

Adapting science-based management: recent evolution of rotational management in the Atlantic sea scallop fishery

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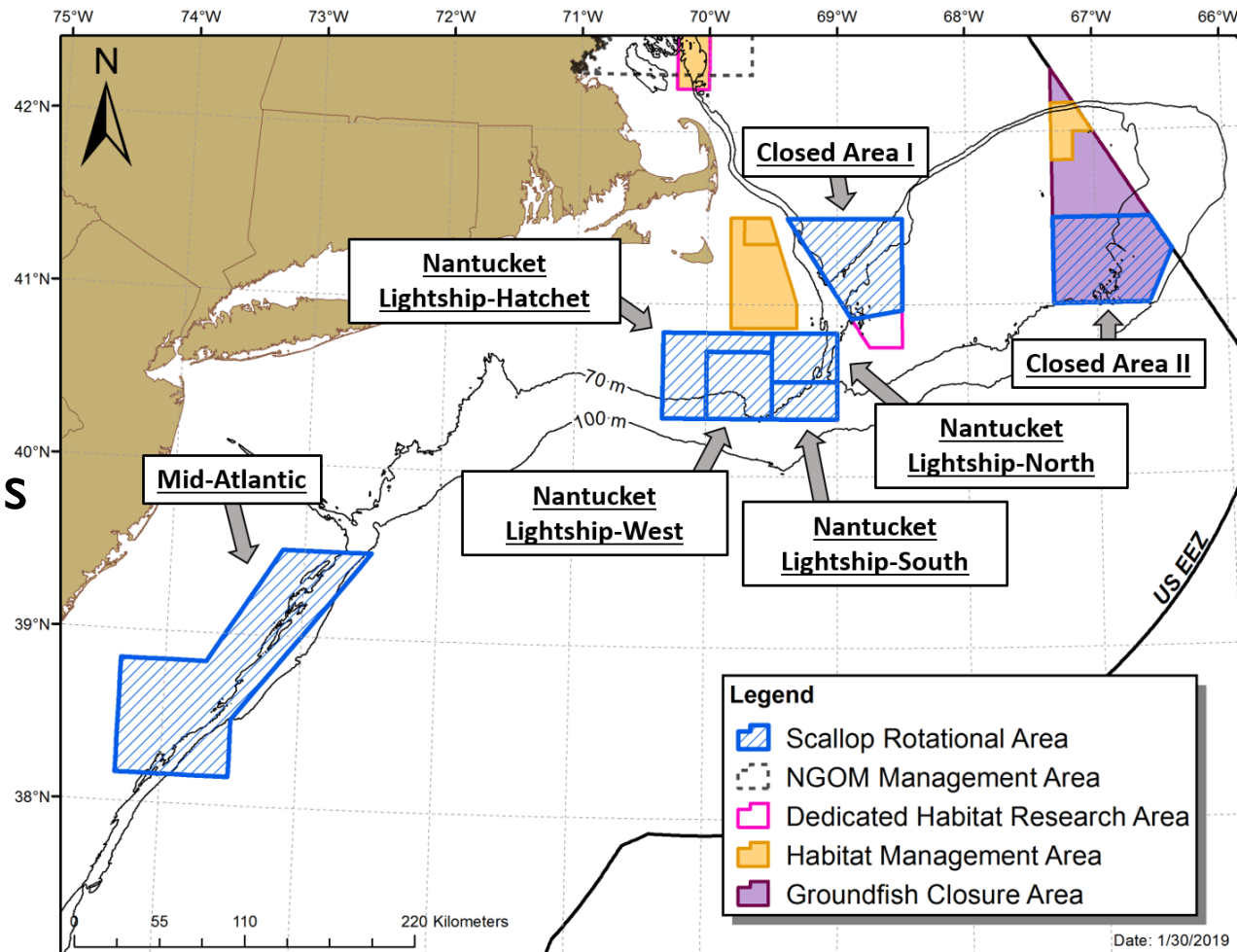
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Rotational management in a nutshell

- US Atlantic sea scallop (*Placopecten magellanicus*) fishery managed by NEFMC via area rotation and days-at-sea.
- Rotational management developed in AIO to Scallop FMP (2004) to optimize YPR:
 - when juveniles are detected in surveys → area closures established
 - when juveniles have maximized growth potential → controlled level of harvest allocated

Scale of rotational management:

