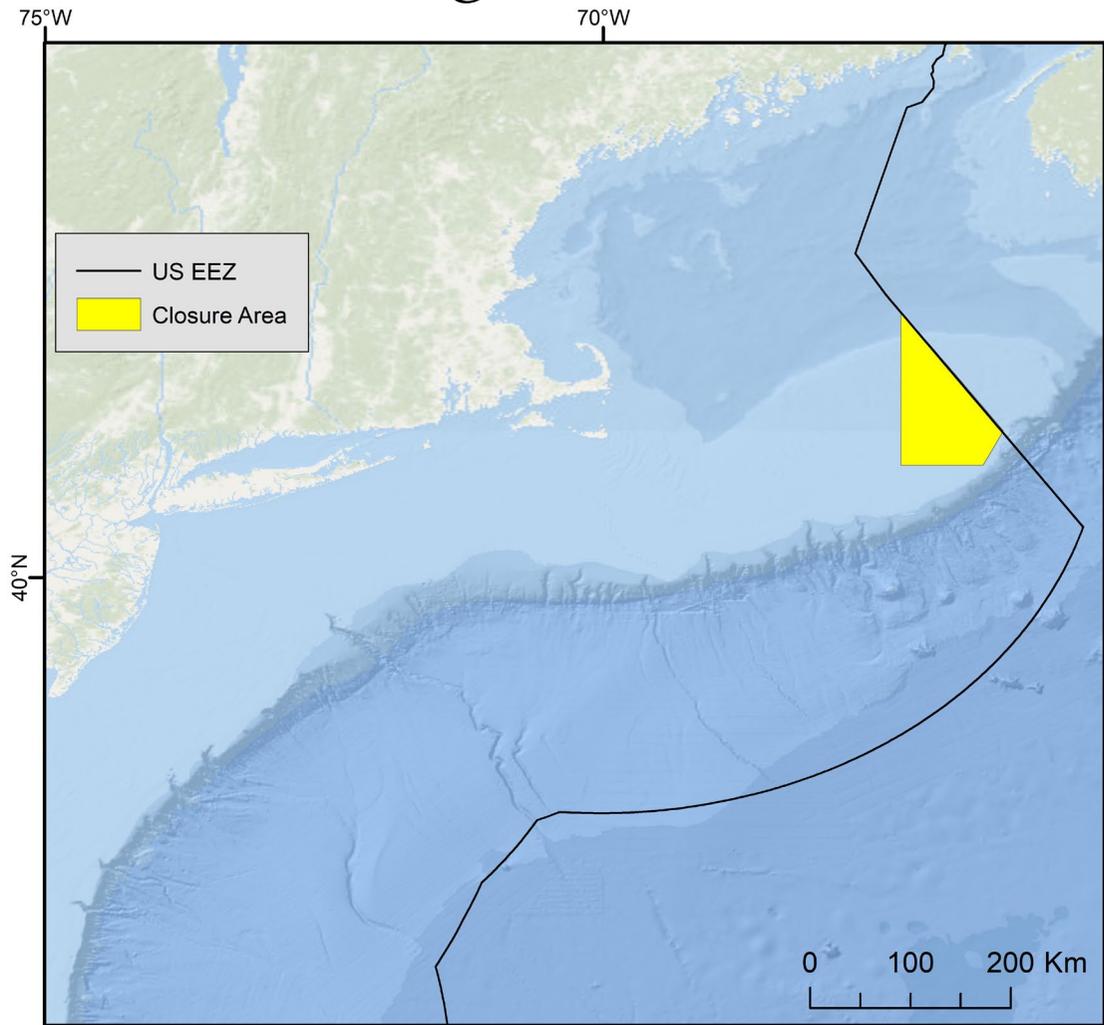


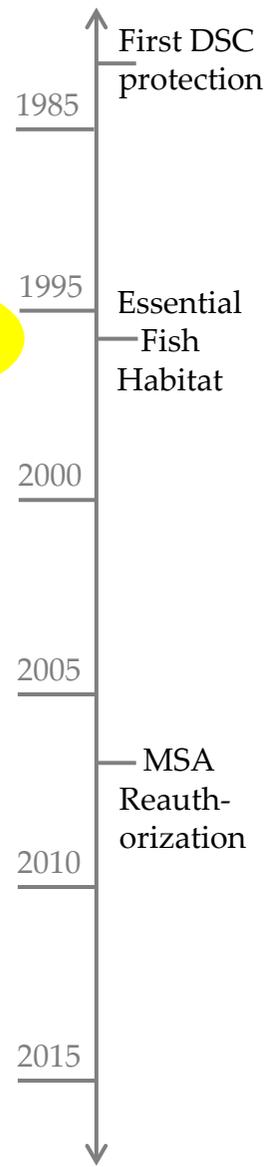
Image: ROPOS/Bigelow 2019

1996

New England and Mid-Atlantic

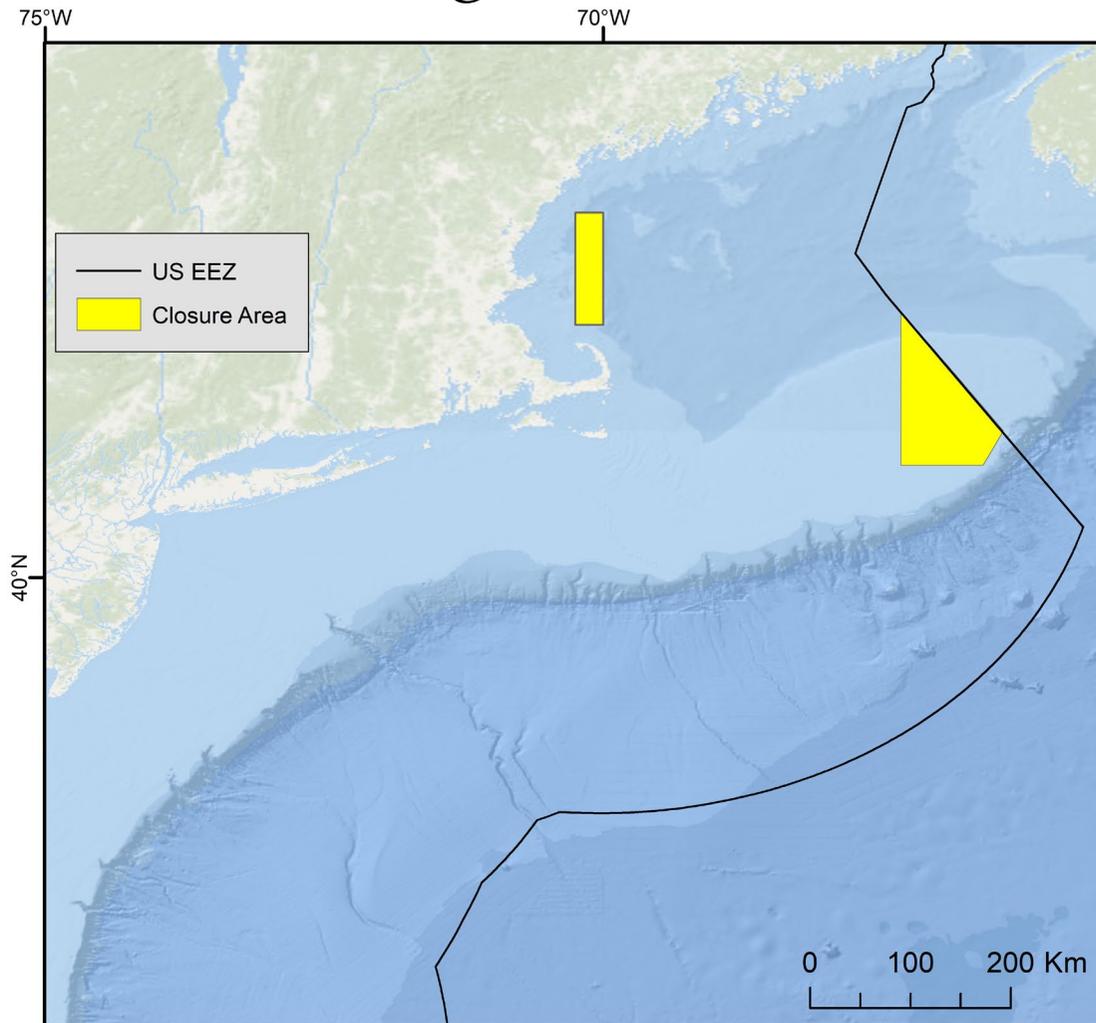


Closure Area

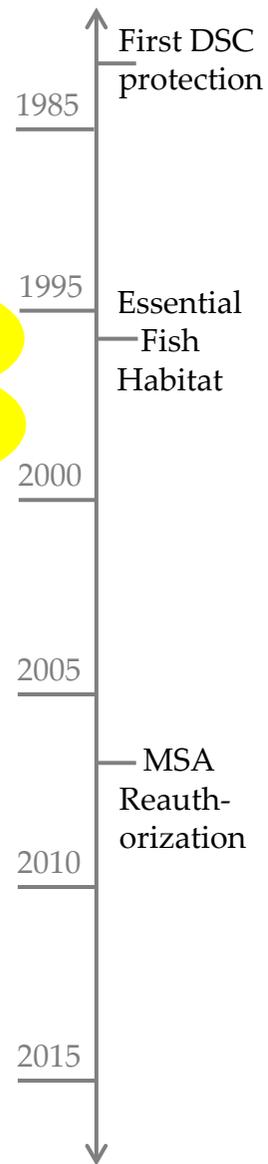


1998

New England and Mid-Atlantic

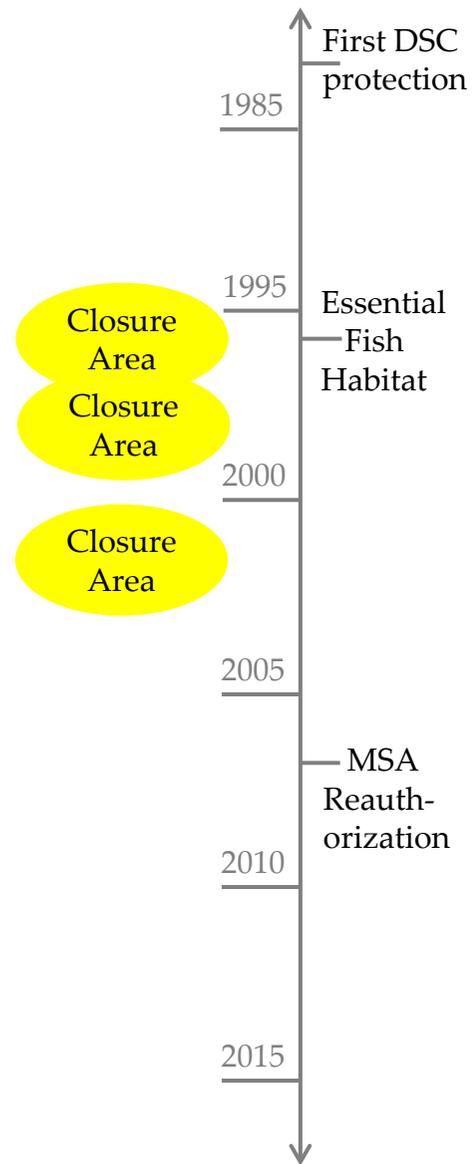
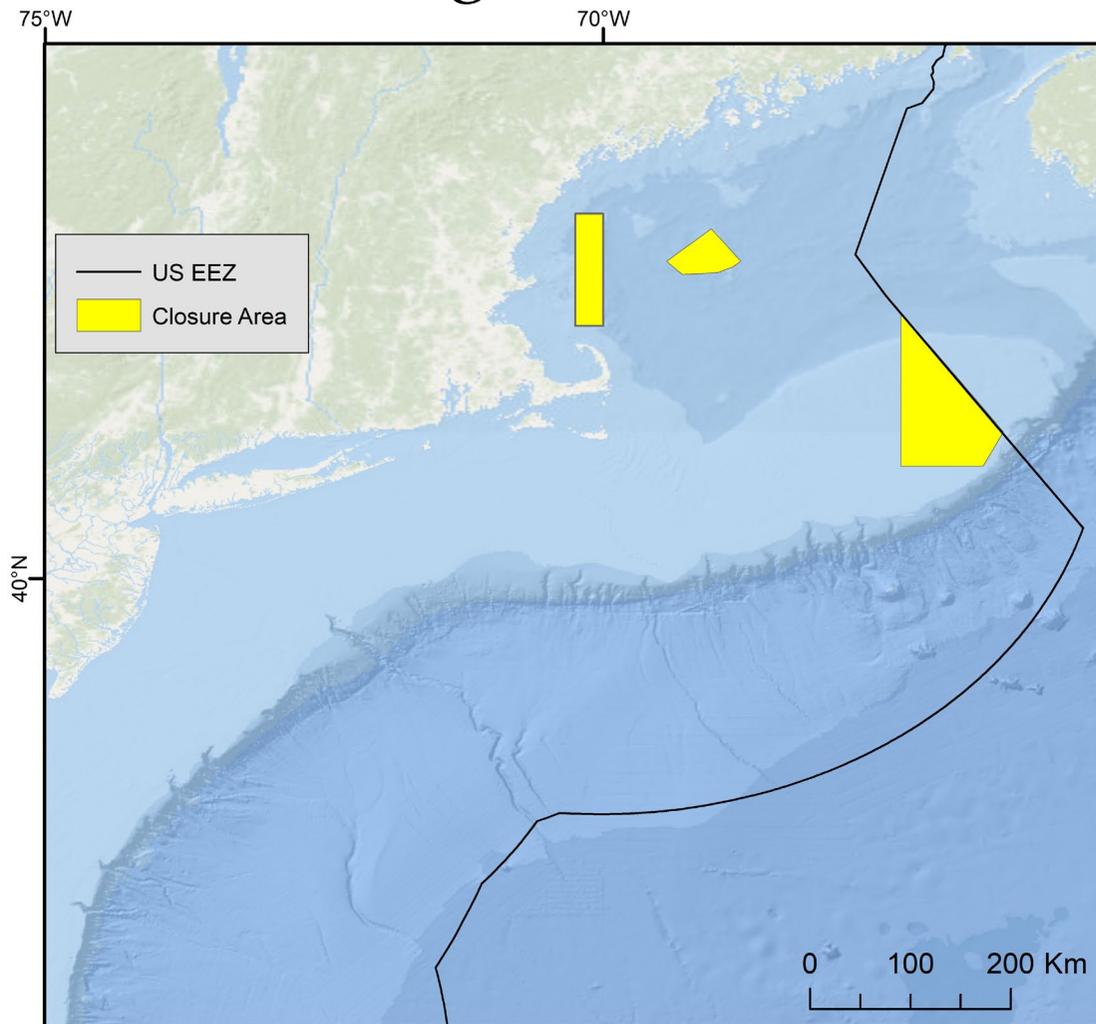


