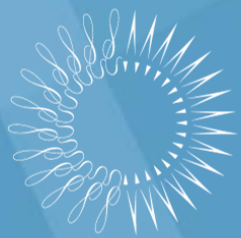


Little Fish, Big Deal

When forage fish disappear, big fish
(and the rest of us) are in trouble



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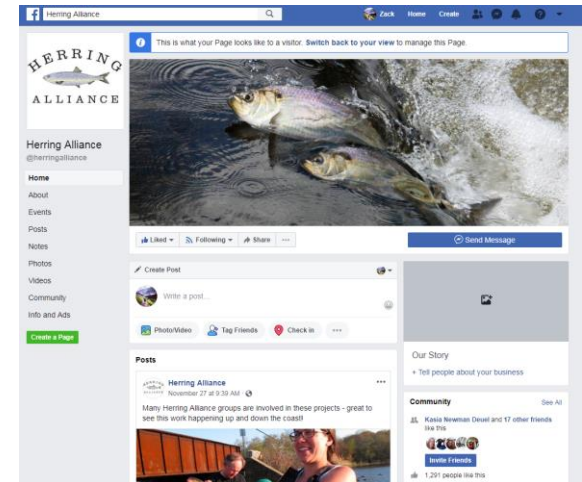
November 29, 2018

Overview



- Herring Alliance
- U.S. Fisheries Management
- Ecosystem-Based Fisheries Management
- Forage Fish, Importance to New Jersey
- River Herring, Shad
- Opportunities to Get Involved

Herring Alliance



- A coalition of 117 organizations representing nearly 2.5 million individuals from Maine to North Carolina
- Working to protect and restore ocean wildlife and ecosystems through precautionary, science-based management of forage fish

U.S. Fisheries Management



- Department of the Interior
 - U.S. Fish and Wildlife Service
 - Inland waters
- Fishery Commissions
 - State water management
- Department of Commerce
 - NOAA Fisheries
 - Marine federal waters (EEZ)

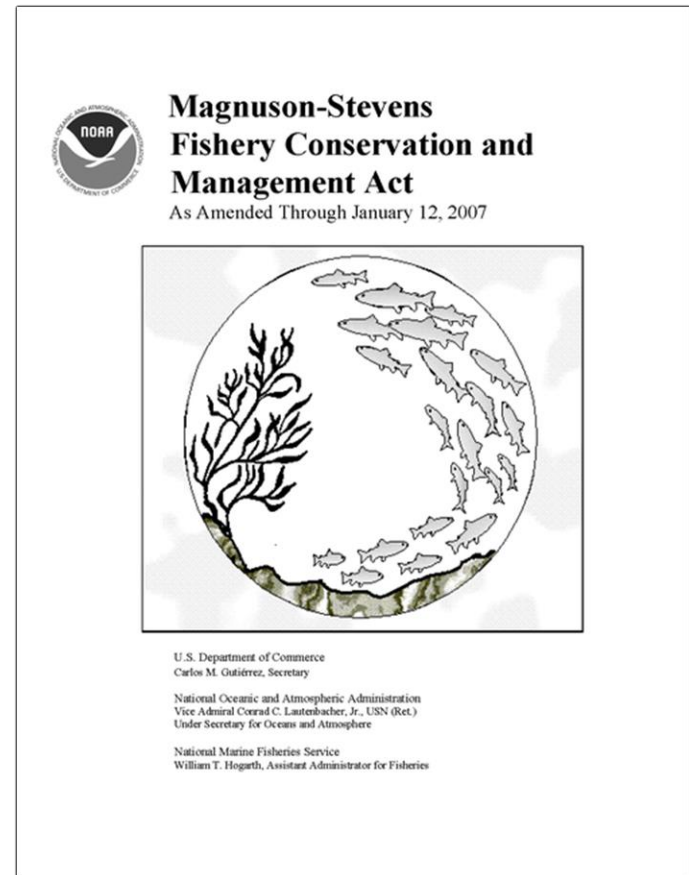


NOAA
FISHERIES

U.S. Fisheries Management



- **Magnuson-Stevens Act**
 - Prevent overfishing
 - Rebuild overfished stocks
 - Increase long-term economic and social benefits of fisheries
 - Ensure a safe and sustainable seafood supply
- 43 U.S. ocean fish populations have been rebuilt since 2000, but many are still vulnerable