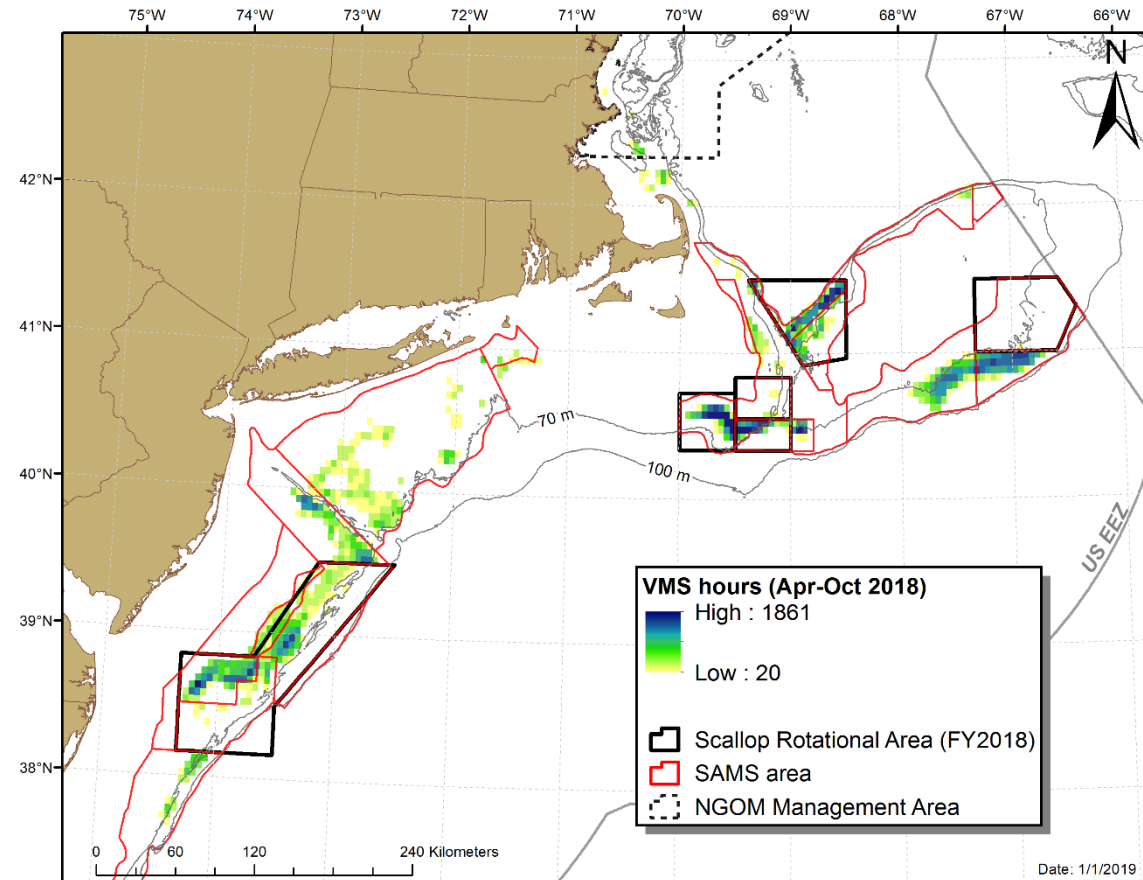
- Spans two major resource areas: Georges Bank & Middle Atlantic Bight.
- Rotational harvest is substantial portion of recent overall landings.
- Focus today is on Mid-Atlantic



Science-based decision making

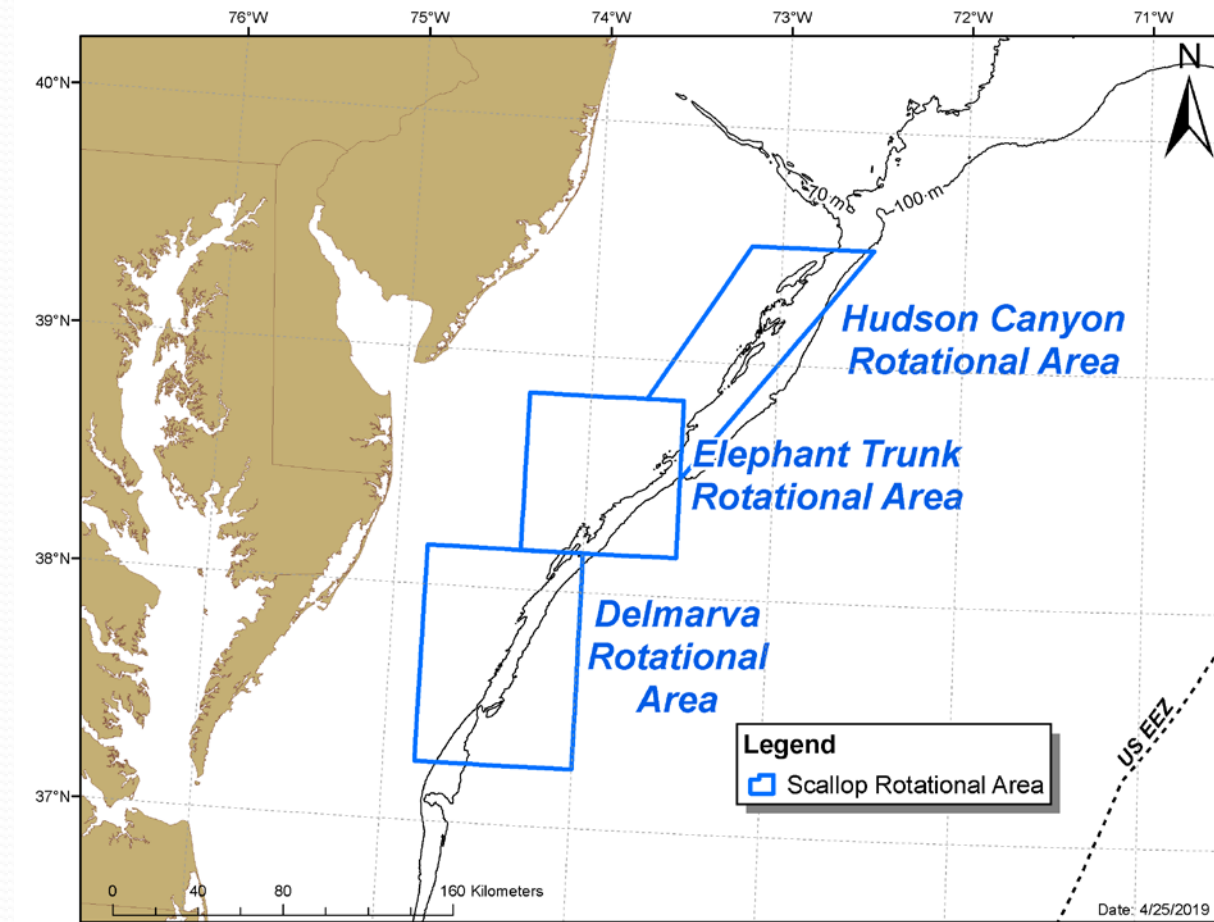
Informing allocations:

