

# Atlantic States Marine Fisheries Commission

## ISFMP Policy Board

*October 25, 2018  
9:15 – 11:00 a.m.  
New York, New York*

### Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*J. Gilmore*) 9:15 a.m.
2. Board Consent (*J. Gilmore*) 9:15 a.m.
  - Approval of Agenda
  - Approval of Proceedings from August 2018
3. Public Comment 9:15 a.m.
4. Update from Executive Committee (*J. Gilmore*) 9:20 a.m.
5. Update on the Risk and Uncertainty Policy (*J. McNamee*) 9:30 a.m.
6. Update on the Northeast Area Monitoring and Assessment Program (*N. Lengyel*) **Action** 9:40 a.m.
7. Update on River Herring Technical Expert Working Group (*C. Starks*) 9:55 a.m.
8. Standing Committee Reports 10:10 a.m.
  - Update from the Atlantic Coastal Fish Habitat Partnership (*L. Havel*)
  - Habitat Committee (*L. Havel*) **Action**
    - Consider Approval of Living Shorelines Factsheet
  - Law Enforcement Committee (*M. Robson*)
  - Assessment Science Committee **Action** (*S. Murray*)
    - Consider Approval Stock Assessment Schedule
9. Progress Update on Benchmark Stock Assessments 10:35 a.m.
  - Shad (*K. Drew*)
  - Menhaden and Ecological Reference Points (*K. Drew*)
10. Review Noncompliance Findings, If Necessary **Action** 10:45 a.m.
11. Other Business 10:50 a.m.
12. Adjourn 11:00 a.m.

The meeting will be held at the Roosevelt Hotel, 45 East 45<sup>th</sup> Street & Madison Avenue, New York, NY; 212.661.9600

# MEETING OVERVIEW

**ISFMP Policy Board Meeting**  
**Thursday October 25, 2018**  
**9:15-11:00 a.m.**  
**New York, New York**

Chair: Jim Gilmore (NY) Assumed Chairmanship: 10/17	Vice Chair: Pat Keliher (ME)	Previous Board Meeting: August 9, 2018
Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, DC, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS (19 votes)		

## 2. Board Consent

- Approval of Agenda
- Approval of Proceedings from August 9, 2018

**3. Public Comment** – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

<b>4. Update from Executive Committee (9:20-9:30 a.m.)</b>
<b>Background</b> <ul style="list-style-type: none"><li>• The Executive Committee will meet on October 23, 2018</li></ul>
<b>Presentations</b> <ul style="list-style-type: none"><li>• J. Gilmore will provide an update of the two meetings</li></ul>
<b>Board action for consideration at this meeting</b> <ul style="list-style-type: none"><li>• none</li></ul>

<b>5. Update on the Risk and Uncertainty Policy (9:30-9:40 a.m.)</b>
<b>Background</b> <ul style="list-style-type: none"><li>• In 2016, the Risk and Uncertainty Policy Workgroup presented a draft Commission Risk and Uncertainty Policy and were advised by the Board to continue development.</li><li>• The Risk and Uncertainty Policy Workgroup held a Workshop to walkthrough the Policy using striped bass as an example.</li></ul>
<b>Presentations</b> <ul style="list-style-type: none"><li>• J. McNamee will present the progress to-date the workgroup has made.</li></ul>
<b>Board action for consideration at this meeting</b> <ul style="list-style-type: none"><li>• None</li></ul>

**6. Update on the Northeast Area Monitoring and Assessment Program (9:40-9:55a.m.)****Action****Background**

- A NEAMAP Summit was held January 31 – February 1, 2018
- The NEAMAP structure, mission, and goals have been revised (**Briefing Materials**)