U.S. Fisheries Management

➤ Regional Fishery Management Councils

North Pacific

ALASKA

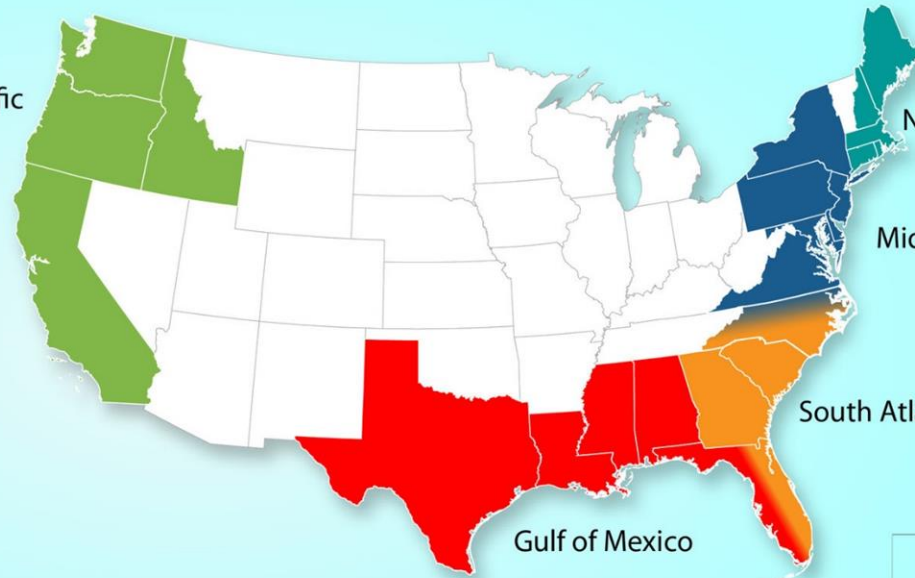


Western Pacific



1. Guam; 2. Commonwealth of the Northern Mariana Islands (CNMI);
3. Wake Island; 4. Midway Atoll; 5. Johnston Island; 6. Hawaiian Islands;
7. Palmyra Atoll and Kingman Reef; 8. Jarvis Island; 9. Baker and Howland Islands; 10. American Samoa.

Pacific



New England

Mid-Atlantic

South Atlantic

Gulf of Mexico

Caribbean

U.S. VIRGIN ISLANDS
PUERTO RICO

NOTES:

- **Washington** and **Oregon** have representatives on both the Pacific and North Pacific Fishery Management Councils.
- **North Carolina** has representatives on both the South Atlantic and Mid-Atlantic Councils. The jurisdictional boundaries for managed species are generally at the North Carolina/Virginia border, with a few exceptions.
- **Florida** has representatives on the South Atlantic and Gulf of Mexico Fishery Management Councils.

U.S. Fisheries Management



➤ Mid-Atlantic Fishery Management Council

- Largest of 8 Councils
- 21 voting members, 4 non-voting
- Comprised of state fisheries directors, governor appointees, NMFS, USCG, US-FWS, ASMFC, State Dept.
- Reps. from NY to NC
- Industry advisors, scientific advisors, eNGOs, staff

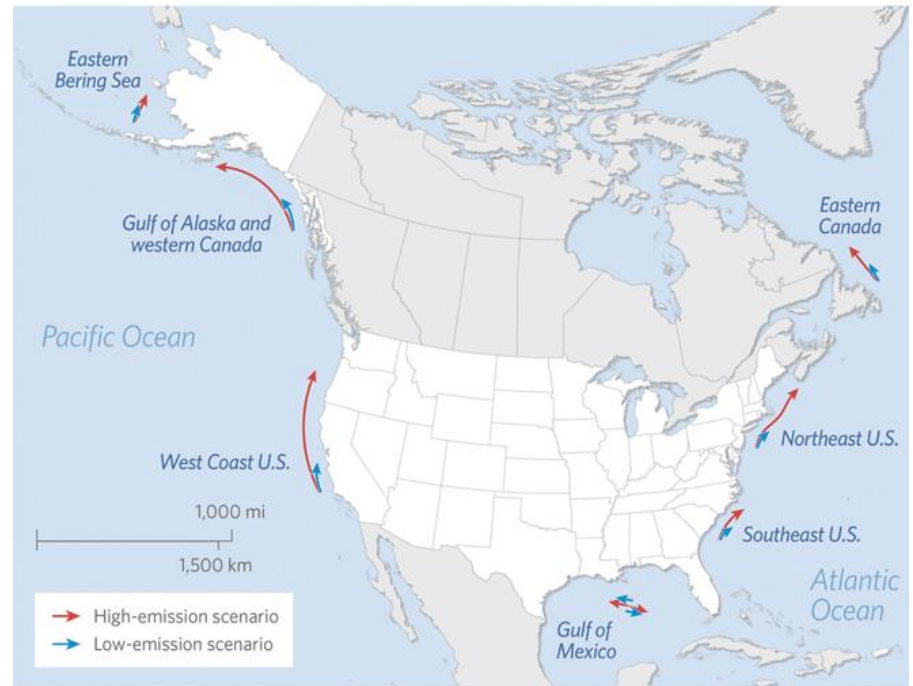


U.S. Fisheries Management

➤ Challenges

- Fish don't respect politics
- Shifting distributions
- Increases in demand
- Increases in harvest capacity
- Narrow focus on one species at a time