Closure Area
Closure Area



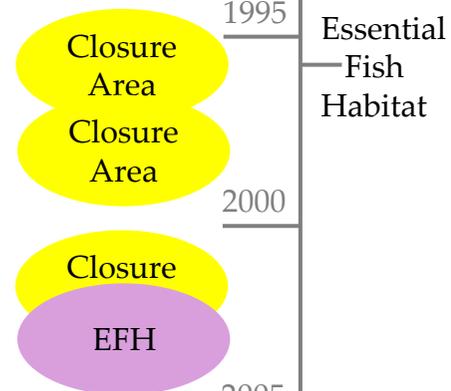
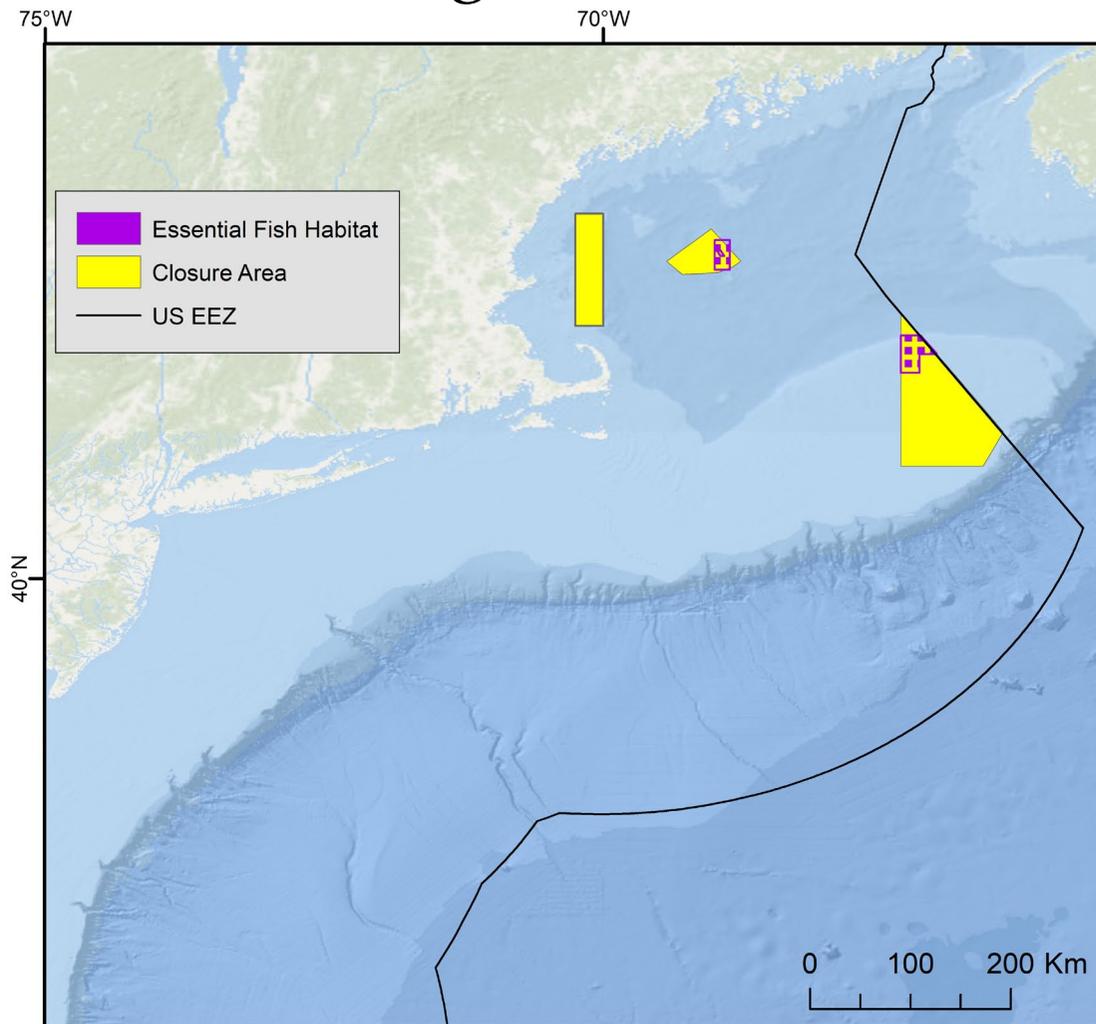
2002

New England and Mid-Atlantic



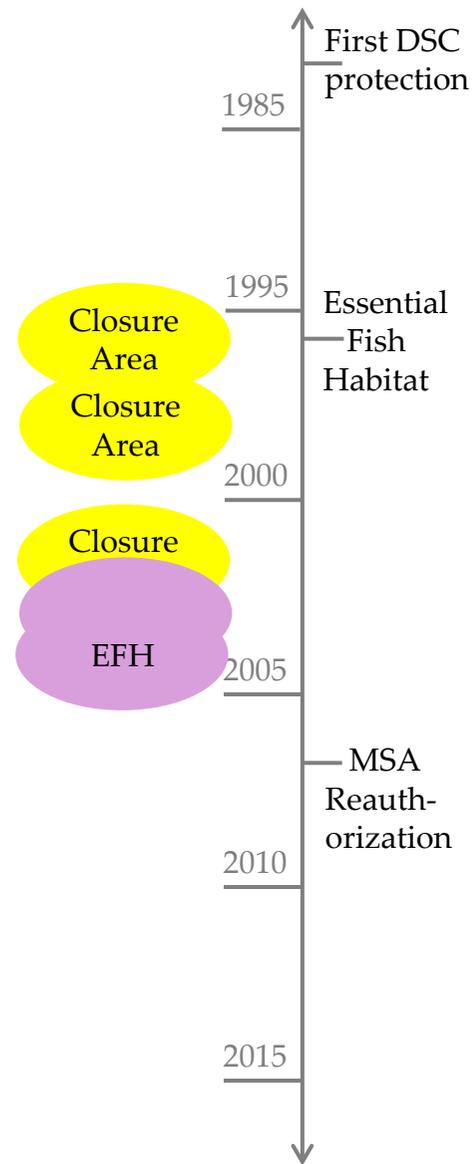
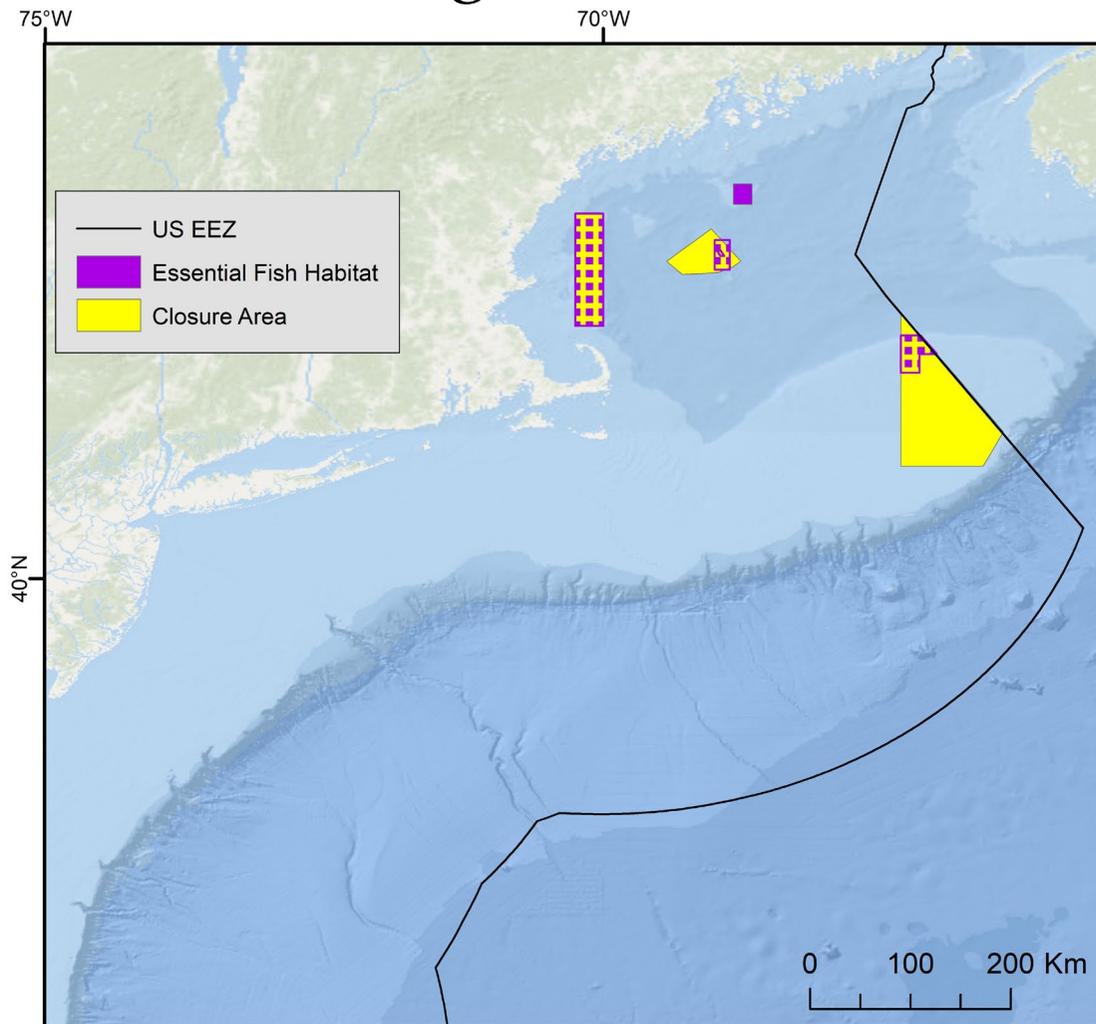
2003

New England and Mid-Atlantic



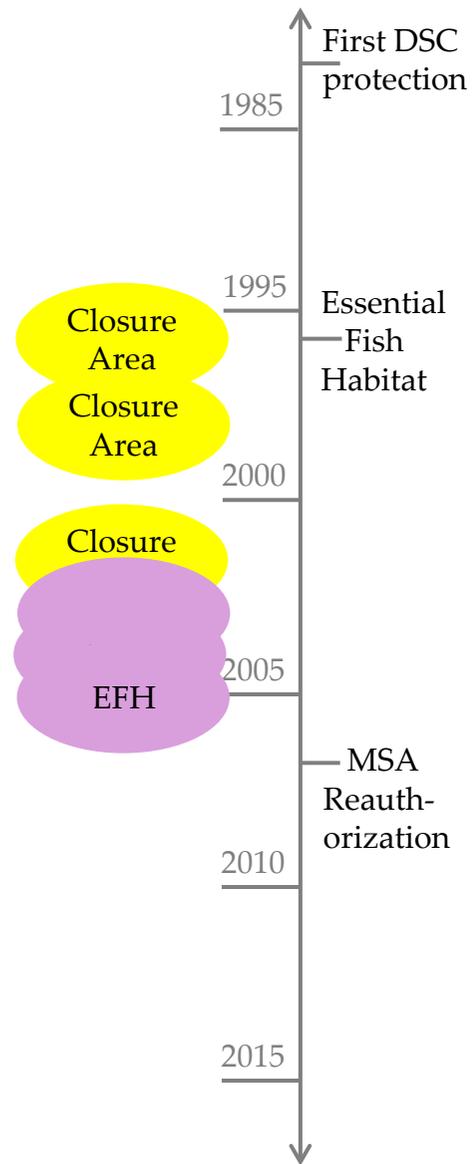
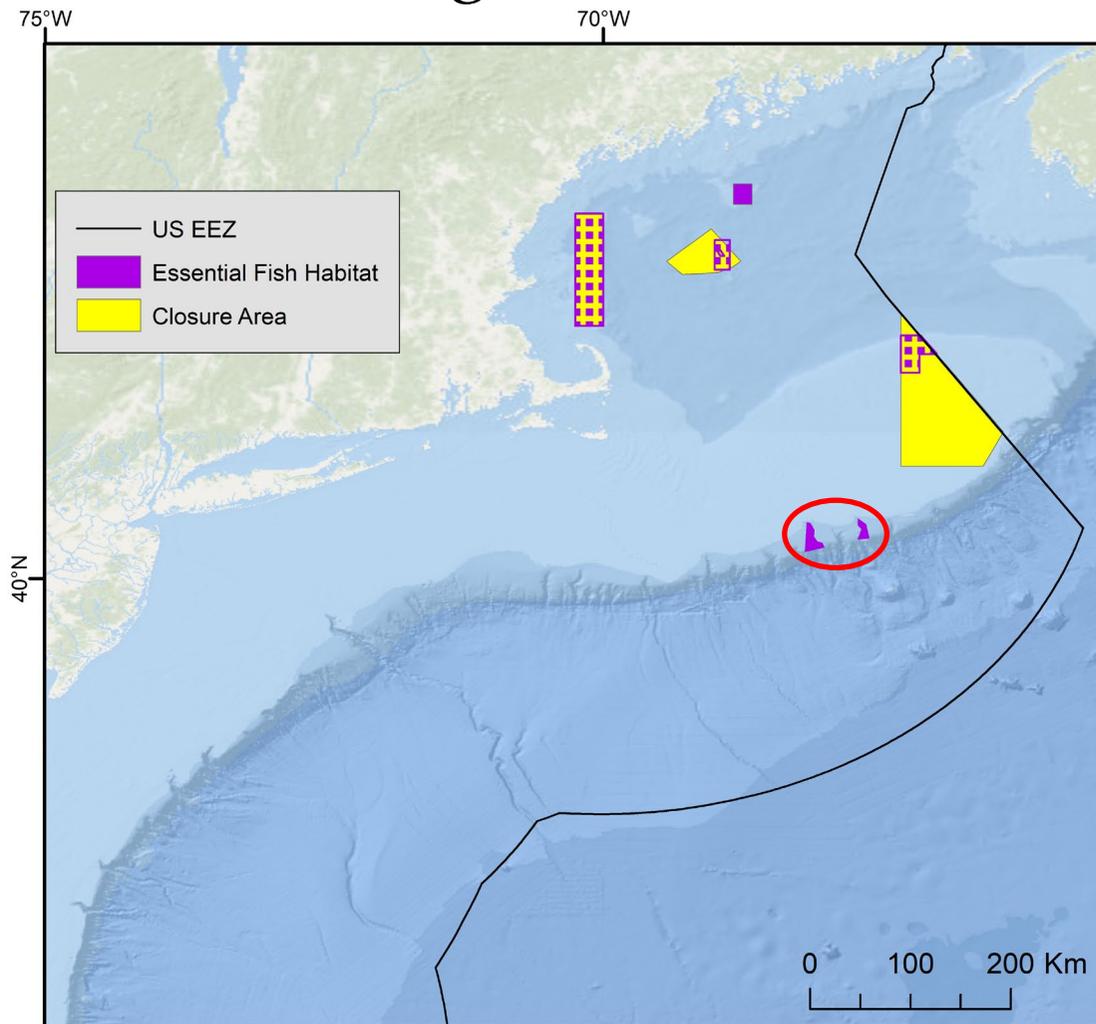
2004