**Presentations**

- N. Lengyel will give an overview of NEAMAP activities

**Board action for consideration at this meeting**

- Approve the NEAMAP structure, mission and goals

**7. Update on River Herring Technical Expert Working Group (TEWG) (9:55-10:10 am)****Background**

- In 2013, NOAA and ASMFC established the TEWG to compile and provide information for the development of a dynamic conservation plan to restore coastal river herring populations.
- The Terms of Reference (TORs) of the TEWG include the identification of threats to river herring, conservation actions to address those threats, and key data gaps as well as a list of research projects and associated costs to fill existing data gaps. Since its establishment, the TEWG has met biannually to carry out the TORs. (**Briefing Materials**)
- In the past year, the activity level of the TEWG and its associated subgroups has been low. Subgroups have identified data gaps, but have had less focus on identifying critical threats and conservation actions.
- NOAA and ASMFC staff are proposing revisions to the TEWG mission statement and TORs to clarify the function and charge of the TEWG, as well as provide direction for continuing work within the subgroups. Staff is seeking direction from the Board on the TEWGs role in informing river herring management.

**Presentations**

- Update on the River Herring Technical Expert Working Group (TEWG) by C. Starks

**Board actions for consideration at this meeting**

- Provide feedback and direction for continuing TEWG work

**8. Standing Committee Reports (10:10-10:35 a.m.) Action****Background**

- The Southeast Fish Habitat Conservation Mapping Project Results
- Preliminary overview of FY2019 NFHAP proposals
- The Habitat Committee has completed a Living Shorelines Factsheet
- The Law Enforcement Committee met on October 23 and 24, 2018
- The Assessment and Science Committee reviewed and made changes to the Commissions Stock Assessment Schedule

**Presentations**

- L. Havel will present an overview of ACFHP Committee activities and review the living shorelines fact sheet (**Supplemental Materials**).
- M. Robson will present and overview of the LEC activities
- S. Murray will review changes to the stock assessment schedule (**Briefing Materials**)

**Board action for consideration at this meeting**

- Approve the Living Shorelines Factsheet
- Approve the revised stock assessment schedule

**9. Progress Update on Benchmark Stock Assessments (10:35- 10:45 a.m.)****Background**

- The next American shad benchmark stock assessment is scheduled to be completed in the summer of 2019.
- The next Atlantic menhaden and ecological reference points benchmark stock assessment is scheduled to be completed by the end of 2019

**Presentations**

- Dr. Drew will provide a progress report on the shad, Atlantic menhaden and ecological reference points benchmark stock assessments

**Board action for consideration at this meeting**

- None

**10. Review Non-Compliance Findings, if Necessary Action****11. Other Business****12. Adjourn**

## Tina Berger

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**From:** Comments  
**Subject:** FW: Some Comments for Upcoming ASMFC Meeting in New York City

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**From:** Robert Beal  
**Sent:** Wednesday, September 26, 2018 10:58 AM  
**To:** 'David Dow' <[ddow420@comcast.net](mailto:ddow420@comcast.net)>  
**Cc:** [Sarah.Peake@mahouse.gov](mailto:Sarah.Peake@mahouse.gov); Raymond Kane <[ray@capecodfishermen.org](mailto:ray@capecodfishermen.org)>  
**Subject:** RE: Some Comments for Upcoming ASMFC Meeting in New York City

Good Morning Dr. Dow,

Thank you for the comments and the included article. I will share your comments with our Commissioners as part of the briefing materials for the Commission's Annual Meeting in New York City.

The effects of climate change, both to the distribution and productivity, on species managed by the Commission and the three east coast councils will be at the forefront of Commission's strategic planning session at the Annual Meeting. The need for improved coordination and collaboration between the Commission and Councils will likely be a significant part of the Commission's Strategic Plan moving forward.