Average Shift in Suitable Habitat by 2100 Under 2 Emission Scenarios



Source: Morley et al., 2018

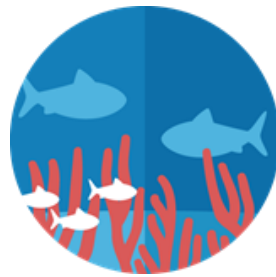
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Ecosystem-Based Fisheries Management



➤ A “Big-Picture” Approach

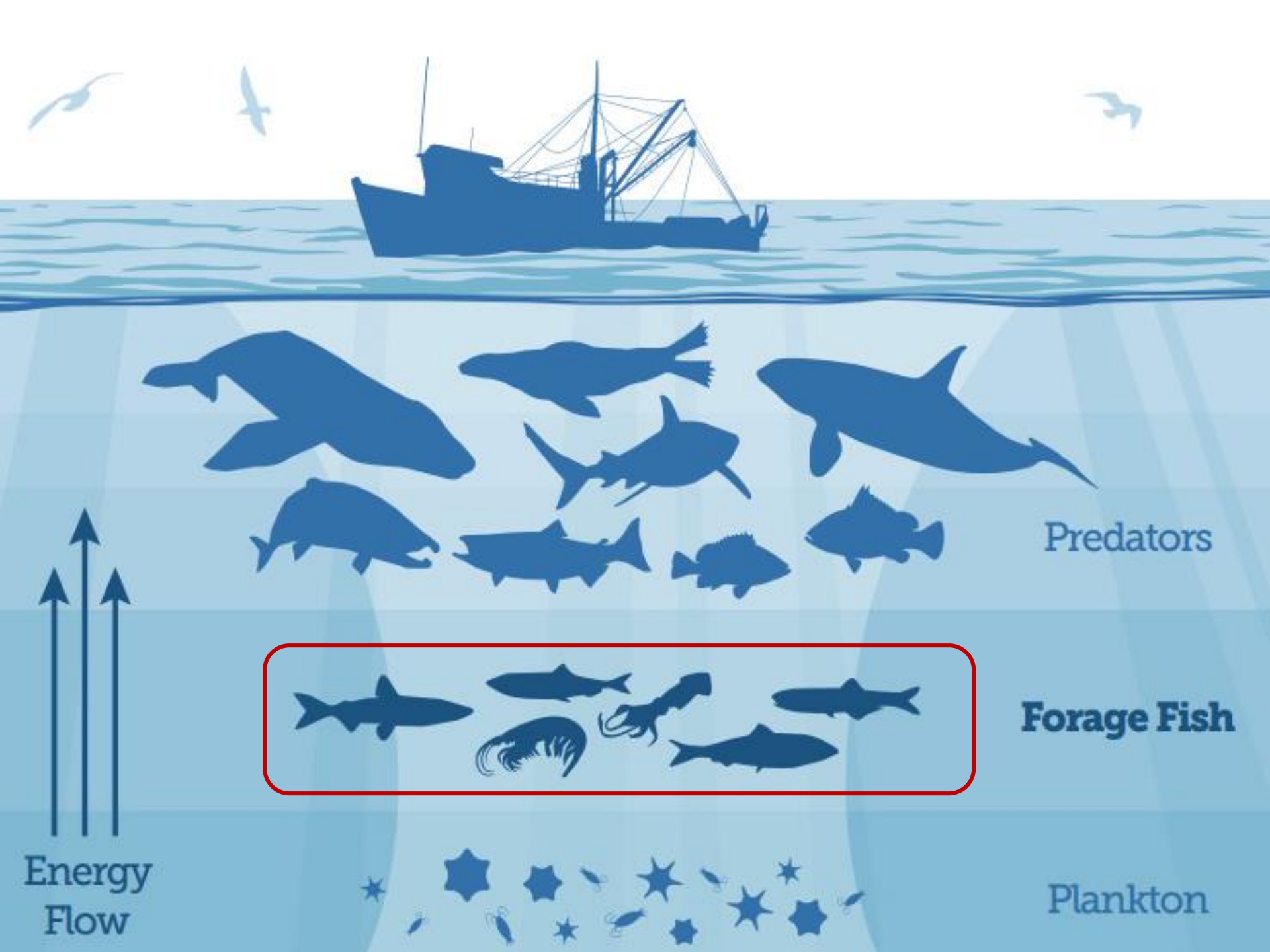
- EBFM is about improving the resilience of ocean ecosystems to support fish populations and coastal communities.
- Considers interactions among species, their environment, and the people who rely on them for food, commerce, and sport.