- Scallop Research Set-Aside—annual resource surveys
- Fishery data (i.e. VMS, VTR, at-sea observer)

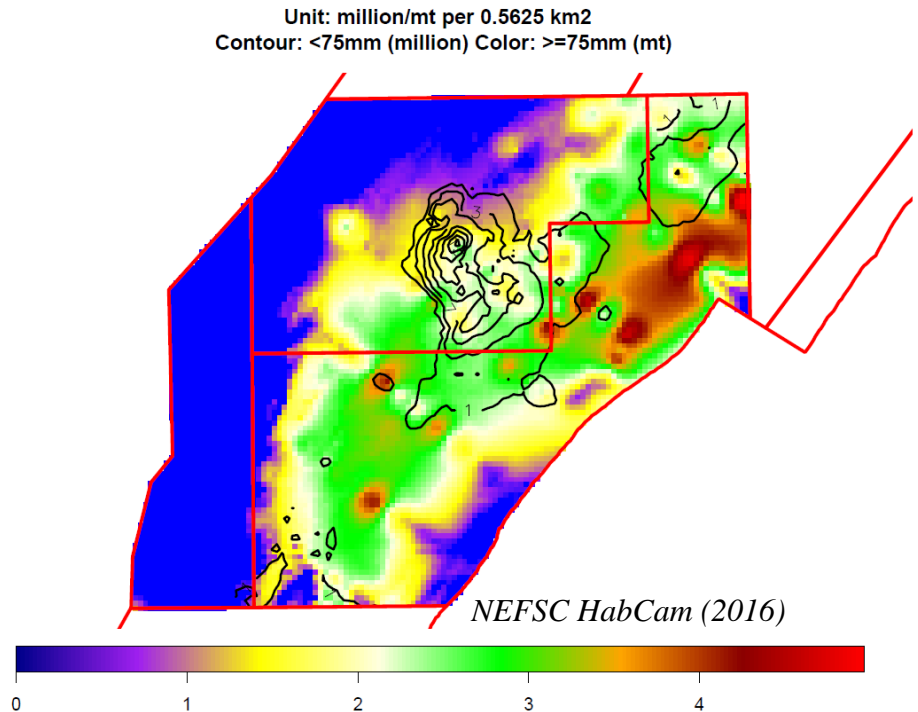
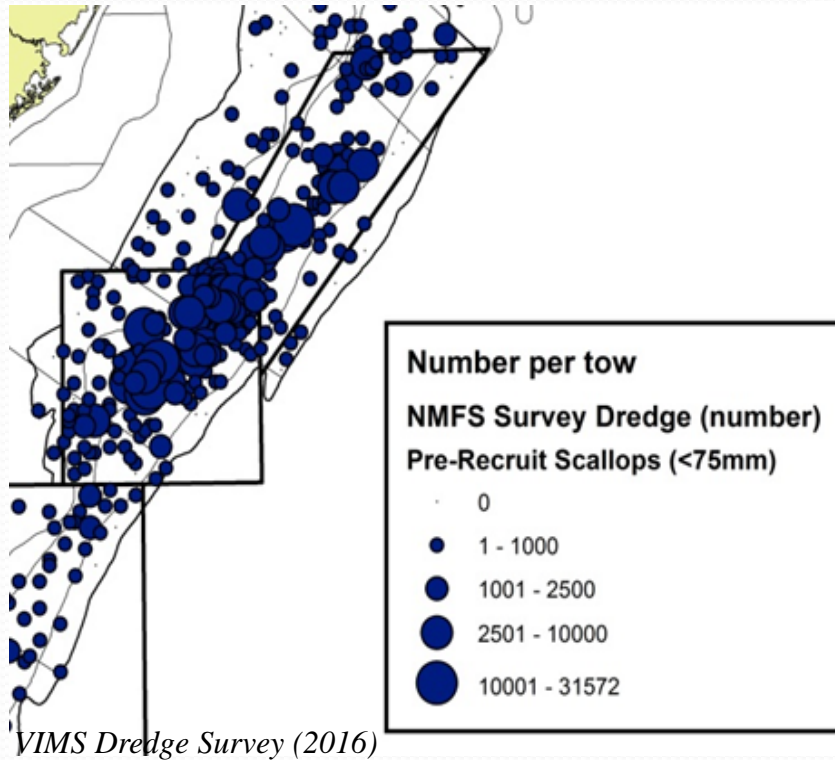


Case study: The Mid-Atlantic

- Traditional rotational areas:
 - Hudson Canyon (HC)
 - Elephant Trunk (ET)
 - Delmarva (DMV)
- Periodically fished since early 2000s.



