



**Wild  
Oceans**  
For the future of fishing

# The Horizon

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ASMFC RESPONDS TO THE PUBLIC'S CALL FOR ACTION

## Rebuilding Striped Bass

by Pam Lyons Gromen  
Executive Director

Atlantic States Marine Fisheries Commission (ASMFC) Chair Patrick Keliher addressed the Atlantic Striped Bass Management Board (Board) at the start of its May 5<sup>th</sup> meeting. Noting that striped bass are the Commission's flagship species, he urged, "We are no longer in a position to hold out hope that things will revert to what they have been previously if we just hold static. Change is happening too fast, and actions need to be taken." Mr. Keliher's remarks were the start of what would be a good day for striped bass and striped bass fishermen.

The main agenda item before the Board was reviewing public feedback on potential changes to the Atlantic Striped Bass Interstate Fishery Management Plan (ISFMP). Ten issues were presented in a Public Information Document (PID) for what will eventually become Amendment 7 to the plan. Over 3,200 comments were received. *Wild Oceans* submit-

ted detailed written recommendations, pointing out what was to us a glaring omission in the PID – a plan to rebuild the striped bass population.



In the spring of 2019, the ASMFC's Atlantic Striped Bass Management Board approved a new stock assessment for management use. The assessment concluded that striped bass are overfished, the result of years of chronic overfishing. In accordance with the current striped bass plan (Amendment 6 to the Atlantic Striped Bass ISFMP), the overfished status should have triggered action to restore the population

within ten years, by 2029.

Instead of offering options for a 10-year rebuilding program, the Amendment 7 PID proposed changing the biological reference points, measured by female spawning stock biomass, that define an overfished and a rebuilt population. By moving the goal posts, the status of the striped bass population would magically improve.

In the absence of any science to justify the change, the public resoundingly rejected the notion that the striped bass reference points should be lowered, and the Board agreed, removing this issue from the developing amendment. The Board also heard the public's cry to rebuild striped bass by 2029, eliminating options that could have lengthened the rebuilding schedule.

By the end of the nearly 6-hour deliberations, the Board had defined the intent of Amendment 7, narrowing down the issues to those that could be developed and implemented expeditiously to rebuild striped bass.

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## NOAA Fisheries Should Reverse Course for Spawning Bluefin

In our 2020 Spring edition of the *Horizon*, we reported in the article “Trouble for Atlantic Bluefin” that despite overwhelming public opposition, NOAA Fisheries reopened the Gear Restricted Areas (GRAs) in the Gulf of Mexico to longline fishing. These GRAs were established after years of public input provided by *Wild Oceans* and others, urging NOAA Fisheries to protect western Atlantic bluefin tuna (ABFT) that spawn in the Gulf of Mexico during the months of April and May.

As detailed in that article, we immediately began working to overturn this rule to help reestablish these much-needed protections. So, after several months of effort, we were pleased when the Senate Appropriations Committee developed report language responding to our concerns and tied it to the 2021 Appropriations Act which funds NOAA Fisheries. Specifically, this language directs the agency to reconsider its decision and either reinstate the Gulf of Mexico GRAs, closing them once again to pelagic longline fishing, or to take additional monitoring actions, including ensuring 100 percent human observer coverage during the

months of April and May. The report also instructs NOAA Fisheries to make public all Gulf of Mexico ABFT catch data, broken down by catch inside and outside the GRAs, on a weekly basis and within one week of any catch event during April and May.

While the Appropriations Committee request was quite clear, the response from NOAA Fisheries was not. Instead of reversing the decision to open the GRAs or committing to 100 percent human observer coverage during spawning months, NOAA Fisheries opted to solicit yet more public input. The stated purpose for the public comment request is to gather any additional information that would inform the agency’s reconsideration of opening the GRAs. A notice was published in the Federal Register soliciting information from the public, and two public webinars were held in June. Next, the agency will review the comment record and assess if it presents any relevant information not already considered prior to issuing the April 2, 2020 Final Rule opening the GRAs to longlines. The agency will also make a determination as to whether any new information merits further ac-

tion related to the GRAs.

This request for additional stakeholder input seems more like a distraction than a response. The agency has not only the data to justify keeping the areas closed, but it has thousands of public comments supporting this closure when the Rule was first considered. And as no pelagic longline sets have occurred within the boundaries of the GRAs since the new Rule’s implementation, what “new” information could there be?

The International Commission for the Conservation of Atlantic Tunas (ICCAT) 2021 western Atlantic bluefin tuna quota is projected to have a 94% chance of overfishing this depleted population, making the Gulf of Mexico Gear Restricted Areas more needed than ever. This is all the information that we need.