➤ Little Fish, Big Deal

- Forage fish provide food for recreationally and commercially important species such as tuna, salmon, and cod, as well as for seabirds, sharks, dolphins, and other animals that are integral to healthy ocean ecosystems.
- In some instances, no federal management plan exists for forage species (e.g. river herring and shad).



Predators



Forage Fish



Plankton

Energy
Flow

Forage Fish



- Commercial Seafood
 - NJ's seafood industry supports over **31,000 jobs**, with annual sales topping **\$5.9 billion dollars**.
- Recreational Fishing
 - NJ sustains **1 million** recreational anglers, who spend **\$1.4 billion** pursuing gamefish, supporting over **16,700 jobs**.
- Ecotourism
 - There are **1.8 million** wildlife watchers in NJ, generating over **\$986 million** in revenue annually.

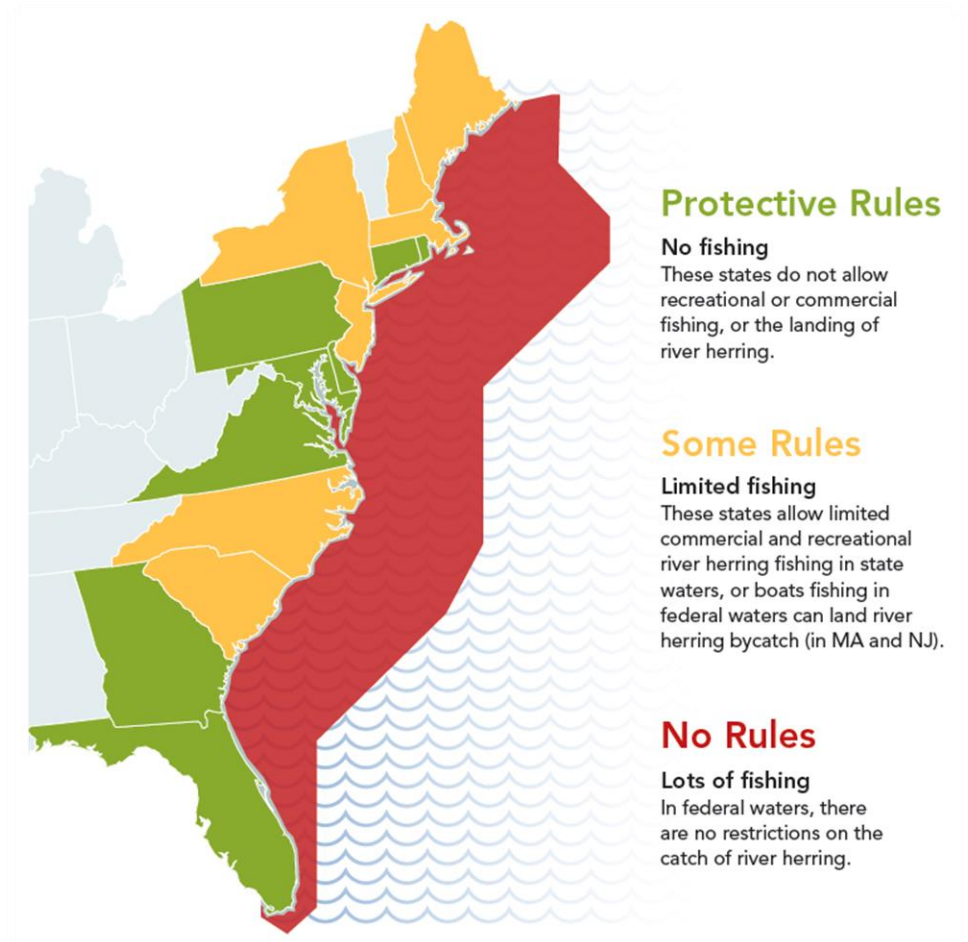
River Herring and Shad



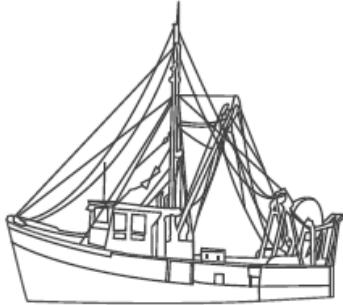
- Disappearing runs, vanishing industry
- Traditional fisheries were in-state and in-river
- Efforts to restore and protect essential fish habitat