New England and Mid-Atlantic



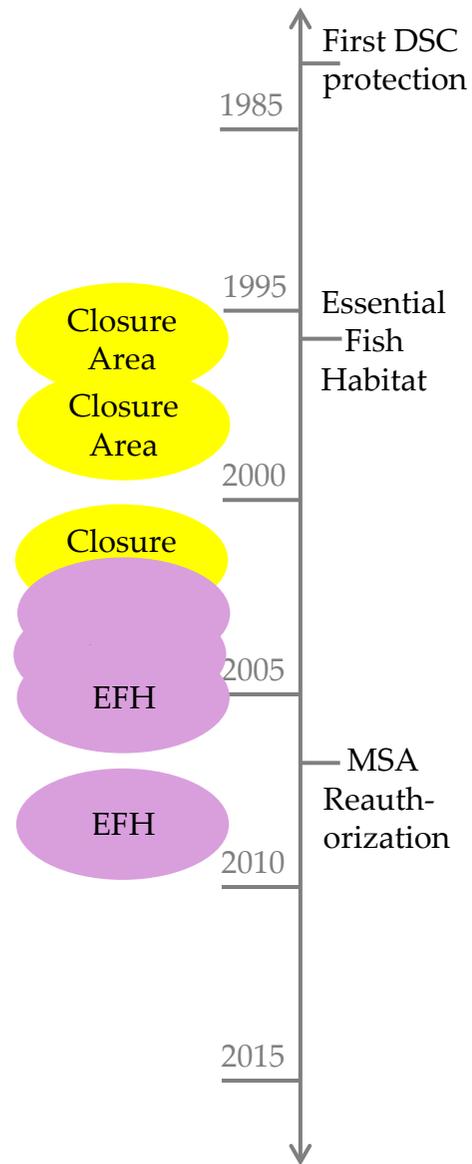
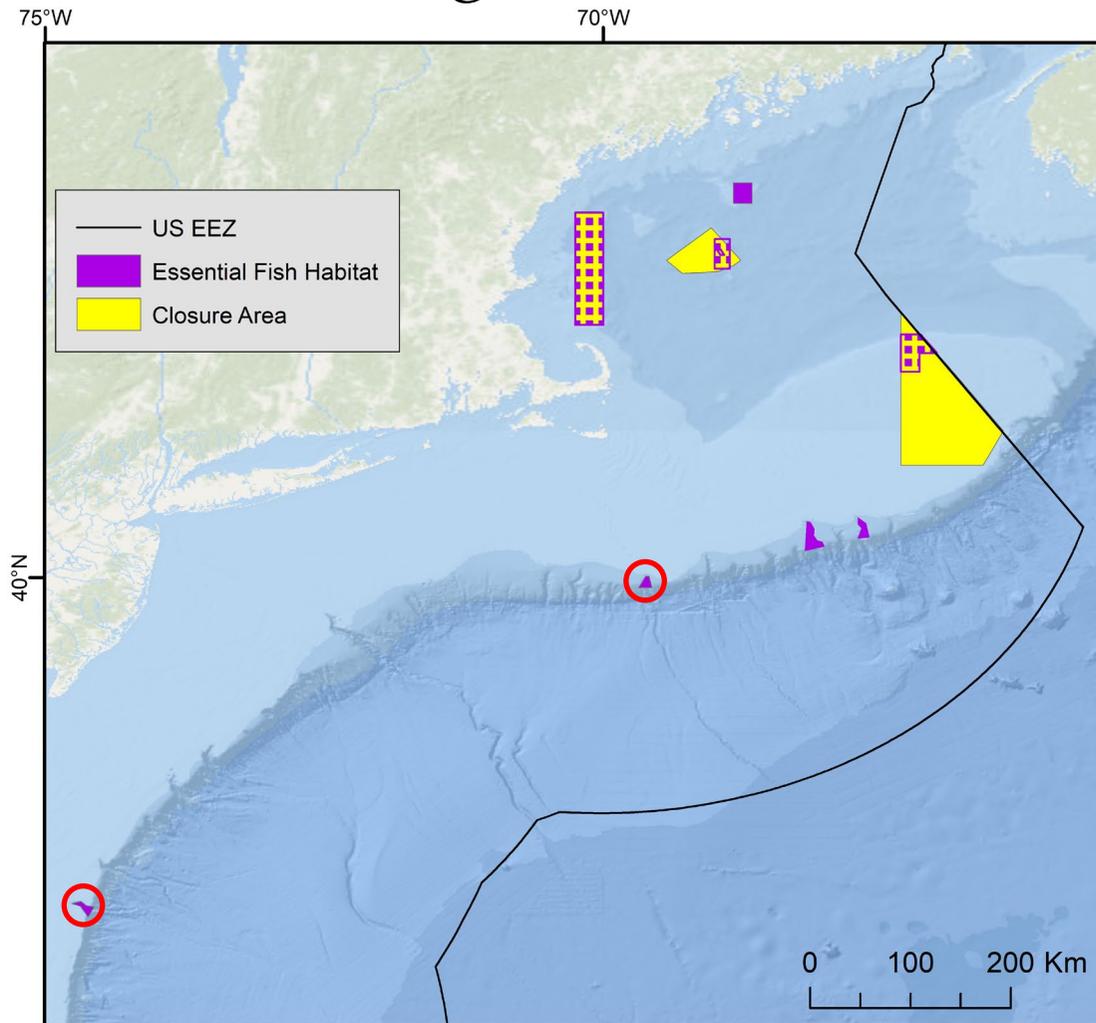
2005

New England and Mid-Atlantic



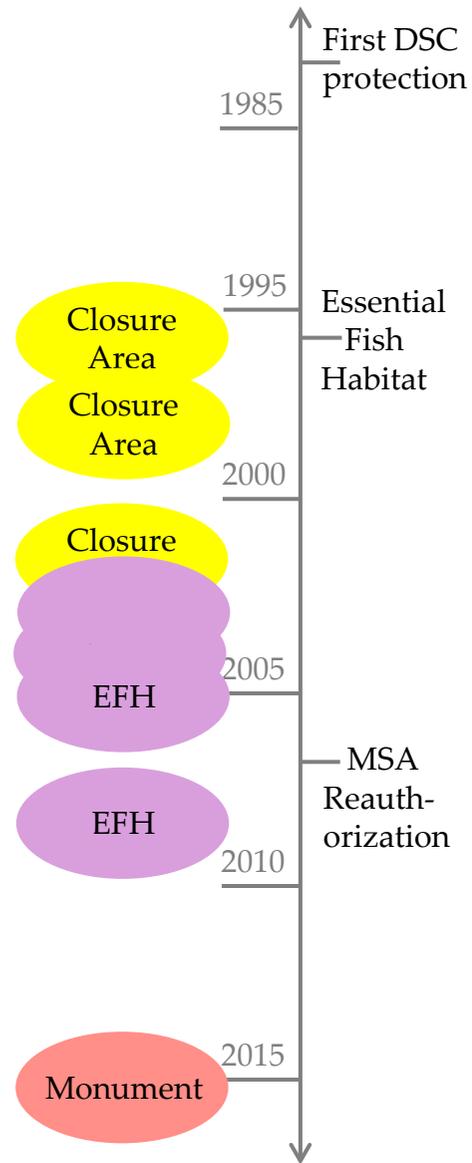
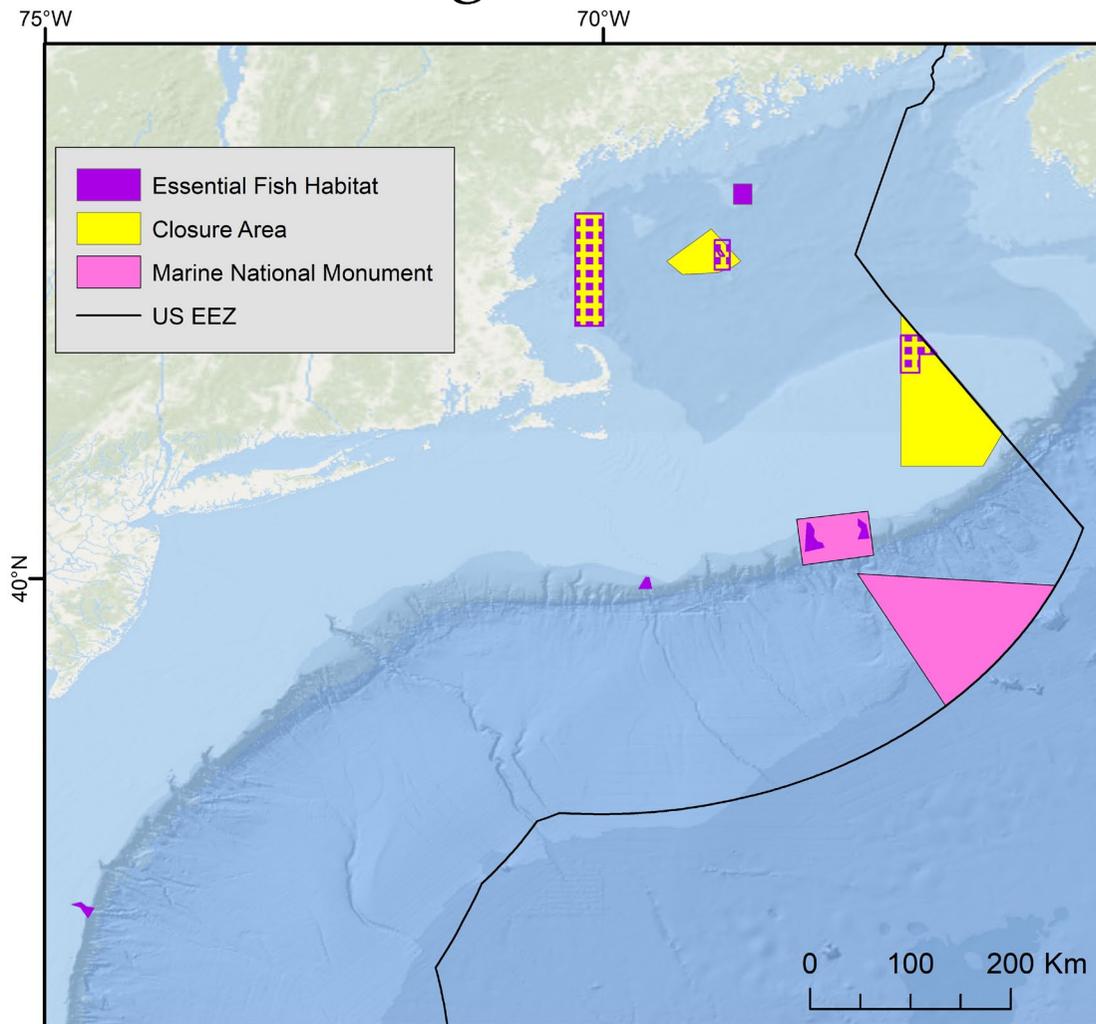
2009