We will continue our efforts to push for the reclosure of these important areas prior to next year’s spawning season. Hopefully NOAA Fisheries will do the right thing...again.

— Rob Kramer, President

## For the Future of Fishing

*Wild Oceans* is a 501(c)(3) non-profit organization dedicated to keeping the oceans wild to preserve fishing opportunities for the future.

### Our Goals:

- preventing overfishing and restoring depleted fish populations to healthy levels
- promoting sustainable use policies that balance commercial, recreational and ecological values
- modifying or eliminating wasteful fishing practices
- improving our understanding of fish and their role in the marine environment
- preserving fish habitat and water quality

### Officers and Staff:

**Tim Choate**, Chairman  
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**Pam Lyons Gromen**, Executive Director  
**Theresa Labriola**, Pacific Program Director

Contact Us:  
Wild Oceans  
P.O. Box 272122  
Tampa FL 33688  
office: 727.677.8127  
web: [wildoceans.org](http://wildoceans.org)

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# Genetic database offers new hope for shad & river herring



American Shad, Photo credit: NPS

by Pam Lyons Gromen,  
Executive Director

The 2020 Atlantic States Marine Fisheries Commission (ASMFC) American shad stock assessment poses more questions than it answers. The coast-wide metapopulation of this iconic fish (an abundant food source during colonial times harvested by George Washington himself) remains at all-time lows. Of the 23 stocks evaluated, stock status is unknown for 15 of them. Four major systems (the Connecticut, Hudson, Delaware, and Potomac Rivers) are either depleted or experiencing unsustainable levels of mortality. The causes are uncertain.

A new partnership between the ASMFC and the United States Geological Survey (USGS) Leetown Science Center in West Virginia aims to address critical information gaps. The Alosine Genetic Stock Identification and Tissue Repository Project, led by USGS Research Biologist Miluska Olivera-Hyde and Research Ecologist David Kazyak, will use genomic markers to build and expand baseline information for American shad as well as two depleted river herring species, alewife and blueback herring. ("Alosine" is a term used for the group of anadromous herrings that includes shad and river herring.) The result of their work will be a database representing fish from river systems throughout the Atlantic coast.

Shad and river herring spawn in their home river systems, and the young juveniles leave the river within their first year to spend the next 3-5 years at sea, joining with schools from other rivers. Although directed ocean fisheries for American shad have been prohibited

since 2005, and there are no directed ocean fisheries for river herring, alosines are taken incidentally by fisheries targeting other species. Both the Mid-Atlantic and New England Fishery Management Councils have implemented shad and river herring bycatch caps for high-volume fisheries targeting Atlantic mackerel and Atlantic herring. However, the conservation efficacy of these caps remains uncertain because fishery managers lack data about the individual shad and river herring populations comprising the bycatch.

Using genetic analyses to define stock structure and to determine the river system or regional origin of fish taken as bycatch is a high priority research need in the most recent American shad and river herring assessments. Ongoing studies have demonstrated that using genetic analyses to assign incidental catch to individual stocks can reveal which stocks are at greatest risk and can assist fishery managers in prioritizing conservation efforts.<sup>i</sup>

The ASMFC also plans to use the Alosine Repository for reviewing potential Endangered Species Act listings, evaluating stock enhancement programs and validating ageing of specimens.

The ecosystem benefits of restoring alosine stocks along the coast would be far-reaching. Shad and river herring are preyed upon by a wide array of fish, bird and mammal predators from riverine, estuarine and marine waters.

<sup>i</sup> Palkovacs, E. P., D. J. Hasselman, E. E. Argo, S. R. Gephard, K. E. Limburg, D. M. Post, T. F. Schultz, and T. T. Willis. 2013. Combining genetic and demographic information to prioritize conservation efforts for anadromous alewife and blueback herring. *Evolutionary Applications* 7: 212-226.

Many commercially and recreationally-important fish, from largemouth bass to striped bass, bluefish to bluefin tuna, depend upon shad and river herring to satisfy their dietary needs. Ospreys and bald eagles keep watch for running shad and river herring to feed their growing young. Shad and river herring also play a vital ecological role in the transfer of nutrients from ocean to inland ecosystems, enhancing aquatic vegetation at the base of the food web.<sup>ii</sup>

River herring and shad runs once fueled local coastal economies, supporting recreational and commercial fisheries and driving tourism. Today, most in-river fisheries along the coast have closed because of the low numbers of fish returning to spawn.

If scientists succeed in meeting the project goals, the Alosine Genetic Stock Identification and Tissue Repository Project may provide long-awaited answers to community volunteers who wonder why fish are not returning from sea when they have labored for years to restore spawning habitat and natural stream flow, remove dams and other migration impediments and count returning fish.