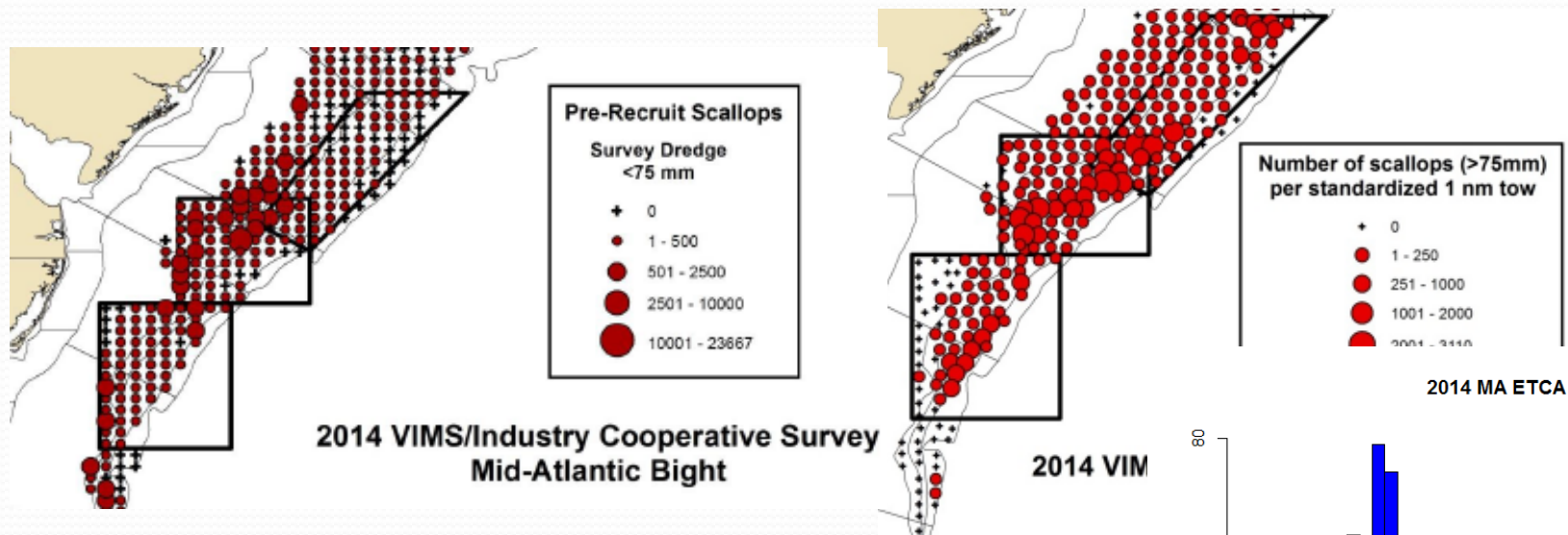
The 2013 Cohort



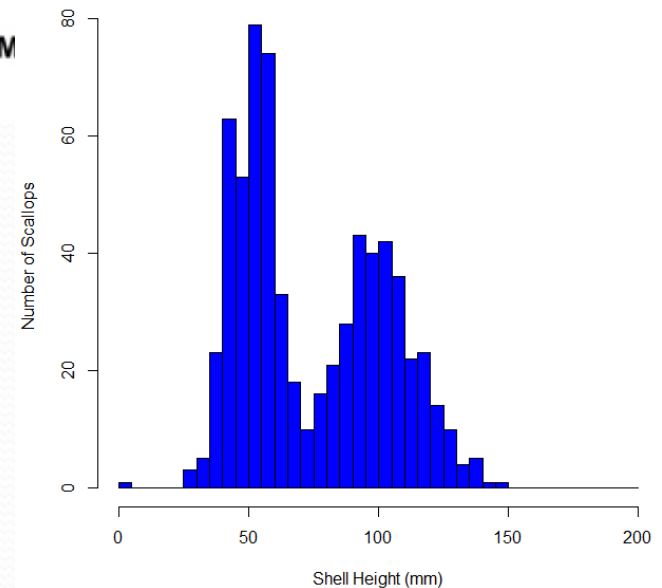
Exceptional year-class settled in Mid-Atlantic—highest densities in Elephant Trunk.

Management: close ET due to spike in small scallops.

Fishing around the juveniles



- Overlapping year-classes in Elephant Trunk.
- Harvestable biomass spread out across three areas.
- No viable rotational opp. on GB.