Best,  
Bob

*Bob Beal*  
*Executive Director*  
*Atlantic States Marine Fisheries Commission*  
*1050 N. Highland Street, Suite 200A-N*  
*Arlington, VA 22201*  
*703.842.0740*

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**From:** David Dow [<mailto:ddow420@comcast.net>]  
**Sent:** Tuesday, September 25, 2018 10:44 AM  
**To:** Robert Beal <[Rbeal@asmfc.org](mailto:Rbeal@asmfc.org)>  
**Cc:** David Dow <[ddow420@comcast.net](mailto:ddow420@comcast.net)>; [Sarah.Peake@mahouse.gov](mailto:Sarah.Peake@mahouse.gov); Raymond Kane <[ray@capecodfishermen.org](mailto:ray@capecodfishermen.org)>  
**Subject:** Some Comments for Upcoming ASMFC Meeting in New York City

I am a retired marine scientist and grassroots environmental activist living on Cape, Ma. I have concerns about the Mid-Atlantic FMC species migrating into the waters in **Nantucket Sound** and effects on ocean warming in the Gulf of Maine on cod and sea herring stocks. Since the Atlantic States Marine Fisheries Management Council works closely with the state marine fishery agencies/MAFMC in managing these migrating fish stocks, I would like to see some type of agreement reached with the NEFMC to develop an integrated approach for both catch quotas and pelagic Essential Fish Habitat (**EFH**). I favor an adaptive, ecosystems based approach (**a,ebm**) to help address the effects on climate change/eutrophication on the "**productive capacity**" of pelagic EFH; increased human uses (US Navy training; wind farms; potential seismic surveys for oil/gas explorations; etc.) and natural variability of fish stocks in space/time.

Summer flounder might be a good case study, since the MAFMC is holding regional hearing along the US Atlantic coast and this stock is targeted by both commercial fishermen/women and saltwater anglers. Before retiring I served on the NEFMC's Habitat Plan Development Team which helped the NEFMC's Habitat/MPA/Ecosystems Committee develop **Omnibus Habitat Amendment 2**. OHA 2 didn't address either eutrophication effects within state jurisdictional waters (0-3 miles) or climate change effects in the Gulf of Maine. Here on Cape Cod \$4-7 billion will be spent over the next 20-30 years to reduce "N" loading from septic systems which has impacted water quality and EFH in coastal embayments (eelgrass beds; salt marshes ; oyster reefs; etc.).

Warming waters in the Summer have attracted great white sharks to our beaches to feed on seals and increased forage fish near shore which has attracted minke and humpback whales which are subject to **"unnatural mortality event"** studies by the Northeast Fisheries Science Center and academic marine scientists. Numerous research papers have focused on the rapid warming in the **Gulf of Maine (GoM)** and its effects on living marine resources (fish and shellfish). One consequence of this warming is that Winter flounder are migrating into the GoM which will pose management challenges for the NEFMC. The sea herring quota has been cut from 240 to 110 million pounds which may result in bait challenges for the lobster fishery. I gather that the ASMFC is doing a menhaden stock assessment and perhaps this forage fish could fill the lobster trap bait gap.

Since I used to be the Recreational Fisheries Coordinator at the Fisheries Lab in Woods Hole, I would urge you to explore the **"economic multiplier effect" (eme)** of commercial and recreational fishing on the economy of Barnstable County and similar tourist based New England communities. We are losing our working waterfront to non-water related development which will constrain commercial fishing recovery and diminish the role of recreational fishing in our tourist based economy. In 2003/2004 I lead a **"Fisheries & Aquaculture Working Group"** for the Gulf of Maine **Council on the Marine Environment** which lead to "eme" indicators for both recreational and commercial fishing. This concept is discussed in more detail in the attached Op-ed piece that was published in CapeCod Today and reprinted in the Rhode Island Saltwater Anglers Association (RISAA) newsletter.

Thanks for your consideration of these comments

Dr. David D. Dow  
East Falmouth, Ma.