River Herring and Shad

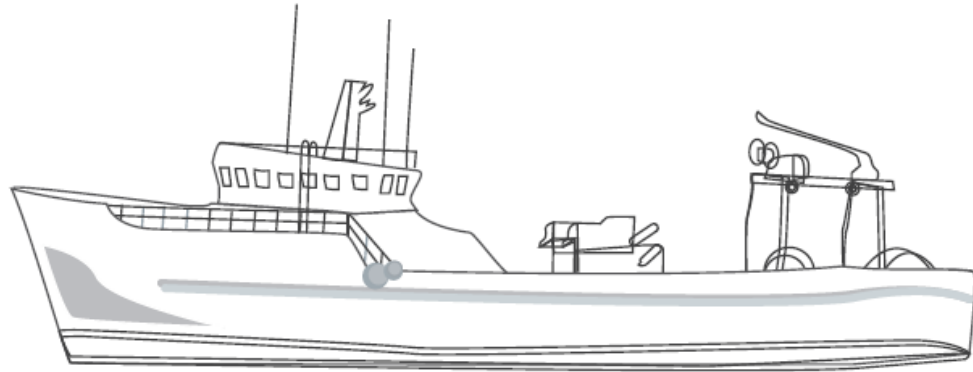
- One step forward...
two steps back
- Shortcomings of
traditional fisheries
management
- Bycatch at-sea