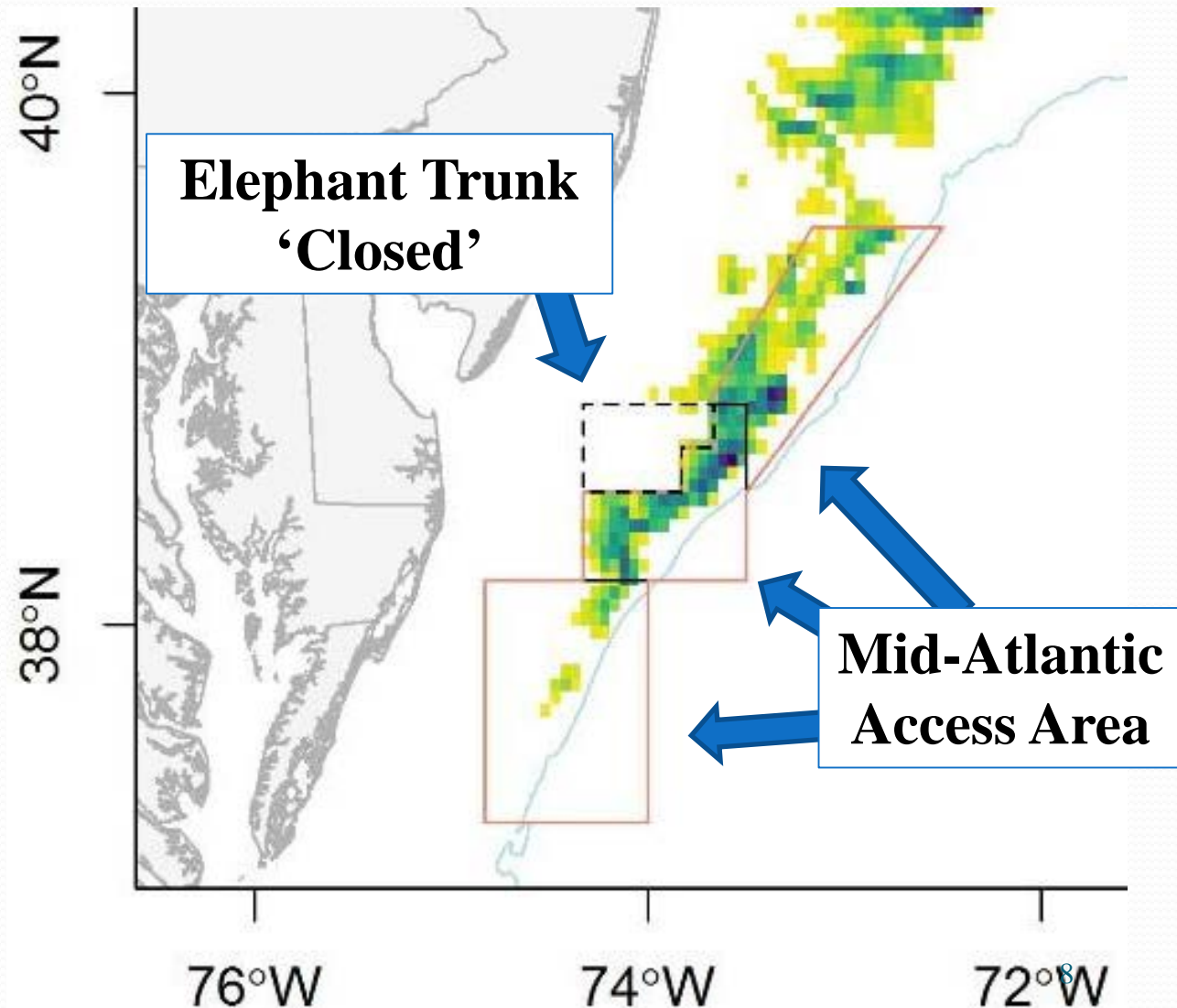


SMASST drop camera (2014)

The Mid-Atl. Access Area

Management response:

- NW corner of ET closed.
- Rest of ET, DMV, and HC are allocated to as combined area.
- Fishing opportunity for 2015-2016