# Letter: Alternative Ways to Manage Fish in New England Waters

from Dr. David D. Dow of East Falmouth

ARTICLE | **LETTERS TO THE EDITOR** | JULY 20, 2018 09:25 AM |  
BY **CAPECODTODAY STAFF**

<letter-to-the-editor\_17\_144.jpg>

Letter to the Editor:

As a retired marine scientist from the Fisheries Lab in Woods Hole and former recreational fisheries coordinator in the Northeast, I have been interested in the different ways that the Mid-Atlantic Fishery Management Council/Atlantic States Marine Fisheries Commission and the New England Fishery Management Council manage

fish stocks under their jurisdiction. This will likely have an effect on saltwater anglers as Summer flounder, black sea bass and scup move into Nantucket Sound, since these species are managed by MAFMC/ASMFC. The NEFMC is in the process of developing Amendment 8 for the Atlantic herring Fishery Management Plan which is an important forage fish used as bait in lobster traps; part of a directed fishery which includes paired vessel midwater trawls; serve as food for target species of saltwater anglers (tuna; swordfish; striped bass; bluefish; etc.) and are key parts of the pelagic marine food chain linking plankton to whales; seabirds; various non-commercial fish/shellfish; etc. In 2016 the MAFMC developed a Forage Fish Plan which had a much wider focus than Amendment 8 of the Atlantic herring FMP which is under development by the NEFMC. Part of the reason for this is that the MAFMC/ASMFC try to integrate fishing regulations between state/federal jurisdictional waters (0-200 miles off of the coast), while the NEFMC focuses on federal jurisdictional waters (3-200 miles). Fish species obviously don't recognize this artificial jurisdictional boundary. The Atlantic States Marine Fisheries Commission attempts to coordinate fishing regulations and catch quotas in state jurisdictional waters (0-3 miles) with state fishery agencies along the Atlantic seaboard. As our coastal waters warm fish species are moving northwards which complicates the inshore quotas for species from tuna/swordfish (Apex Predators) to black sea bass/Summer flounder/scup (predators) in New England waters. The other big difference is that the NEFMC is focused on commercial fishing as evidenced in their approach to Amendment 8 of the Atlantic herring FMP, while the MAFMC/ASMFC main constituents are recreational fishermen/women (saltwater anglers) which is reflected in the MAFMC Forage Fish Plan. Under the Magnuson-Stevens Sustainable Fisheries Act, the Essential Fish Habitat (EFH) provision applies to the managed stocks of the federal fishery management councils in both state and federal jurisdictional waters. EFH in Cape Cod embayments include salt marshes' oyster reefs; eelgrass beds which are under threat from "nitrogen enrichment from septic systems" which is subject to an EPA/Ma. DEP cleanup under section 208 of the Clean Water Act. These coastal habitats are also threatened by warming waters and increased ocean acidity. In the open ocean the NEFMC EFH is focused on groundfish (cod; haddock; skates; etc.) and scallops, while the MAFMC is developing EFH for pelagic species like forage fish; squid and mackerel. Changes in EFH can influence growth/reproduction in managed species; natural mortality rates; changes in distribution in time and space; and the wider marine food chains that support the natural capital/ecosystem services in the ocean (which are undergoing shifts). Since the MAFMC and NEFMC both manage federal fish stocks throughout their range, it is important that they coordinate efforts and include the ASMFC/state fishery

agencies in this dialog. Consider river herring and sea run brook trout which are the subject of rivershed restoration efforts here on Cape Cod (i.e. Coonamesset River Trust efforts in Falmouth) where harvests are banned inshore; while these species are caught in the offshore Atlantic herring fishery (especially by paired trawl fishery). For both commercial and recreational fishing one needs to consider the economic multiplier effect (**eme**) which compares the expenditures in relationship to direct/indirect/induced economic benefits to coastal communities. Fisheries economists have software that can compute the economic multiplier effect at the county level. It would be interesting to compare the commercial and recreational fishing **eme** on Cape Cod & the Islands with other states in New England. Recreational fishing includes head and charter vessels along with individuals which fish on their own for pleasure.

Dr. David D. Dow  
East Falmouth, Ma.