New England and Mid-Atlantic



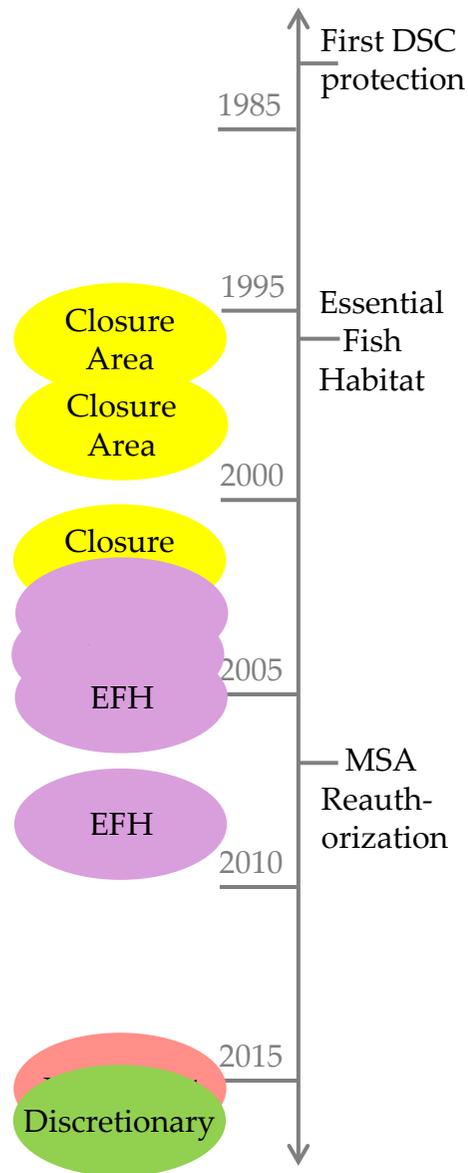
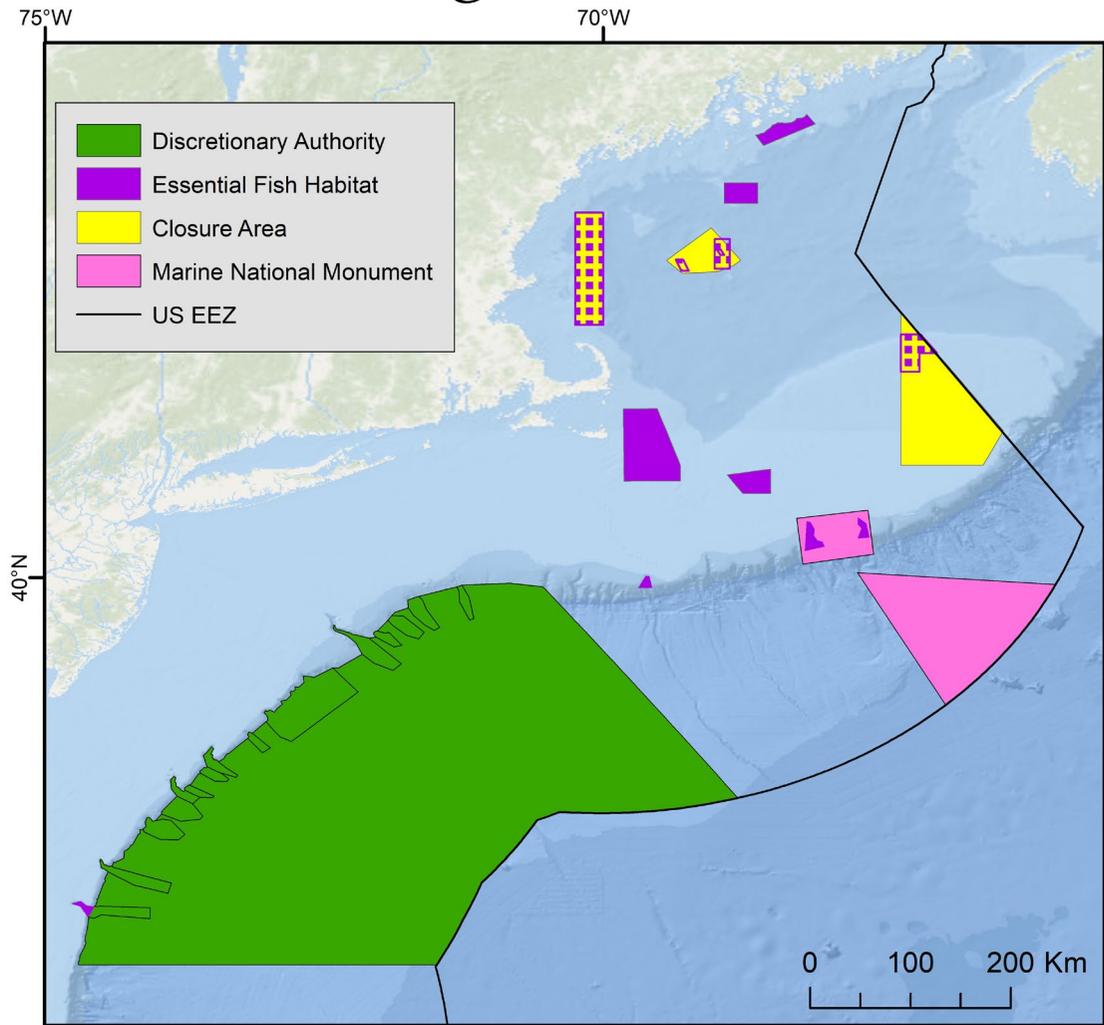
2016

New England and Mid-Atlantic



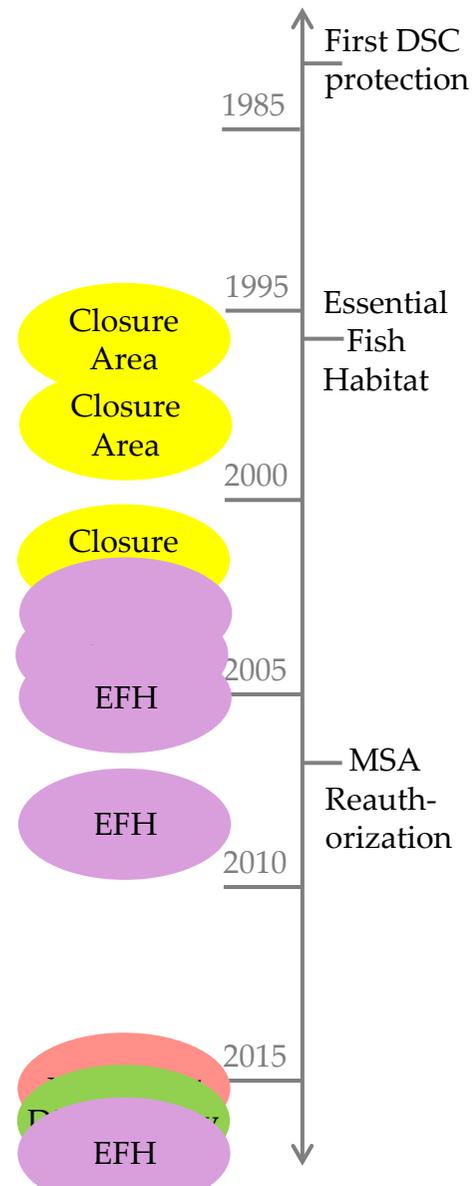
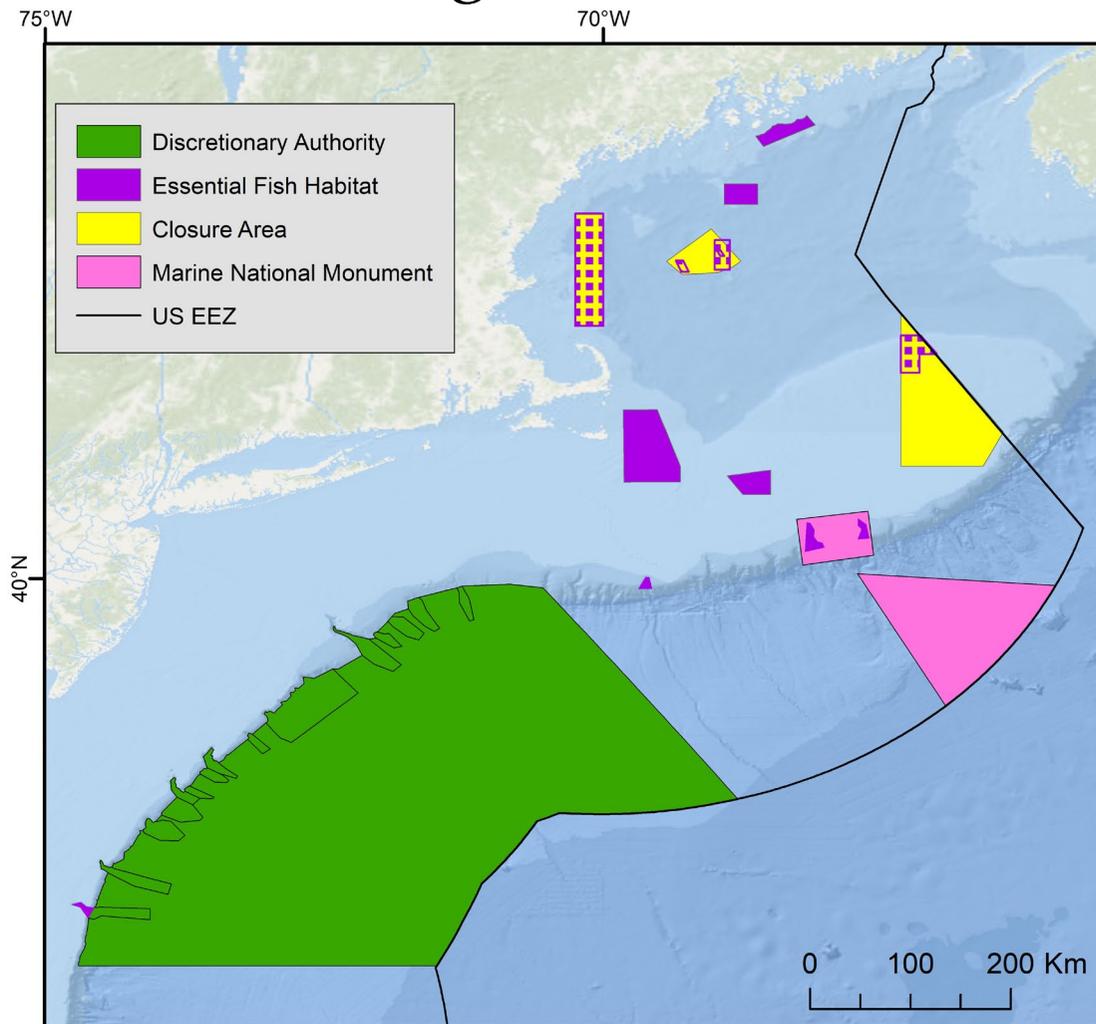
2017