The nematode issue

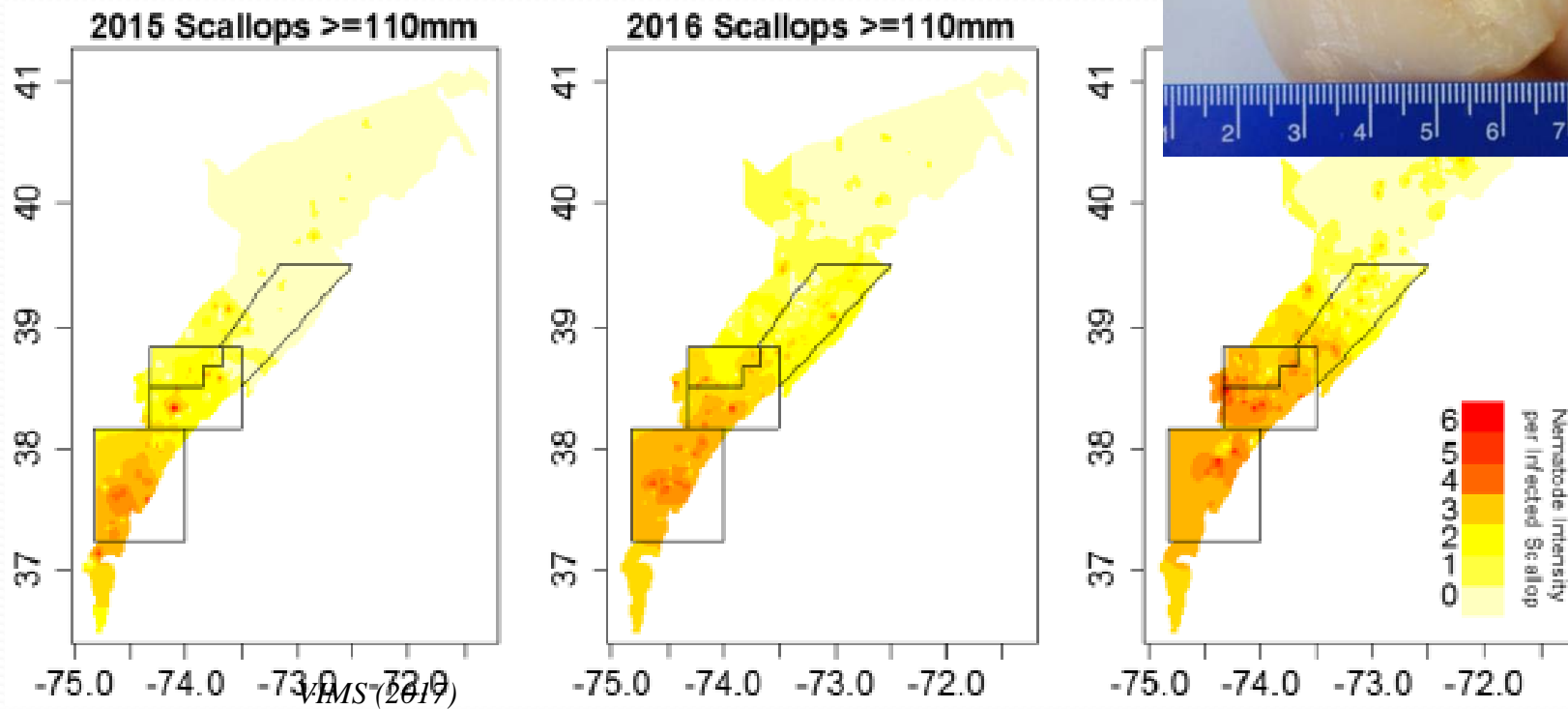
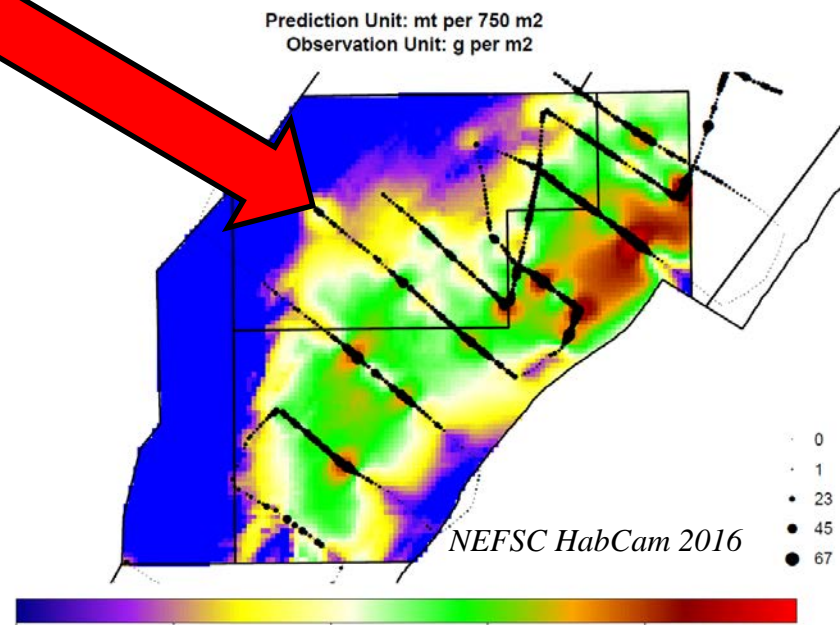
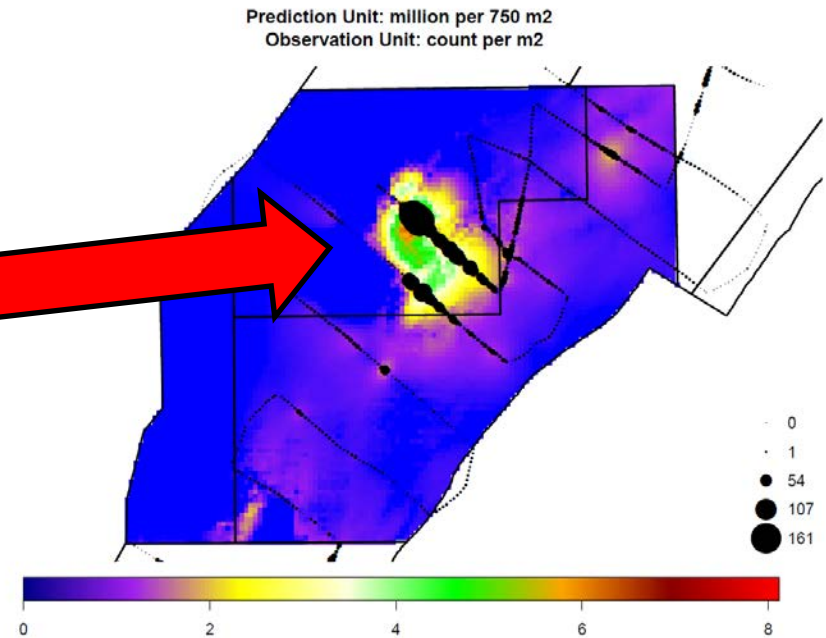


Photo credit: VIMS

- lesioned scallops in the southern range of MAAA
- Managers prioritize research, track nematode prevalence.
- Low prices change fishing behavior