**Tina Berger**

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**From:** Lynn Funkhouser <lynnfunkhouser@cs.com>  
**Sent:** Sunday, October 14, 2018 2:36 AM  
**To:** Comments; hq@omegaprotein.com  
**Subject:** Request to refrain from fishing in the waters of the Western New York Bight

Dear Owners and Directors of Omega Protein And Commissioners of ASMFC

While we recognize that the Omega Fleet is operating under the current Total Allowable Catch and in waters beyond the NY or NJ State jurisdictions, we would like to request certain restraints on the fishing activity that would conflict with the whales we have been documenting feeding in this area.

The Atlantic States Marine Fisheries Commission is often cited as determining that there is no local impact on this conflict. A timely survey has yet to be done in this area and we are totally opposed to finding out, by learning after the fact, that there are no more whales in the area.

We therefore request, representing the undersigned, that the Omega Fleet maintain a 20 mile "no fish zone" from the entrance to NY harbor. This would allow a reasonable fishing area while protecting the specific local area where we have been documenting humpback feeding increasingly since 2011. A voluntary exclusion would be, we think, a demonstration of the company's willingness to respect other interests.

Please consider this message and let the management know that there is an opportunity to work with groups like ours in a cooperative rather than an adversarial manner. We believe, and hope the company agrees, that positive public relations have a beneficial effect on the bottom line.

Thank you for the consideration and hope that whales, menhaden, and our common interest of a sustainable fishery can be ensured.

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Ms Lynn Funkhouser  
lynnfunkhouser@cs.com

## *An Update to Living Shorelines: Impacts of Erosion Control Strategies on Coastal Habitats*

In 2010, the Atlantic States Marine Fisheries Commission published *Living Shorelines: Impacts of Erosion Control Strategies on Coastal Habitats* (Thomas-Blate 2010). Since then, there has been a growing body of literature and lessons learned, that this factsheet highlights. This is not an exhaustive list, but rather features selected case studies, websites, and references in support of the application of best practices moving forward.

Living shorelines (LSLs) are adopted with increasing frequency to address coastal shoreline erosion issues along both public and private shoreline properties. This type of shoreline protection is mostly used along shorelines fronting bays, sounds, and in other estuarine settings, as beach and inlet systems experience energy levels that are higher than those for which natural materials can successfully be employed.

The National Oceanic and Atmospheric Administration defines LSLs as: *“A shoreline management practice that provides erosion control benefits; protects, restores, or enhances natural shoreline habitat; and maintains coastal processes through the strategic placement of plants, stone, sand fill, and other structural organic materials.”* These “green” erosion control installations are often compared to “gray” infrastructure like seawalls and revetments. Unlike their gray alternatives, LSLs integrate habitats across the shoreline landscape, by promoting the land-water continuum, provide enhanced habitat for fish and wildlife, naturally adapt to changing sea levels in the face of climate change, and enhance the natural beauty of their adjacent properties.

As sea level rise continues, armoring shorelines against wave energy and erosion will continue to be important to those living along coastal waters. Using LSLs to accomplish this will ensure connections remain established between the uplands and estuaries to maintain or even improve the health of the important fish habitats they sustain.

In 2017, the U.S. Army Corps of Engineers established a Nationwide Permit for Living Shorelines to streamline permitting processes for living shorelines structures. The permit can be accessed here: <http://www.nao.usace.army.mil/Portals/31/docs/regulatory/nationwidepermits/Nationwide%20Permit%2054.pdf>.

### For more information

Practical applications training for resources managers and practitioners of living shorelines projects nationally <https://www.livingshorelinesacademy.org>

Systems Approach to Geomorphic Engineering (SAGE) <http://www.sagecoast.org/>

Why Living Shorelines are Better than Bulkheads <https://www.coastalreview.org/2016/02/12896/>

Restore America’s Estuaries Living Shorelines Initiatives <https://www.estuaries.org/living-shorelines>

Naturally Resilient Communities: Living Shorelines <http://nrcsolutions.org/living-shorelines/>

NOAA’s Guidance for the Successful Use of Living Shorelines  
<https://coastalscience.noaa.gov/project/guidance-living-shorelines/>