New England and Mid-Atlantic



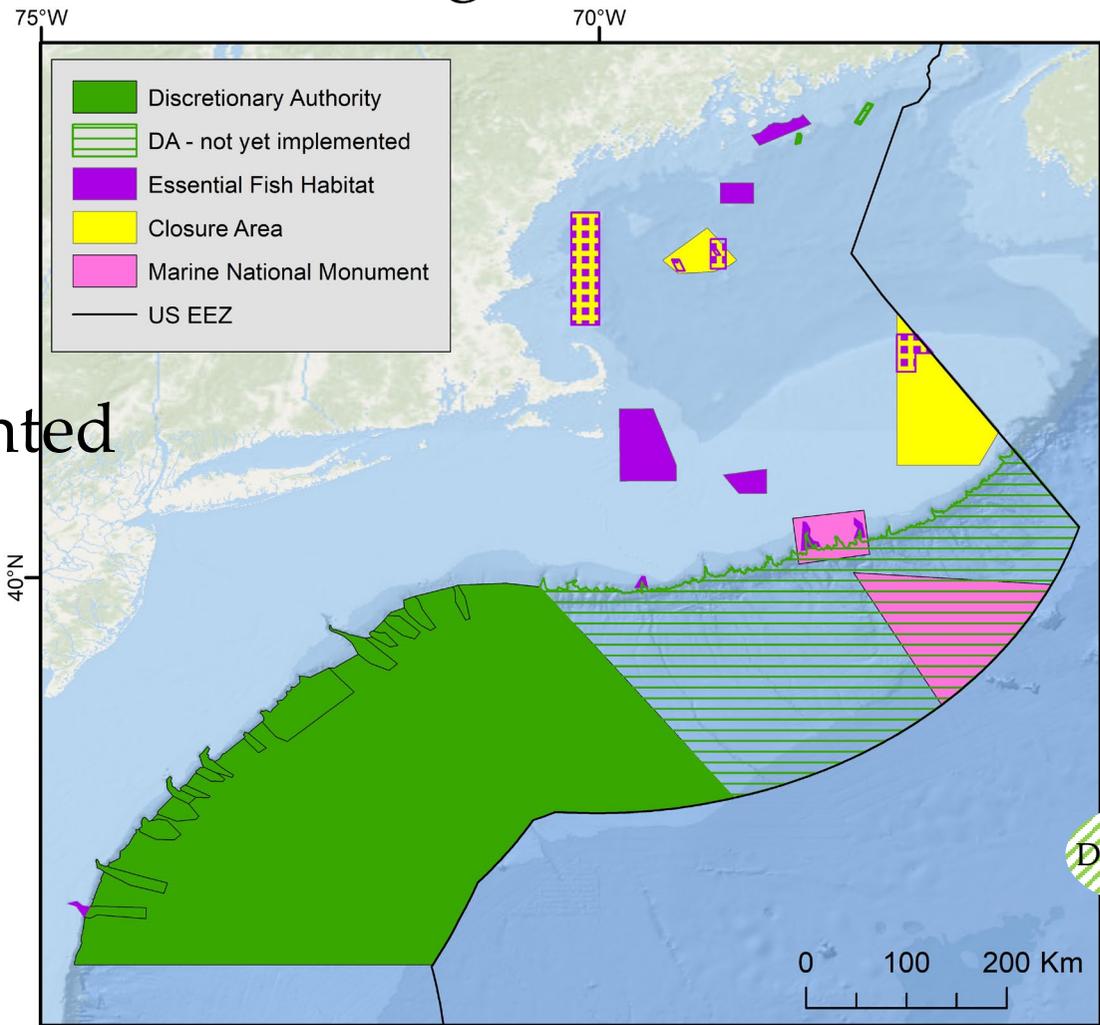
2018

New England and Mid-Atlantic

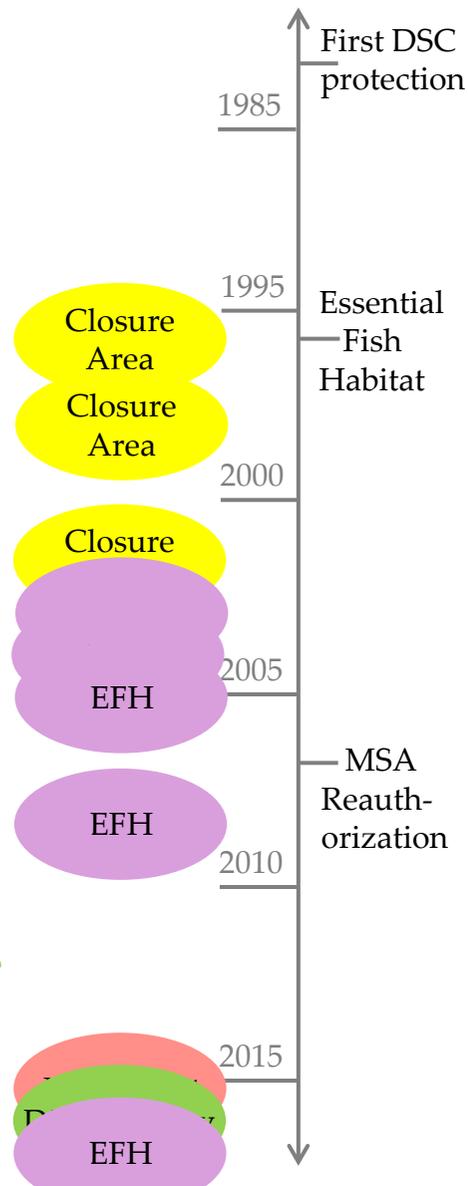


New England and Mid-Atlantic

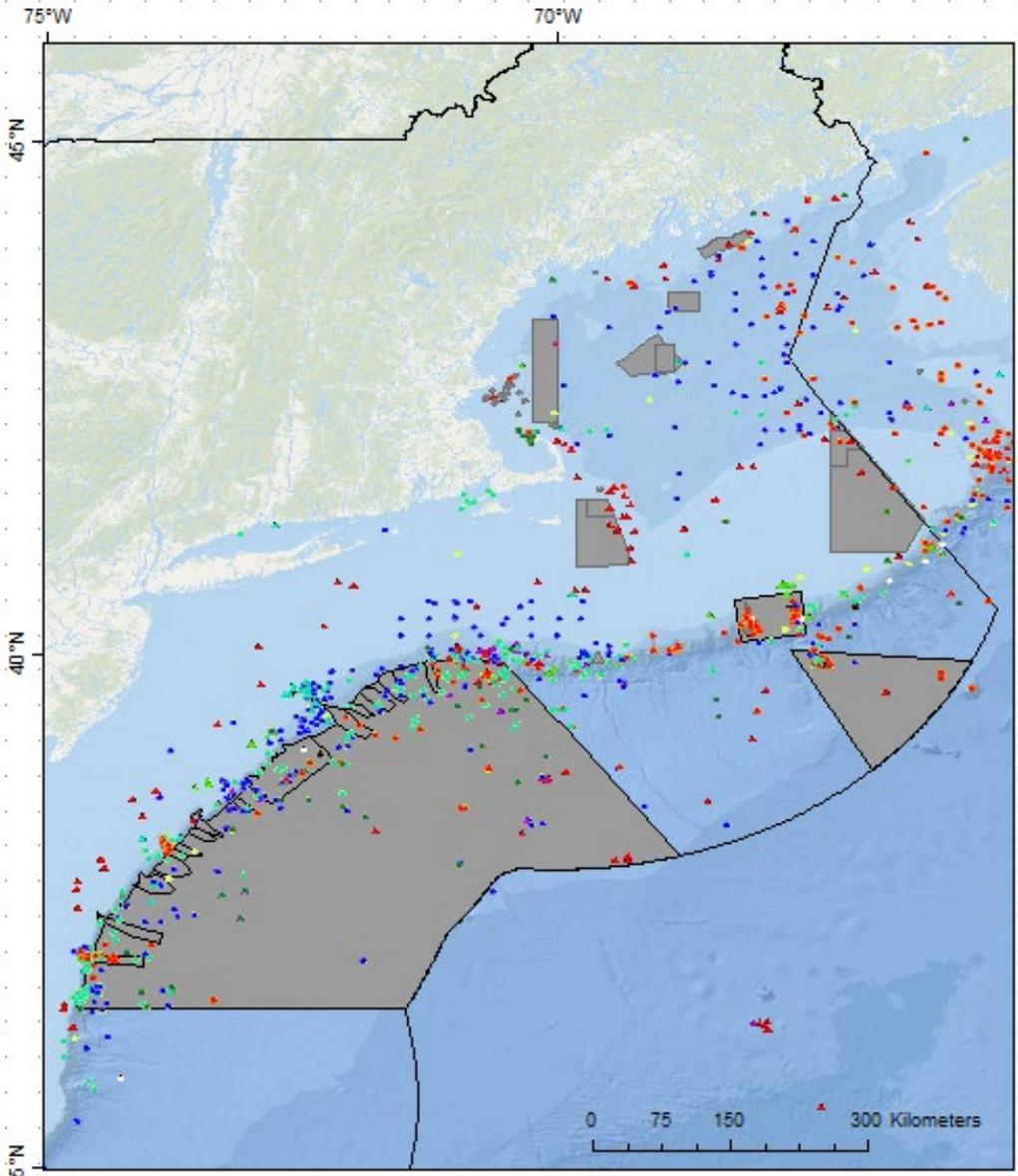
Not yet implemented



2020?
Discretionary



New England and Mid-Atlantic



Deep-sea coral and sponge taxa

- black coral
- ▲ calcareous sponge
- ▲ demosponge
- ▲ glass sponge
- gold coral
- gorgonian coral
- ▲ homoscleromorph sponge
- lace coral
- lithotelestial coral
- other coral-like hydrozoan
- sea pen
- soft coral
- ▲ sponge (unspecified)
- stoloniferan coral
- stony coral (branching)
- stony coral (cup coral)
- stony coral (unspecified)

U.S. Caribbean

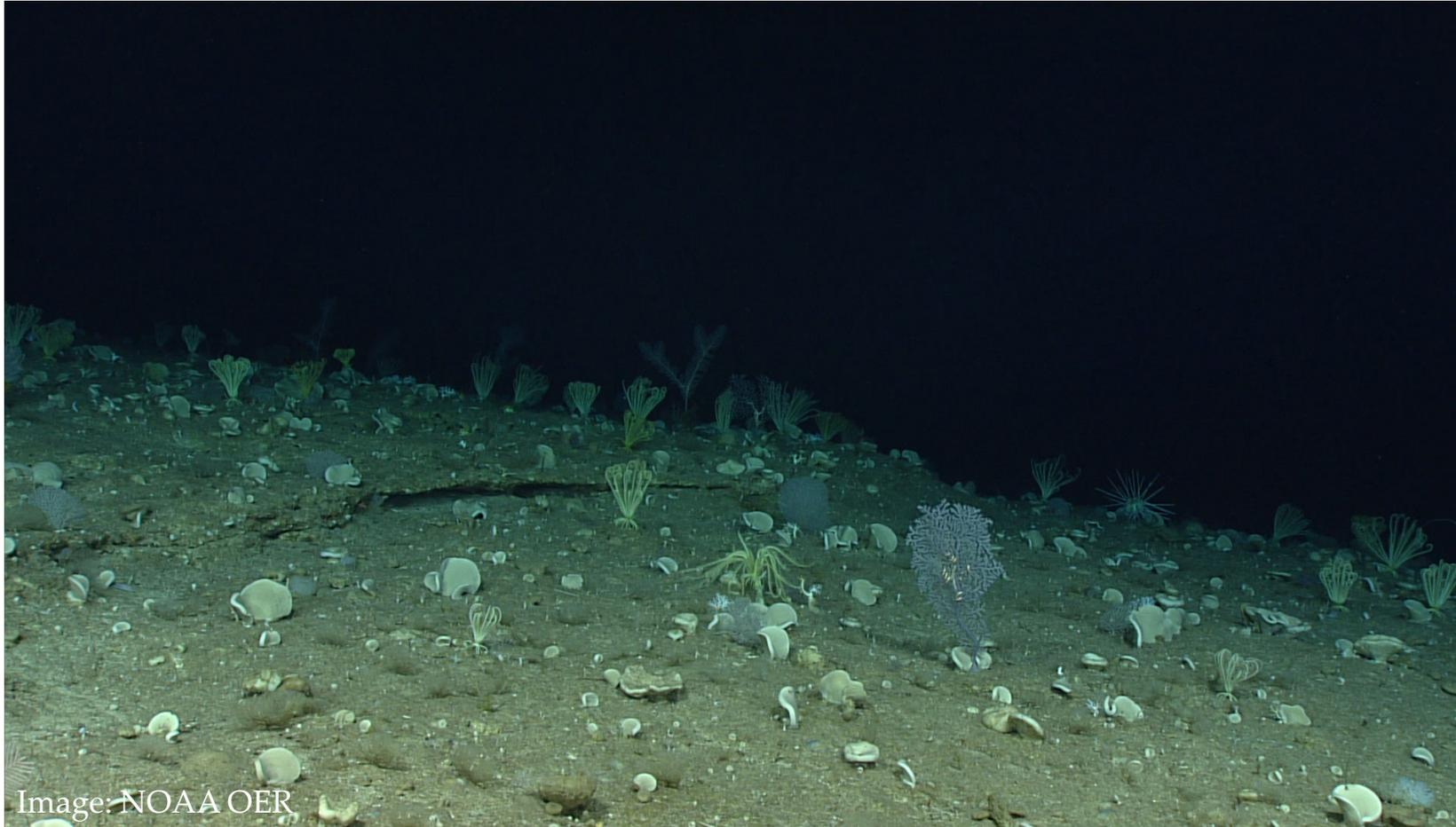
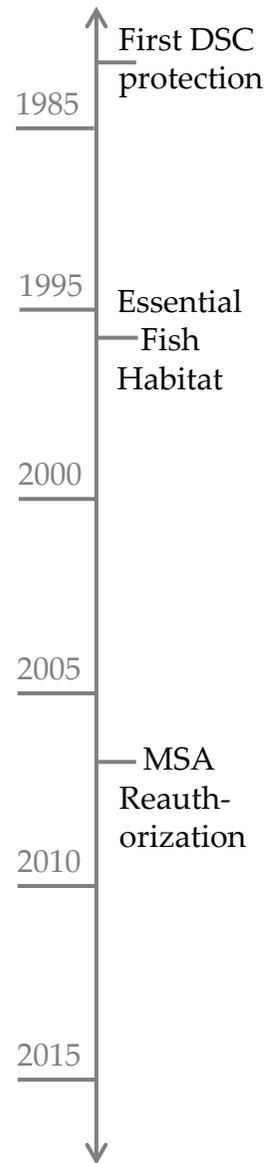
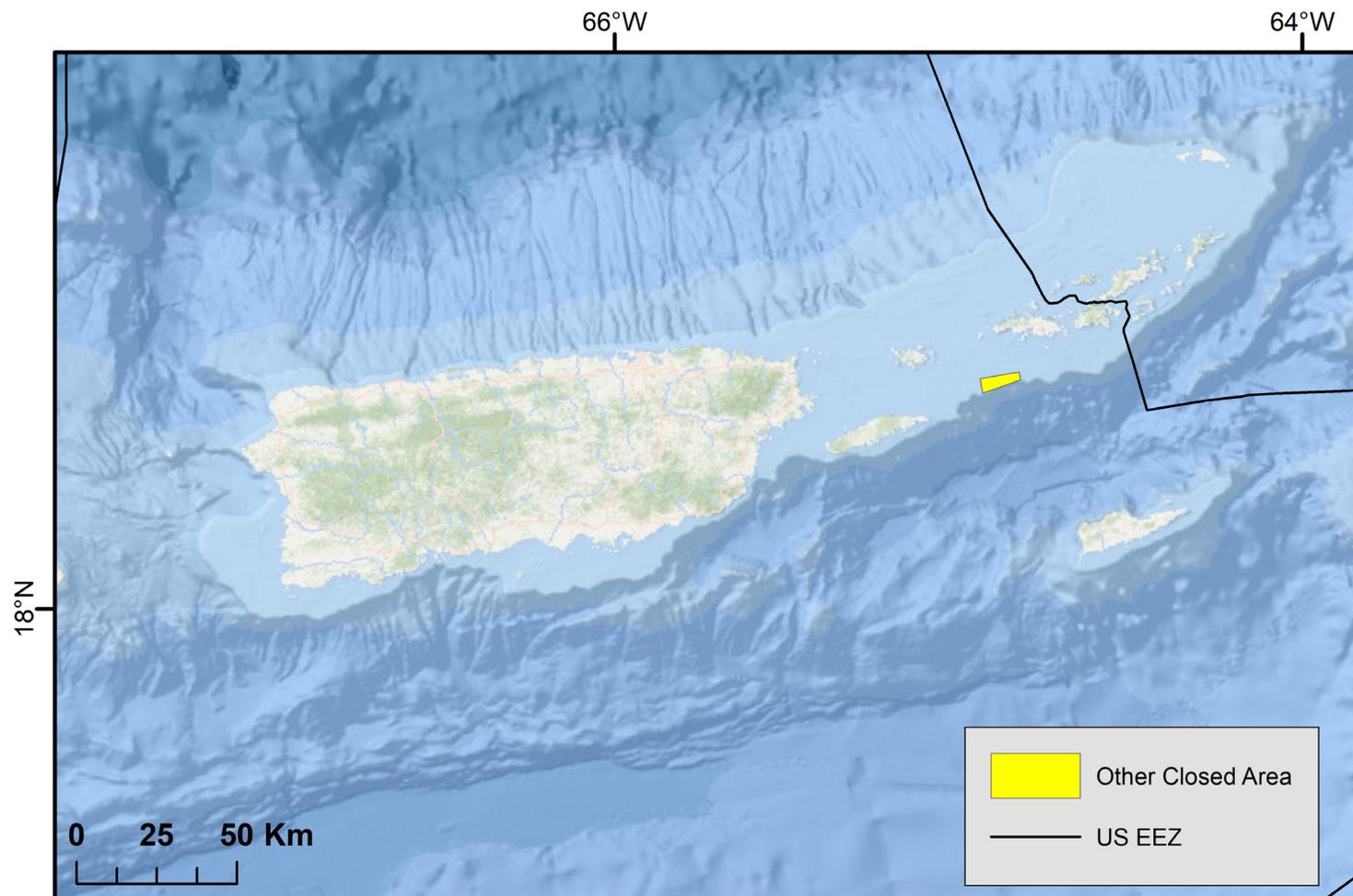