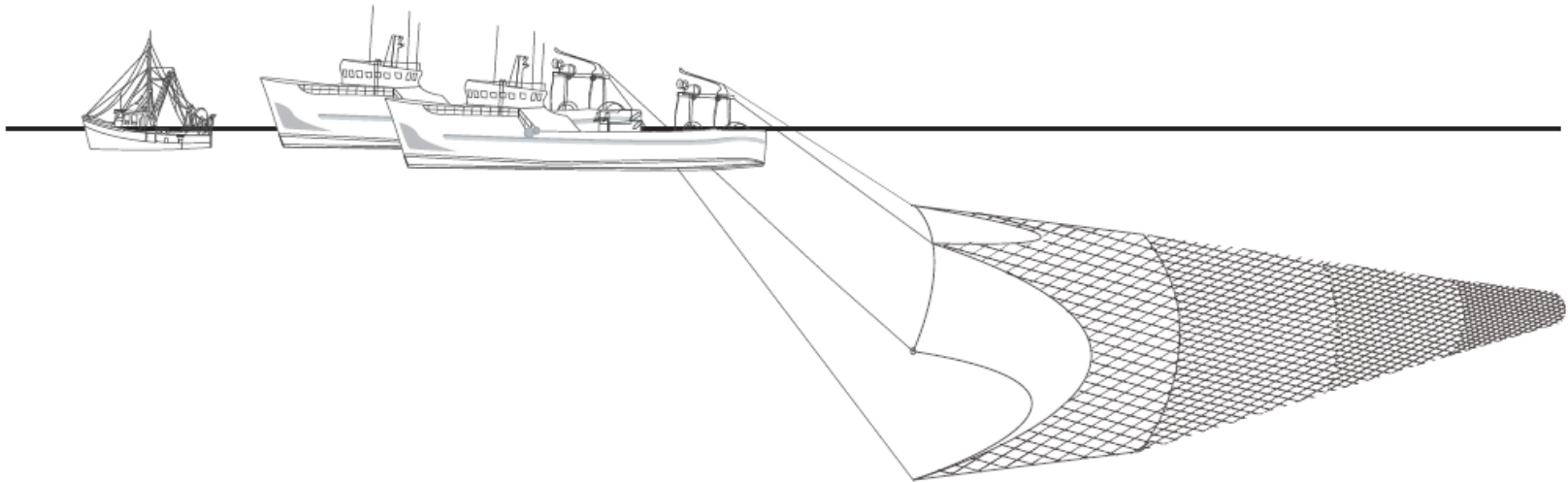
Local Trawler vs. Midwater Trawler



~ 50 ft

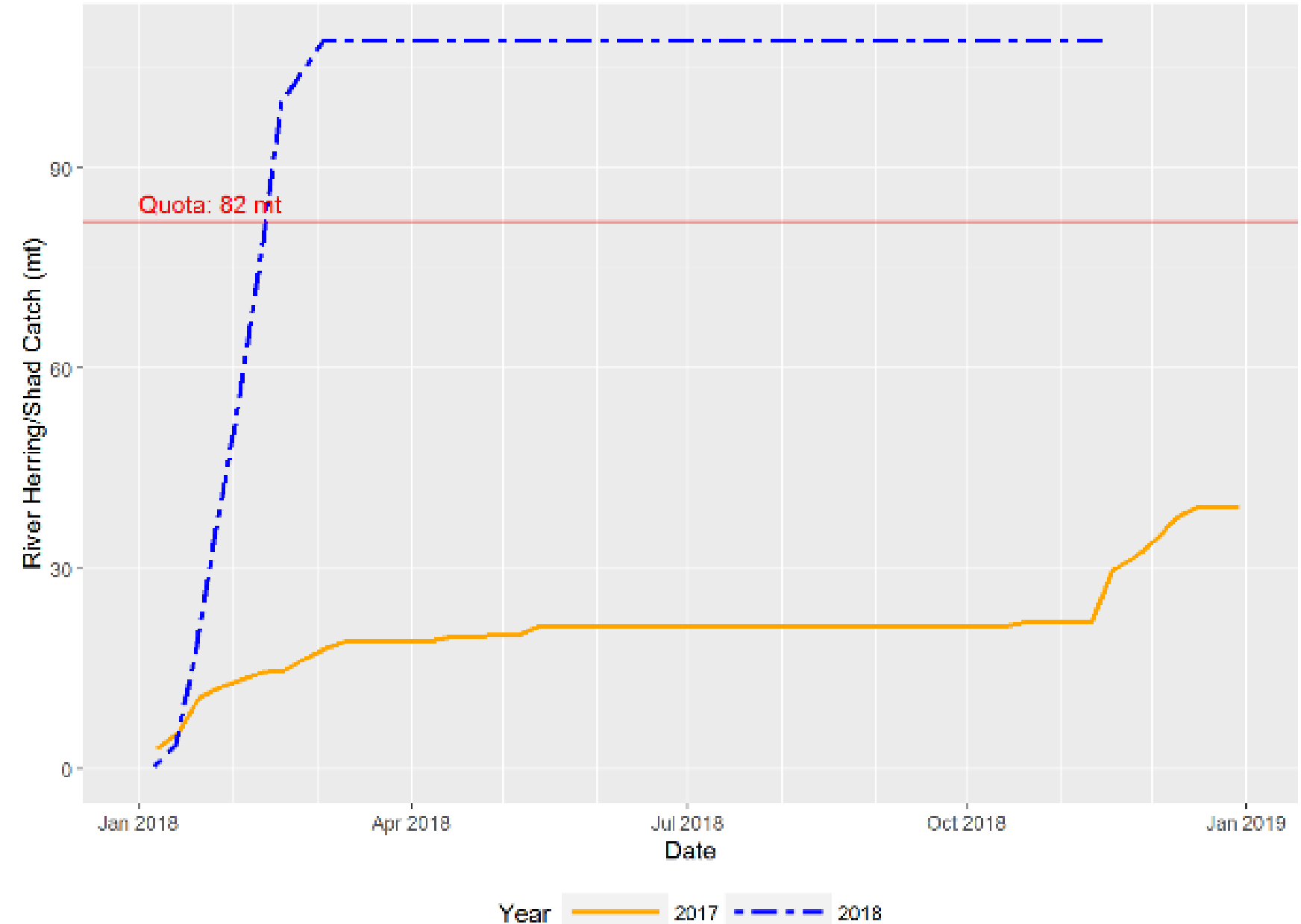


~ 150 ft

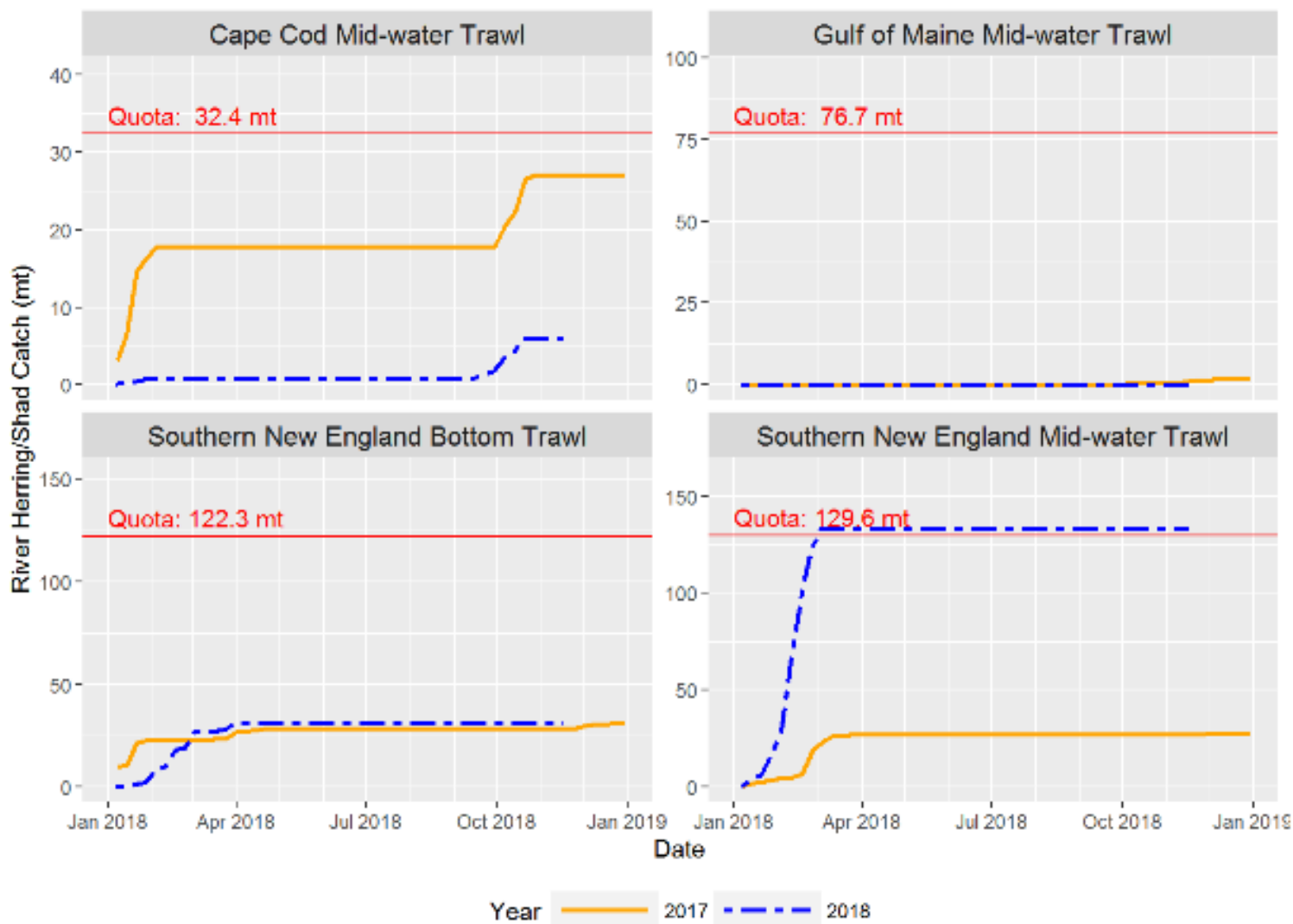


~ 1 Football Field / 300 ft

Catch Cap	Quota (mt)	Cumulative Catch (mt)	Percent Quota Caught
Atlantic Mackerel River Herring/Shad	82	109.2	133%



Catch Cap	Quota (mt)	Cumulative Catch (mt)	Percent Quota Caught
Cape Cod Mid-water Trawl	32.4	6.0	18%
Gulf of Maine Mid-water Trawl	76.7	0.1	0%
Southern New England Bottom Trawl	122.3	31.0	25%
Southern New England Mid-water Trawl	129.6	133.2	103%