InTeGrate's Advantages and Disadvantages of Soft Shoreline Stabilization <https://www.e-education.psu.edu/earth107/node/1073>

Virginia Institute of Marine Science's Living Shorelines Decision Tools  
[http://www.vims.edu/ccrm/outreach/living\\_shorelines/index.php](http://www.vims.edu/ccrm/outreach/living_shorelines/index.php)

Case Study on Designing Living Shorelines for New England Coasts (via NOAA Office for Coastal Management): <https://coast.noaa.gov/digitalcoast/training/orleans.html>

Hudson River National Estuarine Research Reserve's Sustainable Shorelines Guidance:  
<https://www.hrner.org/hudson-river-sustainable-shorelines>

New Jersey's Living Shorelines Information <https://www.state.nj.us/dep/opi/living-shorelines.html>

Delaware Living Shorelines Committee Information <https://www.delawarelivingshorelines.org/>

Delaware's Living Shorelines Information:  
<http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/LivingShoreline.aspx>

Partnership for the Delaware Estuary's Living Shorelines Information:  
<http://www.delawareestuary.org/science-and-research/living-shorelines/>

North Carolina's Shoreline Stabilization Options <https://deq.nc.gov/about/divisions/coastal-management/coastal-management-estuarine-shorelines/stabilization/stabilization-options>

Georgia's Living Shorelines Information <https://coastalgadnr.org/LivingShorelines> and Storyboard  
<http://gcmap.maps.arcgis.com/apps/MapTour/index.html?appid=fa83fbc0786542ff99dbf12b509ffbc5&webmap=b5e08e21085a403faec4086381edcb34>

Information regarding applications of living shorelines for private property owners of estuarine shorelines in Florida <https://floridalivingshorelines.com>

#### Sidebar: Lessons Learned

- Each state has different Coastal Zone Management (CZM) regulations. Contact your state CZM program as well as the appropriate Army Corps of Engineers District to discuss your proposed project.
- Some states (e.g. North Carolina) are drafting regional general permits for living shorelines. These regional permits align with their state general permit more specifically, improving the efficacy of the interagency process overall. Contact your state agency to learn more.
- Every site should be evaluated on a case-by-case basis. Local ecological parameters should be considered so that each project thrives under the local conditions (see [NOAA guidance on physical site conditions](#)).
- An interdisciplinary approach to understand coastal ecology and site design is important. Projects are most successful when ecologists and geotechnical engineers work together.
- Use local knowledge and anecdotes to augment scientific information. People who have watched the shoreline for years understand local conditions and challenges.
- LSLs take time to establish. Monitor the site, assess functionality, and adaptively manage ([Delaware Estuary Living Shoreline Initiative](#)).
- The number of acres restored is not always the best measure of success. Quality, persistence, and resilience matter. Consider functionality over time.

- Viewshed and contractor, homeowner, and local government education is important for LSL buy-in and promotion.

For Case Studies and Further Reading, visit [\(link\)](#).

[This appendix will be linked to the sentence above]

### Case Studies

#### *Florida Fish and Wildlife Conservation Commission Living Shoreline Demonstration Area*

520 Barracuda Blvd.

New Smyrna Beach, FL 32169

#### Project Footprint

5 acres of restored saltmarsh, 300 linear ft of shoreline demonstration area

#### Want to Visit?

The site is maintained by the Marine Discovery Center, which is open daily.

#### Coordinating Organization

Florida Fish and Wildlife Conservation Commission (FWC) Marine Discovery Center

#### Project Description

During summer and fall of 2014, five acres of FWC property (the Mosquito Lagoon Marine Enhancement Center) were restored to saltmarsh through a grant-funded partnership. The Shoreline Demonstration Area was added to the project to showcase various techniques used to stabilize eroding shorelines, including those with mostly natural materials. This showcase site has signs along a publicly accessible walking trail highlighting the various living shoreline implementation techniques from fully green (oyster reef sloping to high marsh) to rehabilitated seawall (oyster reef and mangroves in front of a seawall) applications. Contracted businesses installed terracing, a retaining wall, and seawall. Native plants came from a local nursery. Oyster shell came from a local restaurant recycling program, [Shuck and Share](#), housed on the property.