Image: NOAA OER

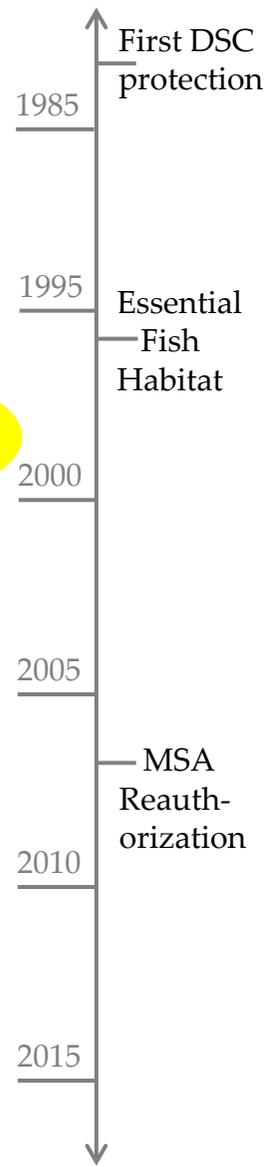


1999

U.S. Caribbean

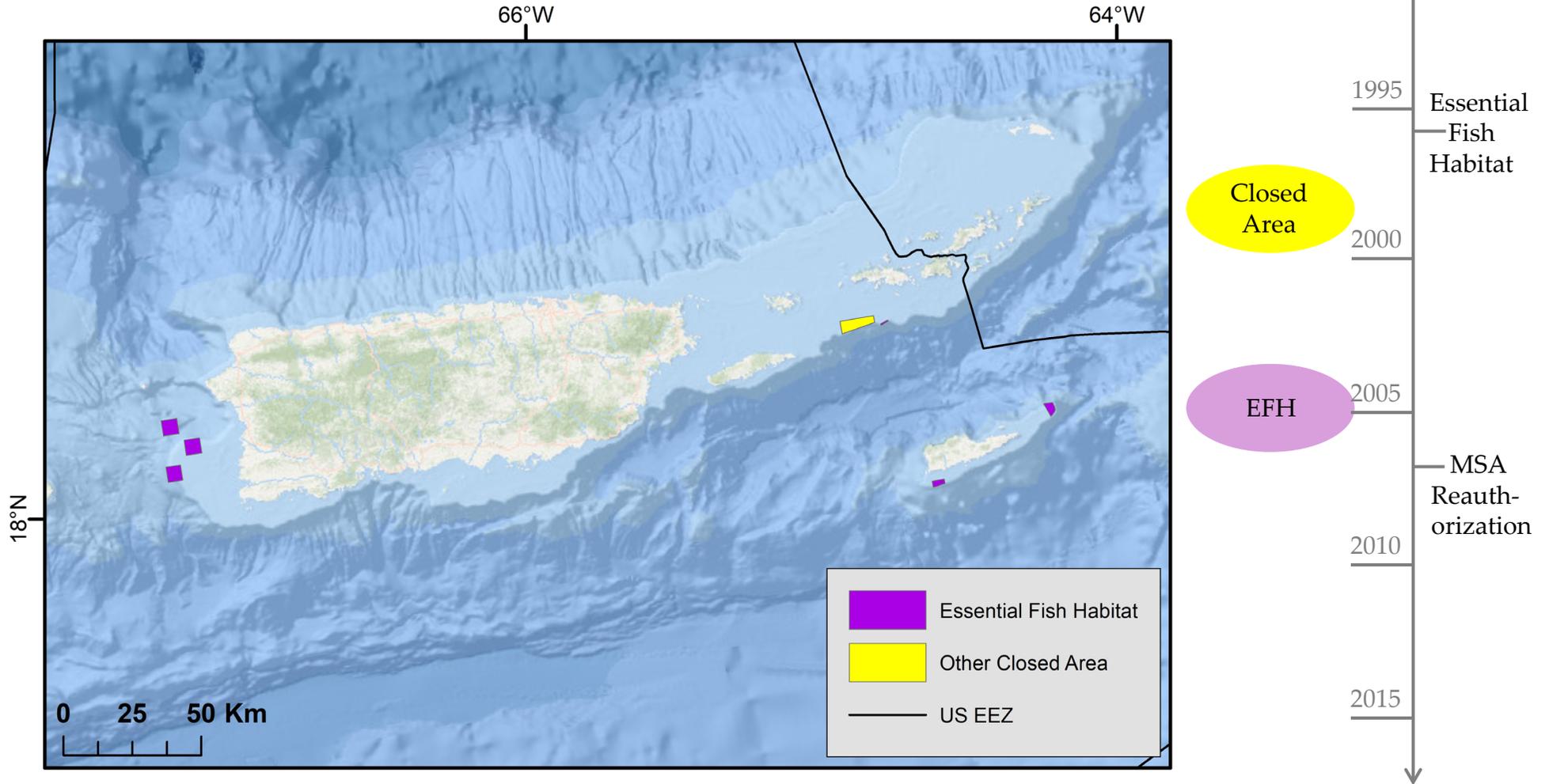


Closed Area

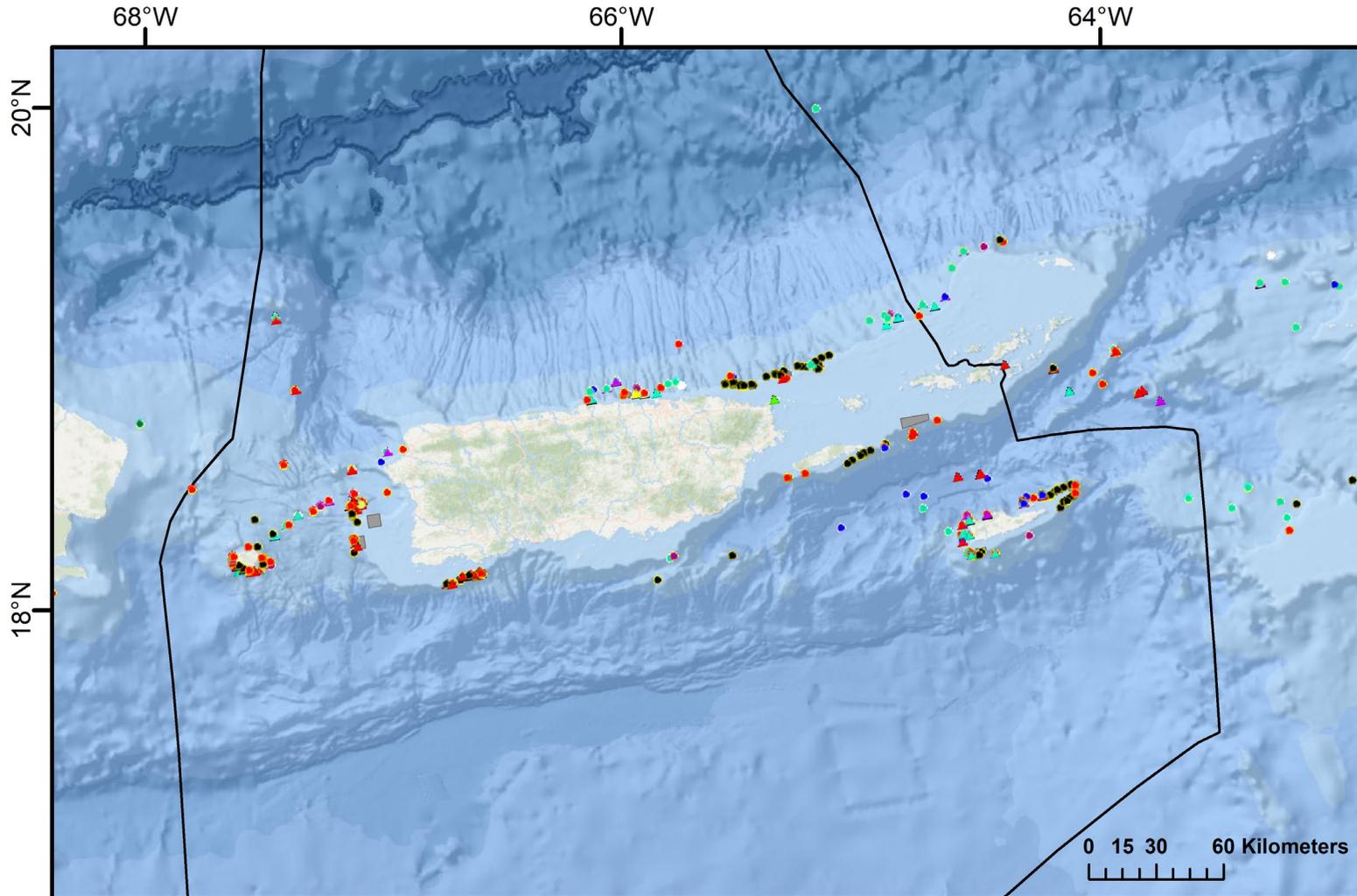


Current

U.S. Caribbean



U.S. Caribbean



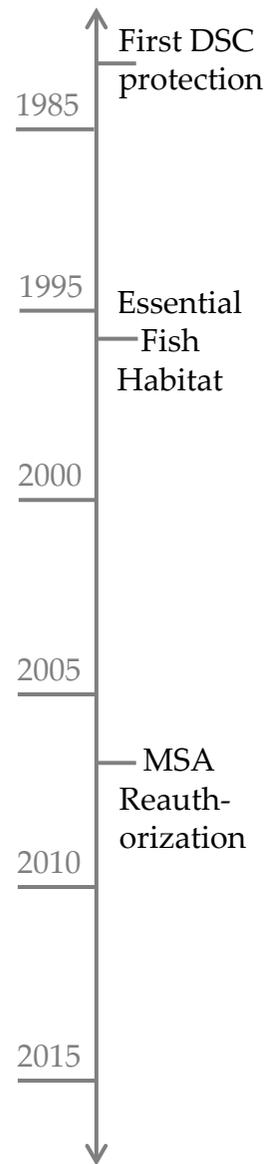
Deep-sea coral and sponge taxa

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- stony coral (branching)
- stony coral (cup coral)
- stony coral (unspecified)