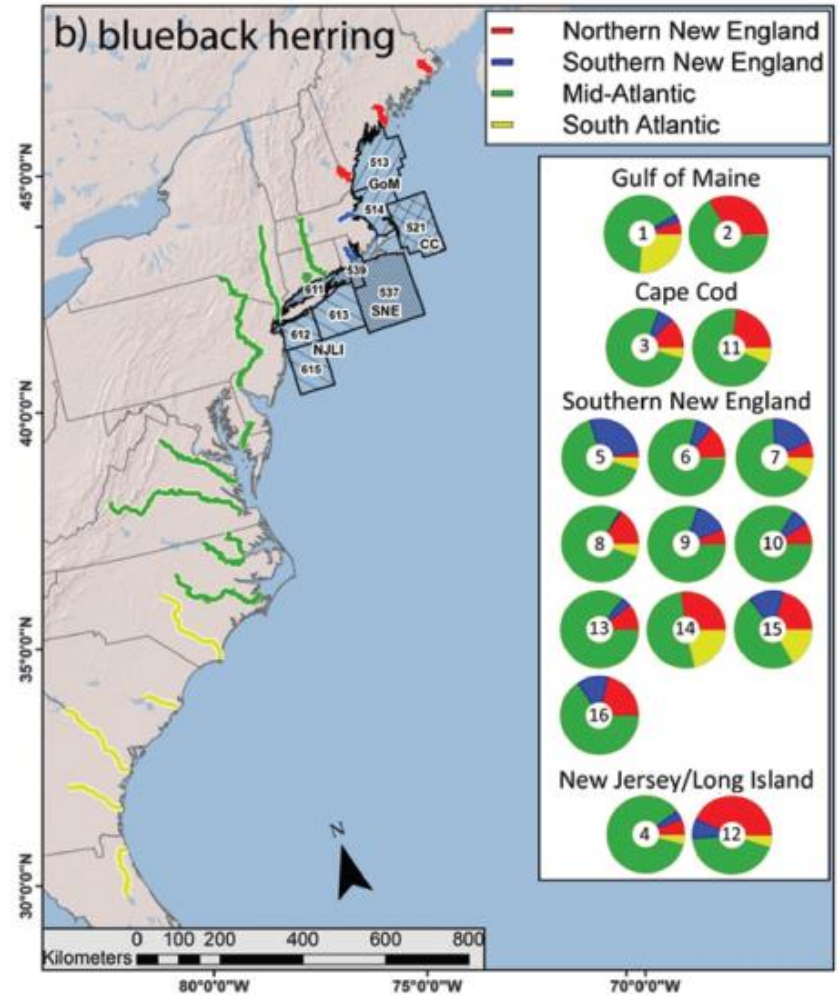
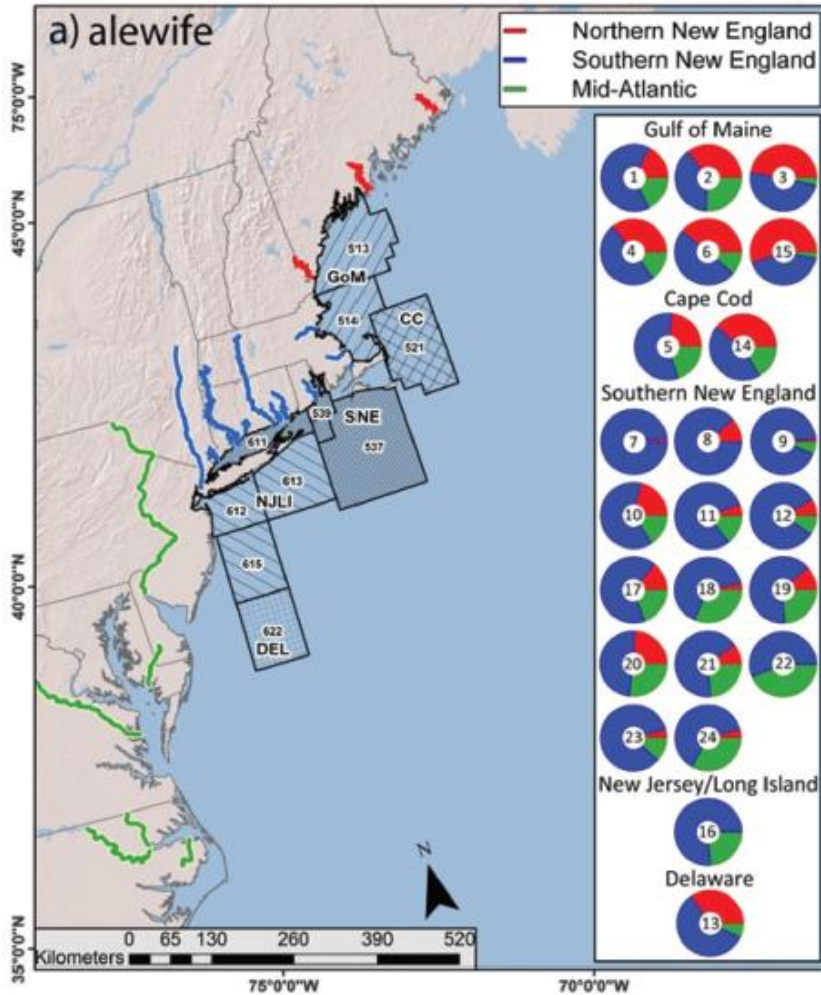


River Herring and Shad



- Genetic and Demographic Information
 - RH/S that originate in Mid-Atlantic rivers are being swept up in trawl nets pursuing Atlantic herring, mackerel, butterfish, longfin squid, and whiting.
 - Genetics and fisheries science underscores problem of bycatch in marine fisheries, which overlaps RH/S populations experiencing significant decline.
 - Studies suggest that mitigating marine bycatch may aid in the recovery of Mid-Atlantic RH/S populations.

River Herring and Shad



Opportunities To Get Involved



- Regional Fishery Management Councils
 - Resource stakeholders are a part of the Council composition
 - Advisory groups for Fishery Management Plans
 - Public access via meetings, comments, etc.
- Councils accept comments at all times; most impactful time is early in the process
 - Visit <http://www.mafmc.org/> and sign up for email updates; sign up for **Pew “Northeast Fish Newsletter”**

Opportunities To Get Involved



➤ Magnuson-Stevens Act

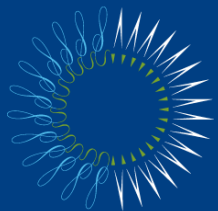
- Reauthorized about every ten years; several bills pending before Congress would increase the risk of overfishing.
- Contact your Congressional representatives and ask them to support solutions to current and future challenges which include **protecting forage fish**, reducing unwanted catch, protecting critical habitats, and considering the whole ecosystem when making management decisions.

Herring Alliance – The Future



- Continue forage fish conservation efforts (e.g. menhaden, river herring and shad)
- Protection of essential nearshore marine waters and habitats (e.g. oysters, submerged aquatic vegetation)





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