#### For more Information

Contact Jeff Beal, FWC, [jeff.beal@myfwc.com](mailto:jeff.beal@myfwc.com)

<http://floridalivingshorelines.com/project/marine-discovery-center/>

#### *South Carolina Demonstration Site*

310 Okatie Highway

Okatie, SC 29909

#### Project Footprint

41 linear ft of oyster reef, 50 linear ft of oyster castle, 45 linear ft of crab trap reef, 122 linear ft of modified crab trap reef

#### Want to Visit?

The demonstration site is located along an intertidal shoreline of the Chechessee River, at the Port Royal Sound Maritime Center

#### Coordinating Organization

South Carolina Department of Natural Resources (SC DNR)

#### Project Description

The SC DNR has been constructing oyster-reef based living shorelines since 2001. The success of these living shoreline projects has sparked the interest of nearby property owners to pursue similar projects. Consequently, the South Carolina Department of Health and Environmental Control (SC DHEC) has sought to develop a regulatory process to guide the design and permitting of living shorelines. SC DNR, working in partnership with National Estuarine Research Reserve System (NERRS) and SC DHEC, is conducting a multi-year research program to inform living shoreline regulations. The program seeks to evaluate historic sites, analyze existing data, create and monitor new sites, and conduct case studies. Materials being tested are both oyster-based and natural fiber-based. Data on rates of elevation change from historic sites, such as the Chechessee River site (an oyster based site), provide science-based information on how living shorelines protect South Carolina's marshes from erosion and habitat loss. Preliminary results, from historical analysis, indicate an average vertical accumulation rate of 2.3 cm/yr behind reefs relative to controls.

For more Information

Contact Dr. Peter Kingsley-Smith, SC DNR, [kingsleysmithp@dnr.sc.gov](mailto:kingsleysmithp@dnr.sc.gov)

#### Further Reading

- Allen, G. et al. 2006. Hudson River Shoreline Restoration Alternatives Analysis. Prepared by Alden Research Laboratory, Inc. and ASA Analysis and Communications, Inc. for the Hudson River National Estuarine Research Reserve. <https://www.hrnerr.org/doc?doc=240189580>
- Allen, H.H. & J.R. Leech. 1997. Bioengineering for Streambank Erosion Control - Report 1, Guidelines, Technical Report EL-97-8. U.S. Army Corps of Engineers. [http://www.engr.colostate.edu/~bbledsoe/CIVE413/Bioengineering\\_for\\_Streambank\\_Erosion\\_Control\\_report1.pdf](http://www.engr.colostate.edu/~bbledsoe/CIVE413/Bioengineering_for_Streambank_Erosion_Control_report1.pdf).
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- Bridges T.S. et al. 2015. Use of Natural and Nature-based Features (NNBF) for Coastal Resilience. ERDC SR-15-1. U.S. Army Corps of Engineers. <https://usace.contentdm.oclc.org/digital/collection/p266001coll1/id/3442/>
- Fagherazzi, S. & P.L. Wiberg. 2009. Importance of wind conditions, fetch, and water levels on wave-generated shear stresses in shallow intertidal basins. Journal of Geophysical Research: Earth Surface, 114(F3). <https://doi.org/10.1029/2008JF001139>
- Georgia Department of Natural Resources. 2013. Living Shorelines along the Georgia Coast: A Summary Report of the First Living Shoreline projects in Georgia. Coastal Resources Division. Brunswick, GA. 43 pp. + appendix. <https://coastalgadnr.org/sites/default/files/crd/CZM/Wetlands-LS/LivingShorelinesAlongtheGeorgiaCoast.pdf>
- Hardaway Jr., C.S. & R.J. Byrne. 1999. Shoreline Management in Chesapeake Bay. Virginia Sea Grant Publication VSG-99-11. Virginia Institute of Marine Science College of William and Mary. Gloucester Point, Virginia. <http://www.dcr.virginia.gov/soil-and-water/document/shoreline-management-in-chesapeake-bay.pdf>
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- Hauser, E. 2012. Terminology for the Hudson River Sustainable Shorelines Project. In association with and published by the Hudson River Sustainable Shoreline Project.  
[https://www.dec.ny.gov/docs/remediation\\_hudson\\_pdf/shorelineterminology.pdf](https://www.dec.ny.gov/docs/remediation_hudson_pdf/shorelineterminology.pdf).
- Johannessen, J. et al. 2014. Marine Shoreline Design Guidelines. Washington State Aquatic Habitat Guidelines Program. <https://wdfw.wa.gov/publications/01583/wdfw01583.pdf>
- Lake Jr., D.W. & NYDEC. 2016. New York State Standards and Specifications for Erosion and Sediment Control. [http://www.dec.ny.gov/docs/water\\_pdf/2016nysstanec.pdf](http://www.dec.ny.gov/docs/water_pdf/2016nysstanec.pdf)
- Luscher, A. & C. Hollingsworth. 2007. Shore Erosion Control The Natural Approach. Maryland Department of Natural Resources.  
[http://dnr.maryland.gov/ccs/Publication/SE\\_Natural\\_Approach\\_2007.pdf](http://dnr.maryland.gov/ccs/Publication/SE_Natural_Approach_2007.pdf)
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**Long-Term Benchmark Assessment and Peer Review Schedule (Revised September 2018)**