Pacific Region

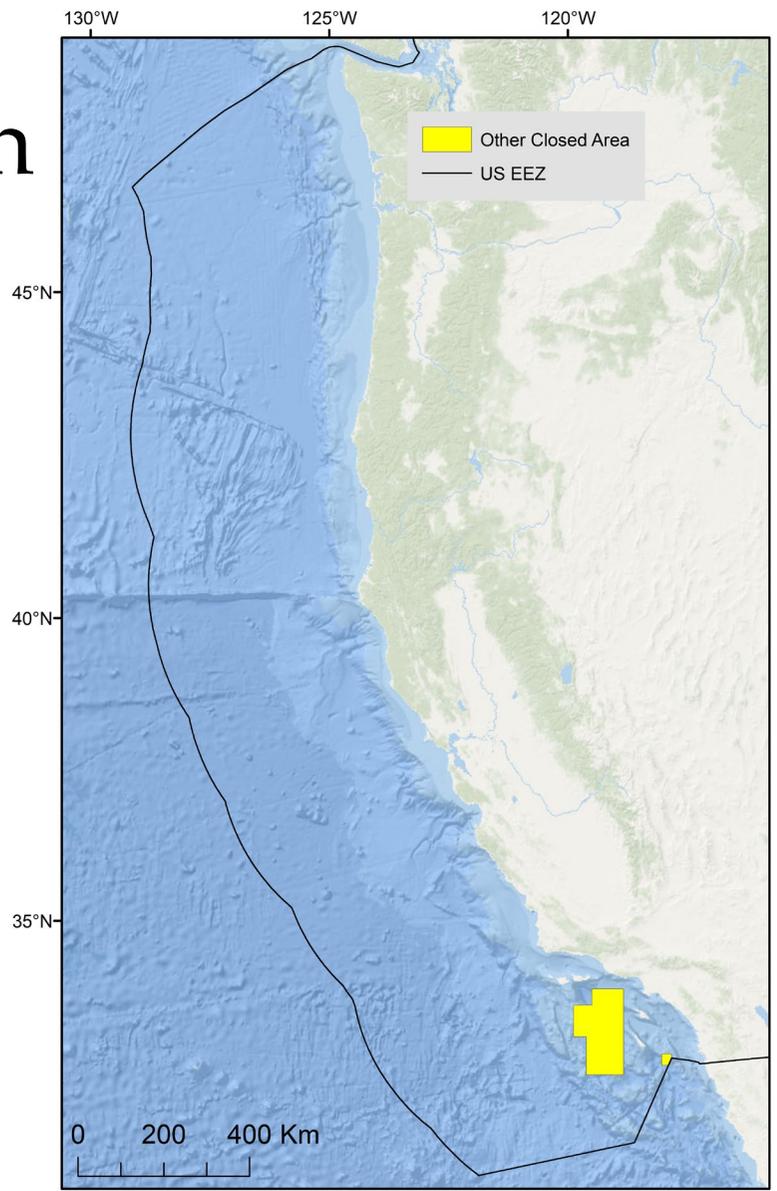


Image: NOAA Fisheries/GFOE

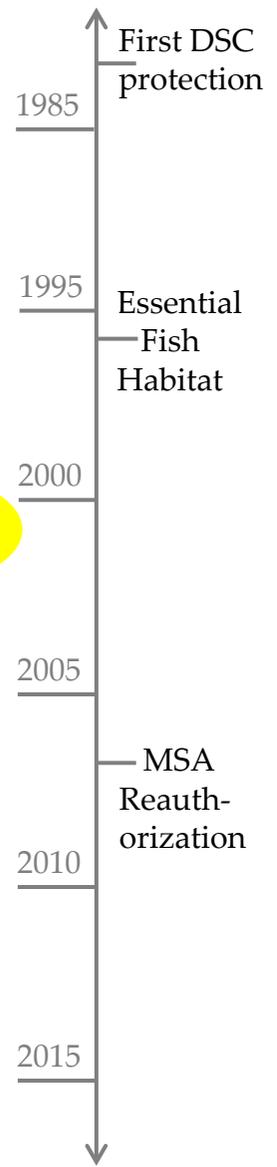


Pacific Region

2001

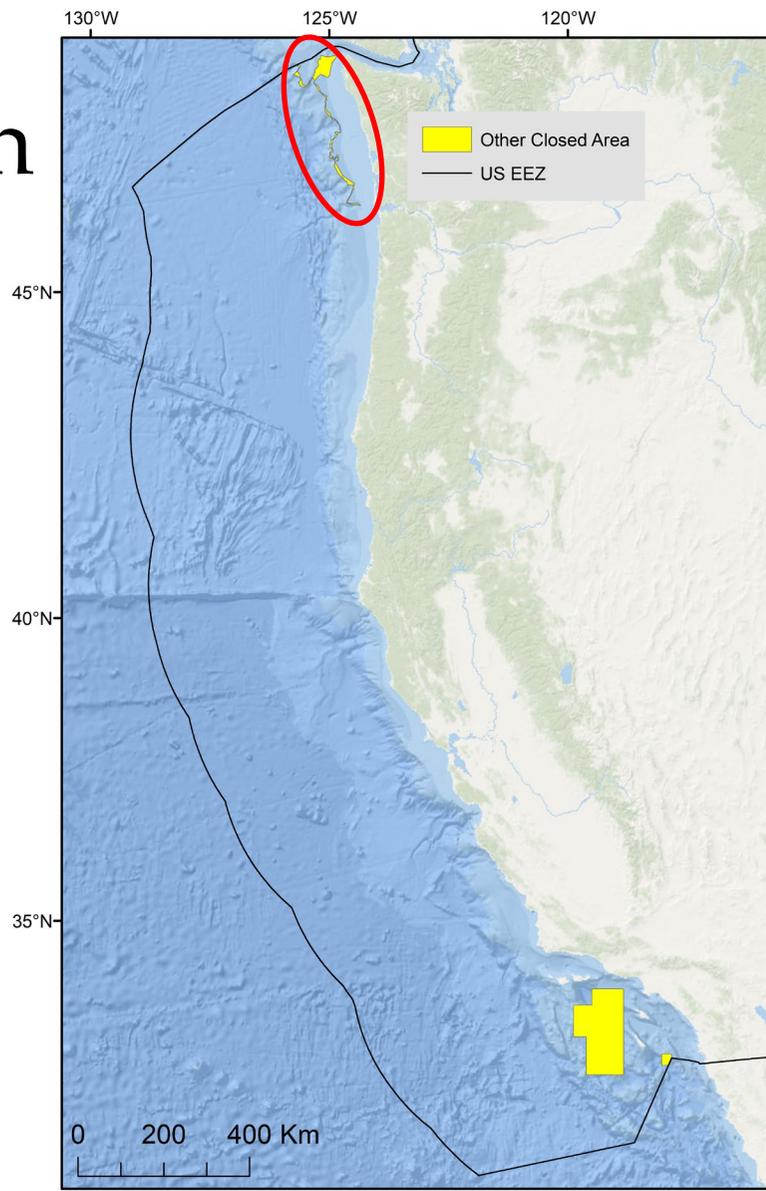


Closed Area

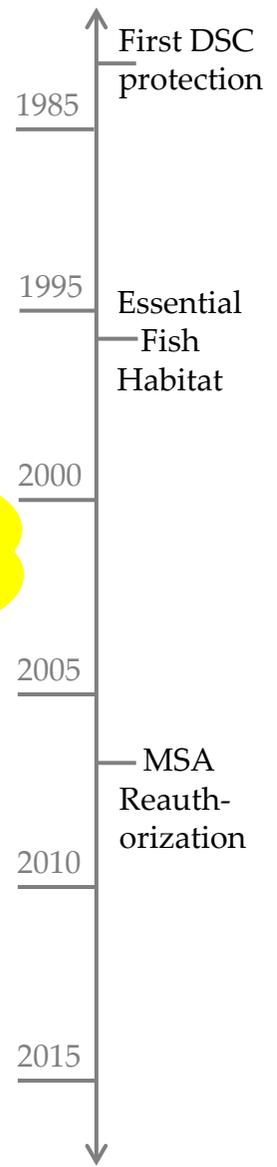


Pacific Region

2002

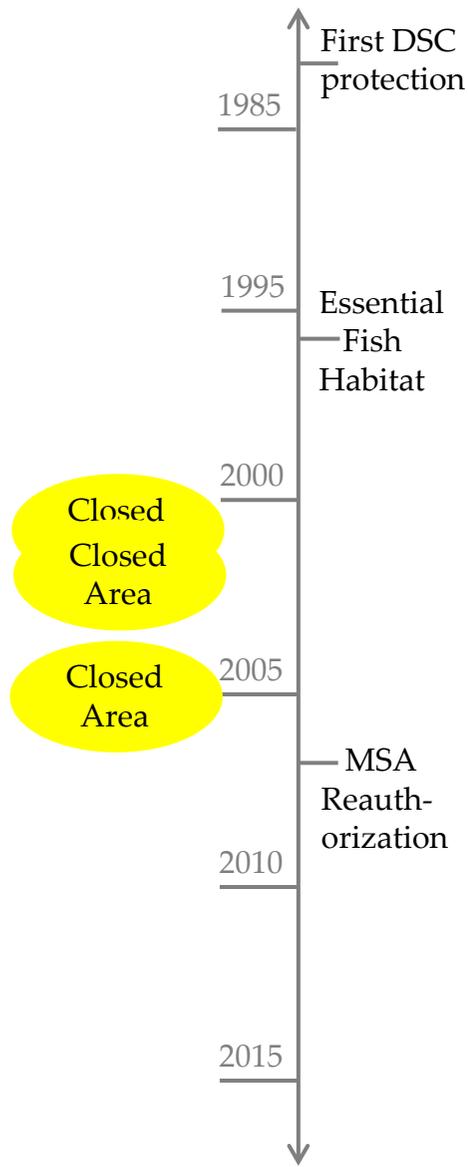
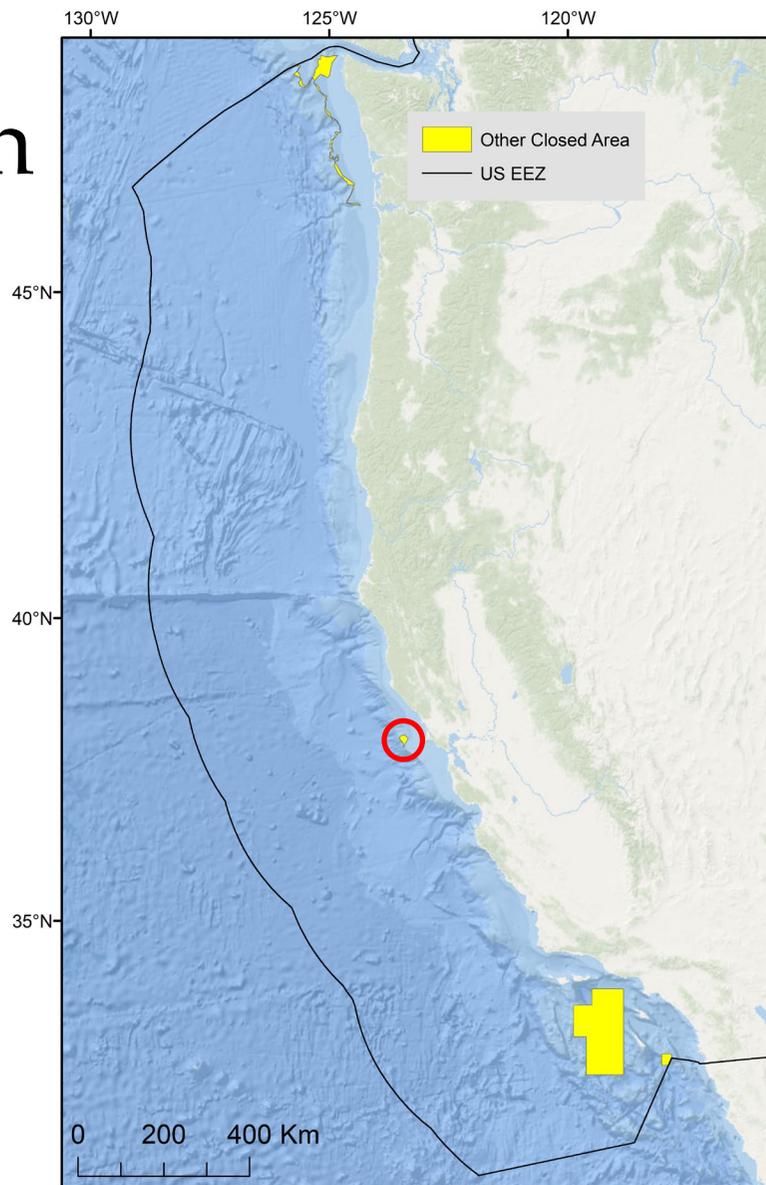


Closed
Closed
Area



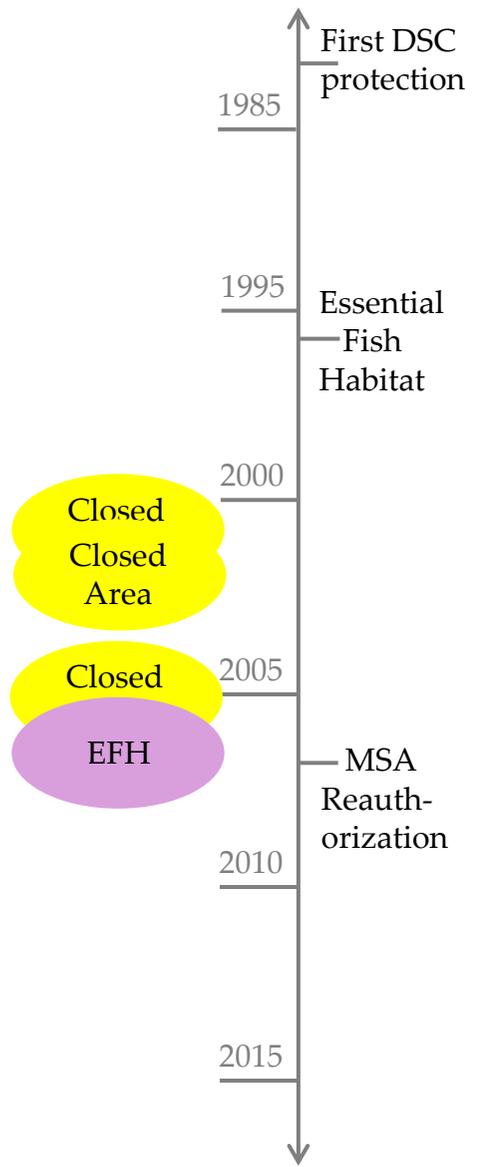
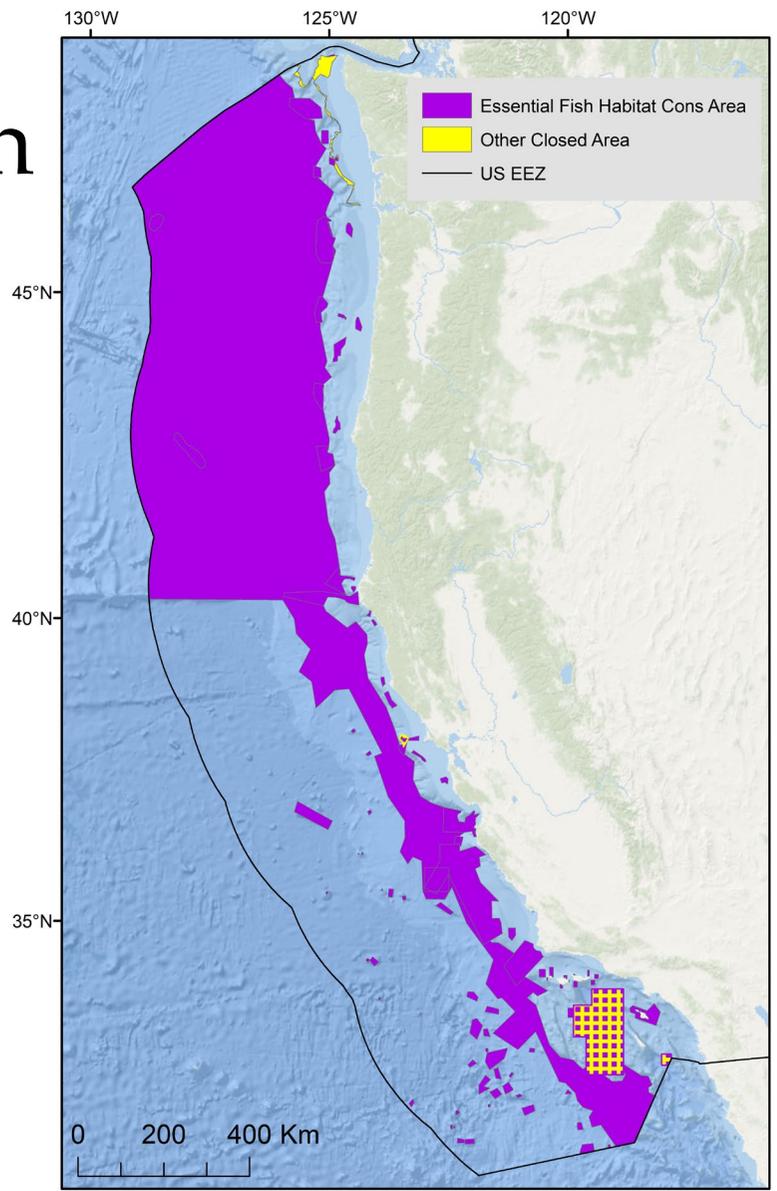
Pacific Region