Outlook for 2017

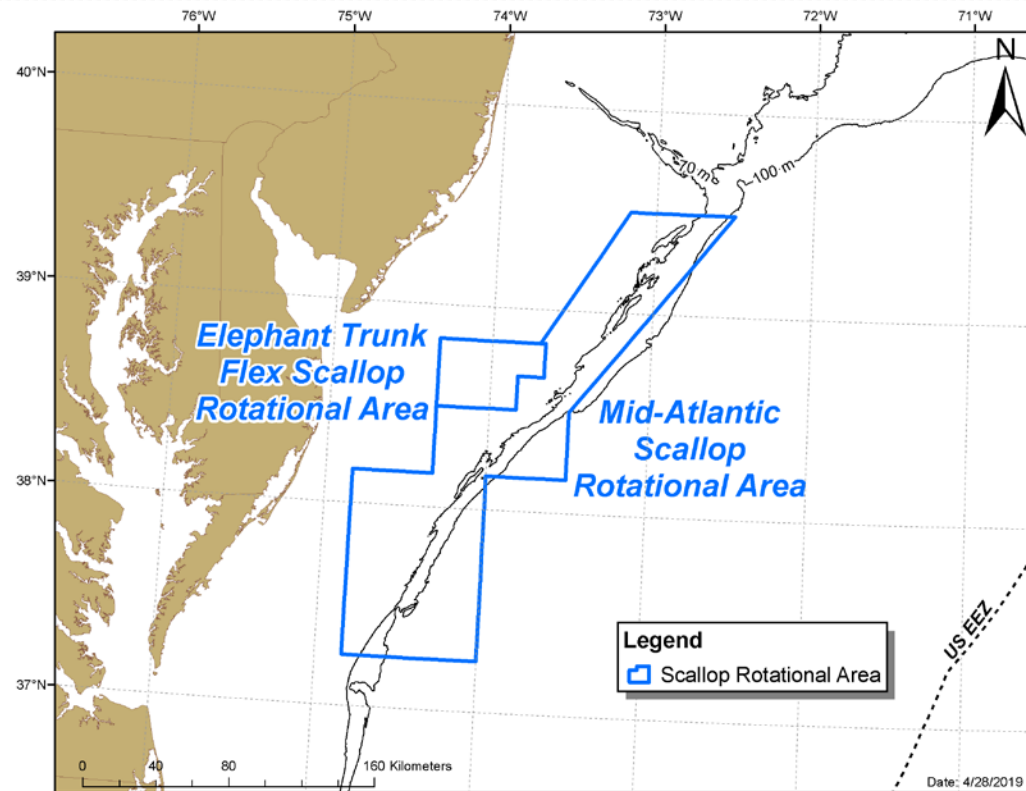
- 2013 cohort still has room to grow
- Larger animals in ET-Closed ready for harvest
- Nematode becoming more prevalent directly south



2017—The Elephant Trunk ‘Flex’

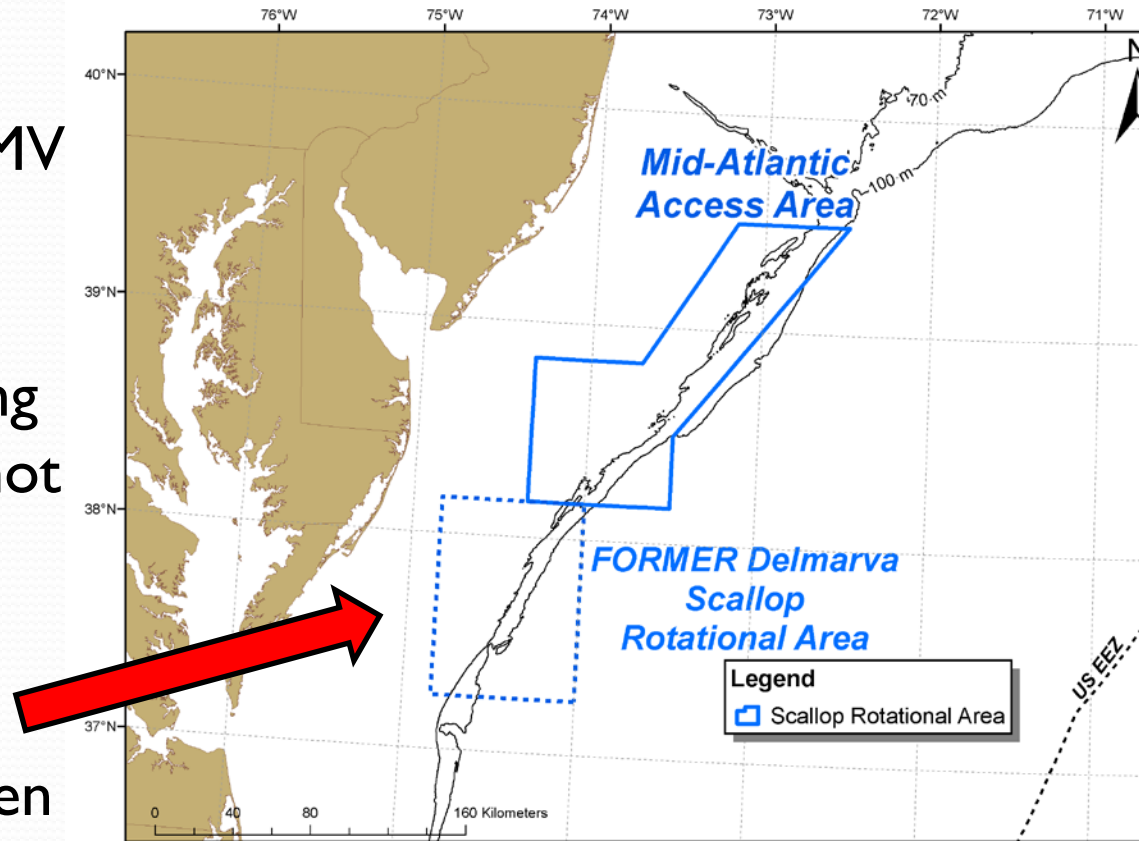
Management response:

- Develop a new harvest option—can be fished in previously closed part of ET, or in MAAA.
- Mechanism to safeguard the 2013 cohort if area can't support all effort
- Included seasonal closure to prevent high discard mort. of juveniles in warmer months



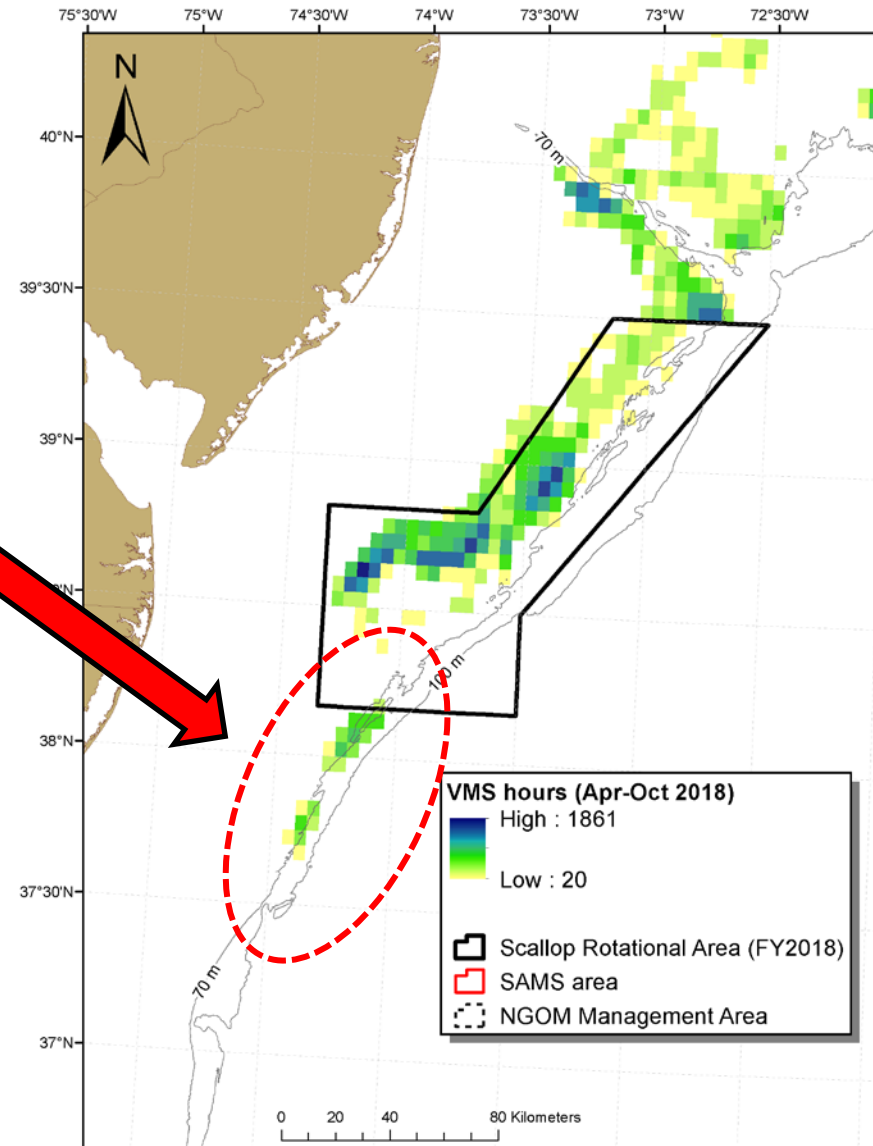
2018—DMV transitioned to open-area

- Order of magnitude reduction estimated in DMV between 2015-2017, no fishing in 2017
- Low biomass and persisting nematode issue—fishing not anticipated for 2018
- Managers revert DMV to open area and assume no fishing will occur here when setting open area allocations for 2018



DMV transitioned to open-area

- Despite low expectations, vessels direct open-area effort in former DMV area.
- A positive, unintended outcome that provided a viable fishing opportunity for vessels in the southern range of the fishery.



What is the point?

- Rotational management adapted 5 years in a row to address new issues in the Mid-Atl.
 - ‘action/reaction’ decisions supported by availability of survey/fishery data
- Tools developed for rot. areas in Mid-Atl, such as ET-Flex concept, being used now in other parts of the resource.
- Rotational fishing in Mid-Atl considered successful during this time.

Thoughts for the future

- Mid-Atlantic evolution is an example of the short-term outlook (i.e. 1 to 2 years). In part due to cyclical nature of resource/fishery...however;
- Industry interest moving more towards flexible fishing opportunities & stable landings—need for a longer term plan?
 - NEFMC prioritized this work—TO BE CONTINUED

Thank you!



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