Species	2012	2013	2014	2015	2016	2017		2018	2019	2020	2021
American Eel	ASMFC					Update					
American Shad									ASMFC		
American Lobster				ASMFC						x	
Atlantic Croaker						ASMFC					
Atlantic Menhaden	Update		SEDAR			Update			SEDAR		
Atlantic Sea Herring	SARC 54			Update				SARC-Spring			
Atlantic Striped Bass		SARC 57		Update	Update			SARC-Fall			
Atlantic Sturgeon						ASMFC					
Black Drum			ASMFC						x		
Black Sea Bass	Update	Update	Update	Update	SARC- Fall	Update		Update	Operational*	Update	
Bluefish	Update	Update	Update	SARC-Spring	Update	Update		Update	Operational*	x	
Cobia									SEDAR		
Horseshoe Crab		Update							ASMFC		
Menhaden ERPs	Update		Update						SEDAR		
Northern Shrimp	Update	Update	SARC-Spring	Update	Update	Update		ASMFC	Update	Update	
Red Drum				SEDAR							x
River Herring	ASMFC					Update					
Scup	Update	Update	Update	SARC-Spring	Update	Update		Update	Operational*		
Spanish Mackerel	SEDAR 28									SEDAR	
Spiny Dogfish	Update	Update	Update	Update	Update	Update		Update	Update	Update	
Large Coastal Sharks					SEDAR	SEDAR					
Small Coastal Sharks		SEDAR									
Spot						ASMFC					
Spotted Seatrout				VA/NC	FL						
Summer Flounder	Update	SARC 57	Update	Update	Update	Update		SARC-Fall	Update	Update	
Tautog					ASMFC						x
Weakfish					ASMFC				Update		
Winter Flounder			Update	Update		Update					

Note all species scheduled for review must be prioritized by management boards and Policy Board.

**Additional Notes:**

- BSB, Bluefish, Scup      \*Spring 2019 operational assessments with new MRIP data (April 2019)
- Cobia                      Stock Structure review Summer 2018, then benchmark assessment in 2019
- Large Coastal Sharks    2017 SEDAR for sandbar shark
- Spotted Seatrout        States conduct individual assessments

	SEDAR Peer Review
	ASMFC Peer Review
	Fall SARC Review (November)
	Spring SARC Review (June)
	x = 5 year trigger date or potential review
	Completed

*Italics = under consideration, not officially scheduled*