2005



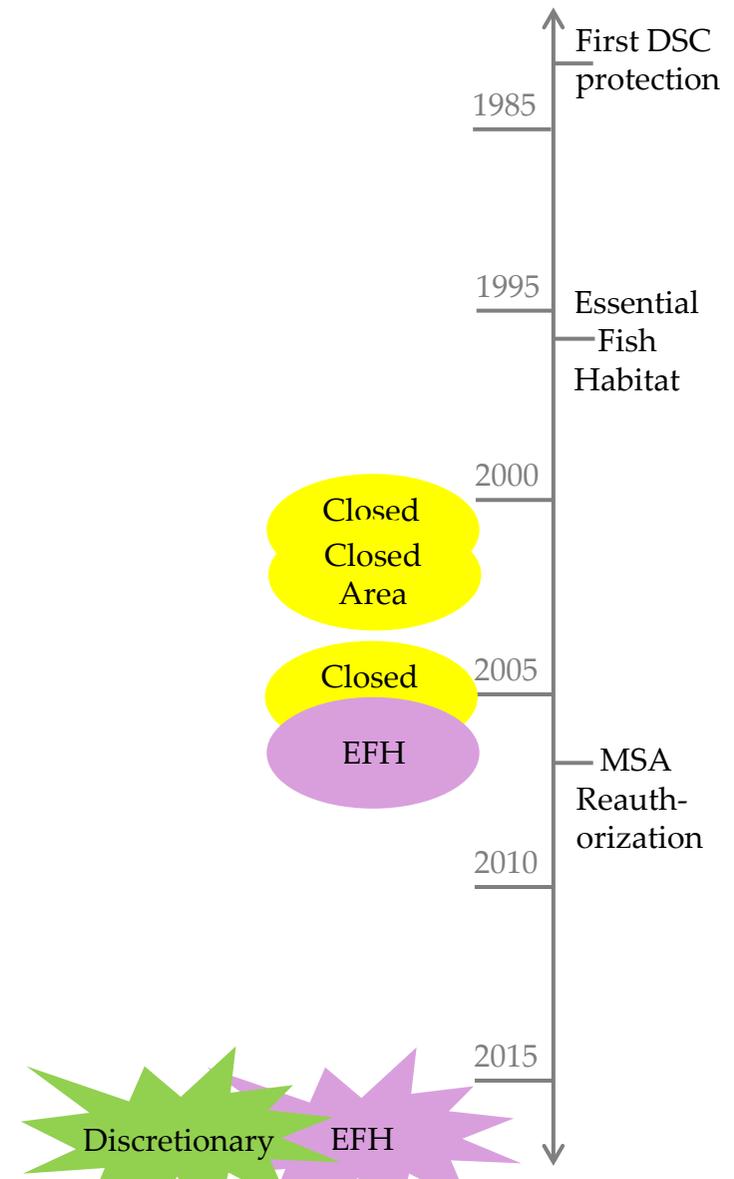
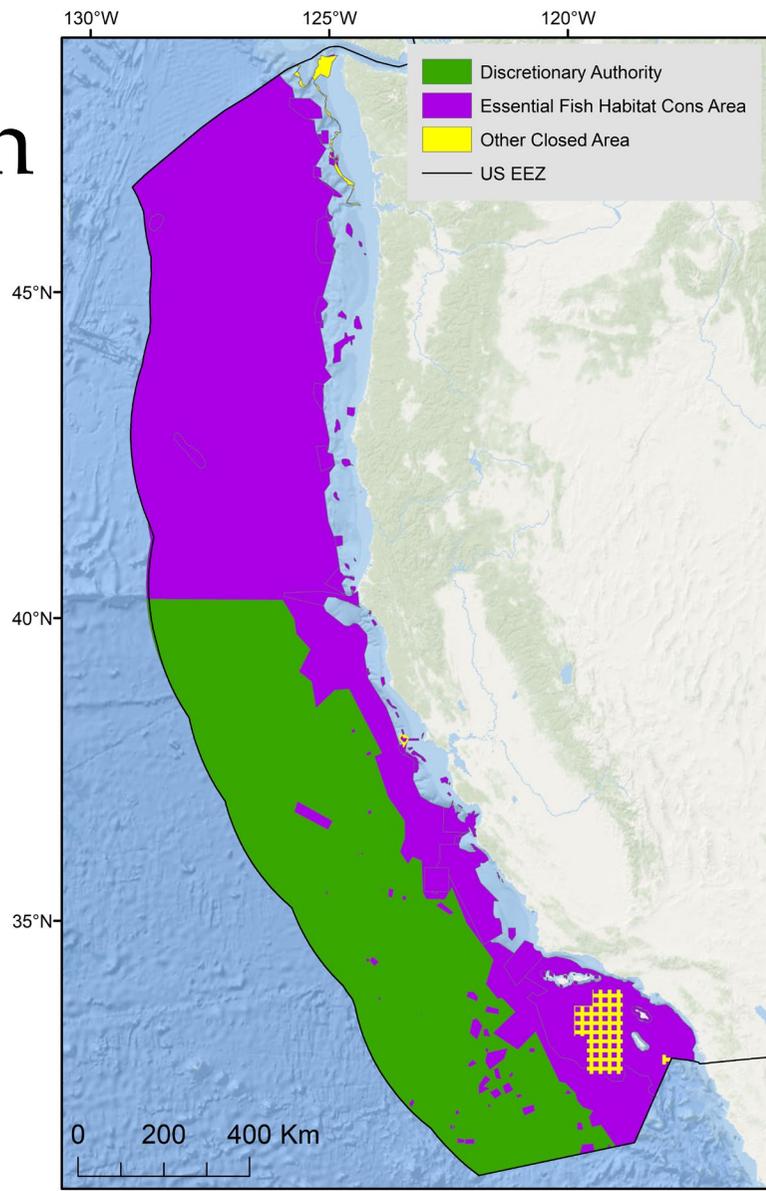
Pacific Region

2006

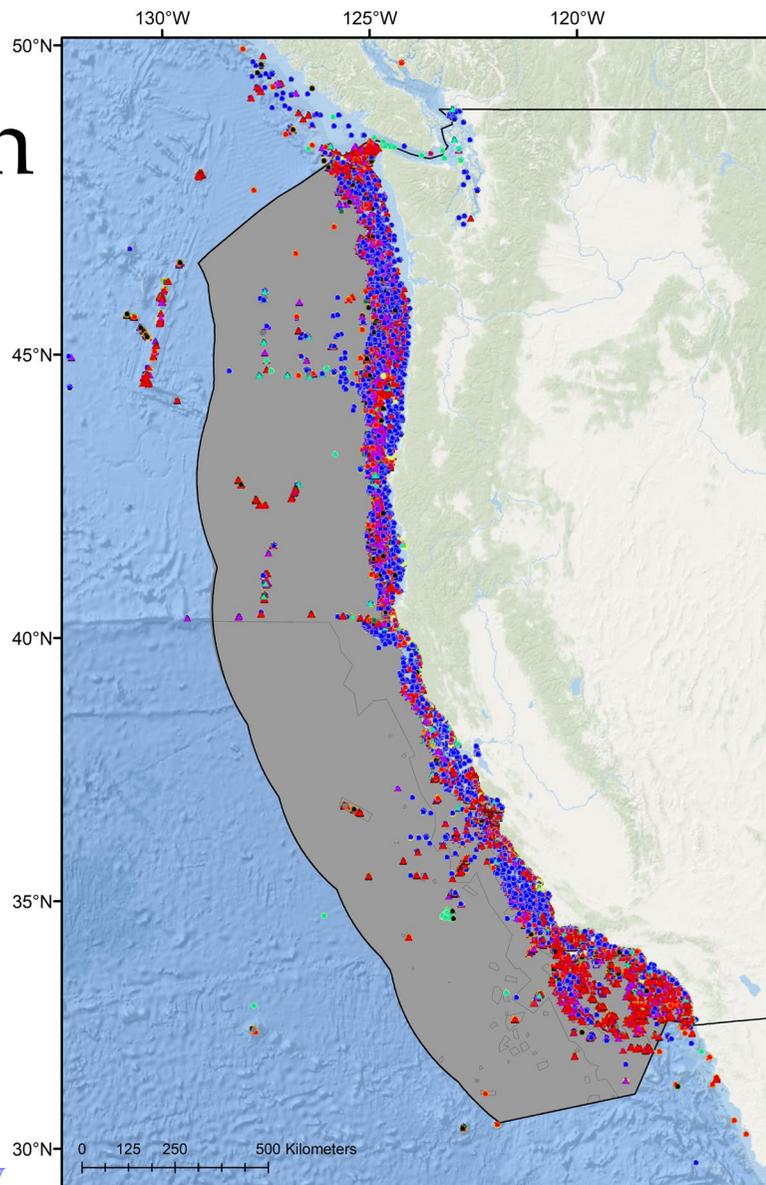


Pacific Region

Current



Pacific Region



Deep-sea coral and sponge taxa

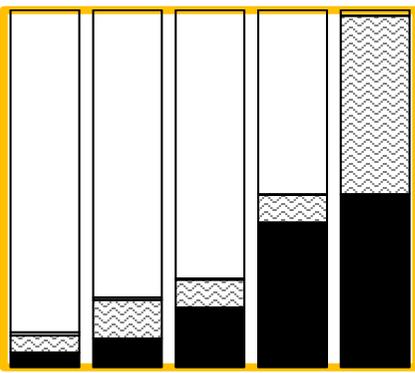
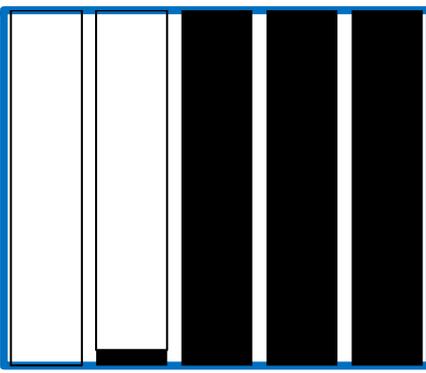
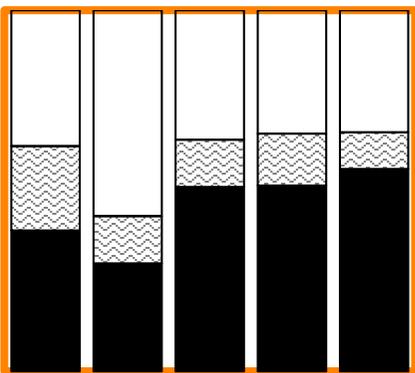
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- stony coral (unspecified)

Shallow

Deep



North Pacific
19 areas protected



Pacific
81

0- 200- 500- 1000- >
200 500 1000 1500 1500
Meters depth

16*

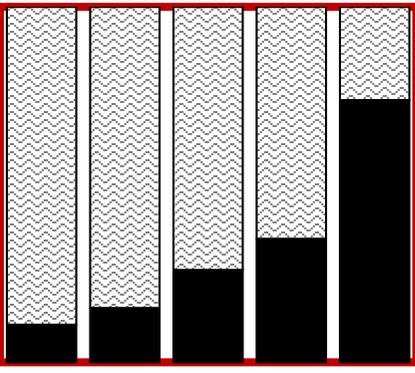
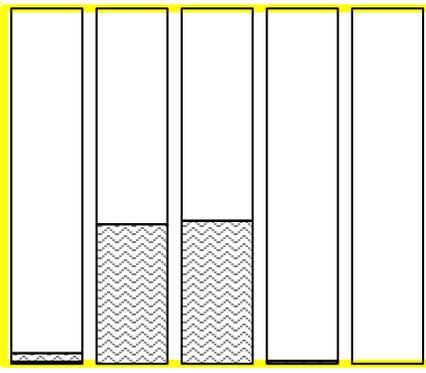
2
Mid-Atlantic

14
South Atlantic

Western Pacific
5

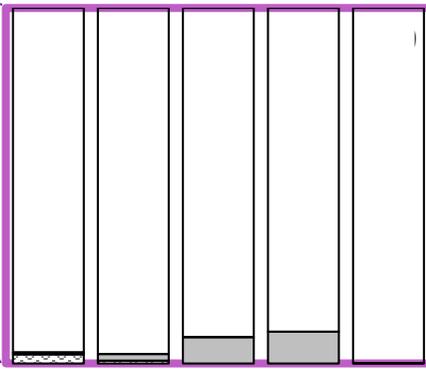
Gulf of Mexico
9*

Caribbean
7



Fishing Restrictions

- No fishing allowed
- No seafloor contact
- No seafloor trawling



[Diving into the Colorful Abyss](#)[Locations of Deep-Sea Coral](#)[Authorities for Deep-Sea Coral Protection](#)[Pacific Protected Area](#)[Western Pacific Protected Area](#)

SOUTH KOREA

JAPAN



Tokyo

Osa

Pacific Ocean

POWERED BY

Esri, HERE, Garmin, FAO, NOAA, USGS

[OVERVIEW MAP](#)

Hawai'i and the U.S. Pacific Island territories in the central and western Pacific are tropical islands and atolls surrounded by vast stretches of ocean. The exclusive economic zone around the U.S. Pacific Islands is the largest in the nation (nearly 2 million square miles). The United States was among the first nations to protect deep-sea habitats from destructive fishing activities. These early protections are now complemented by the largest marine national monuments in the United States. Since 2001, the wonder and beauty of this region has seen increasing protections to preserve these unique habitats for their biodiversity, benefits to science, and cultural significance.



"Recent deep-sea exploration of the new Marine National Monuments by

<https://www.fisheries.noaa.gov/story-map/learn-about-deep-sea-corals-through-story-maps>

& <https://deepseacoraldata.noaa.gov/>