With a clearer understanding of bycatch impacts, fishery managers can direct their attention to conserving the stocks most at risk, working in collaboration with coastal communities on efforts to bring back the bountiful river herring and shad runs that are a vital piece of our natural heritage. ■

<sup>ii</sup> Mattocks, S., Hall, C. J., Jordaán, A. 2017. Damming, Lost Connectivity, and the Historical Role of Anadromous Fish in Freshwater Ecosystem Dynamics. *BioScience*, 67 (8), 713-728. doi: 10.1093/biosci/bix069.



# Executive Order Tackles Resiliency

by Theresa Labriola,  
Pacific Program Director

Earlier this year, President Biden issued Executive Order 14008, Tackling the Climate Crisis at Home and Abroad. Importantly, the Order includes provisions to help protect our ocean ecosystems and future fishing opportunities. By proposing new or strengthening existing management and conservation measures, the Order aims to make fisheries and protected resources more resilient to climate change. In response, the Secretary of Commerce solicited public input, and *Wild Oceans* contributed a list of written recommendations.

We've always looked at ocean ecosystem health from the perspective of both predator and prey, and we have a long track record of advocating for holistic, ecosystem-based solutions to manage fisheries. Our goal has always been to build a more healthy and re-

silient ocean. In order to go further, we need to invest in the fisheries and ecosystem science that supports ecosystem-based fishery management and give the managers the tools they need to act with precaution in the face of uncertainty.

Ecosystem-based fisheries management (EBFM) provides us with the tools to build healthy fish stocks and strong fishing communities in a changing future. That is why we support investing in scientific research that helps us understand how our oceans are changing, what's at risk, and how we can respond to these changes – research that makes EBFM actionable.

EBFM is widely accepted as the framework for achieving sustainability in fisheries, both in terms of ecological and human wellbeing. Building resiliency by discovering solutions to climate effects requires an understanding of ecosystem structure and function and how human actions might impact the

changing ecosystem. We must ensure that fishing activity will not undermine ecosystem health.

For example, as fish stocks shift northward, new fishing opportunities will arise for forage species such as squid, sardine, herring, mackerels or anchovy. We must first understand the impact of these stock shifts on predators that depend on this prey. Only then can we evaluate harvest strategies to preserve biodiversity and ecological relationships.

Our present single-species management approach does not ac-

count for impacts on other species and trade-offs within the broader food web. This leaves us with enormous ecological uncertainties and inevitable risks. In order to build resilient fisheries in a changing ocean, we must move towards EBFM.

At the same time, we support more precautionary management that includes expanding opportunities to protect habitat and prey. Conserving fish at the ecosystem level requires a change in some of our most basic fishery management concepts. In order to prevent ecosystem overfishing – that is, fishing to a degree that jeopardizes the integrity of marine communities – we must move away from the goal of maximizing yields to fisheries toward ecologically sustainable yields. To do that, we need to be more forthright about how we are impacting the food web and then overtly consider these impacts within our conservation and management strategies.

We can create more resilient populations by protecting breeding, spawning, nursery and feeding grounds for marine life. NOAA Fisheries has a history of restricting gear in areas critical to the life history of marine fish and protected species. We must commit to maintaining these protections and put the resource ahead of short-term economic gains.

The Spring Gulf of Mexico Gear Restricted Area protected Atlantic bluefin tuna during the peak of spawning season by prohibiting longline activity in an area with a relatively high bluefin interaction rate from April 1 through May 31. Regrettably in 2020, NOAA Fisheries allowed longlines to return to this sensitive spawning ground, but the agency is now reconsidering that decision (see *Ocean View*, p. 2).

The Pacific Loggerhead Conservation Area (PLCA) is more dynamic. The PLCA closure is triggered by an envi-



ronmental variable consistent with loggerhead sea turtle abundance. Specifically, drift gillnet fishing is prohibited in the PLCA from June 1 to August 31 when El Nino conditions are occurring or forecast to occur off Southern California.

We now have the ability to use ocean modeling to identify, designate and protect critical habitat based not only on geography, but on oceanographic features. Using features such as temperature, currents or forage availability to designate habitat can help protect pelagic habitat as it shifts in space

with changing ocean conditions.

The future of our oceans depends on prioritizing research to develop both static and dynamic area-based management with a focus on protecting important habitat – where animals reproduce, grow and forage – and areas with high catch of non-target, unmarketable or protected species.

These steps to build more resilient fisheries are consistent with another component of the Executive Order, “the goal of conserving 30 percent of our lands and waters by 2030.” While there is broad support for the

intent behind this goal to preserve our nation's rich biodiversity, there are many diverse views on the best ways to achieve it. We see an opportunity to marry the goal of making fisheries and protected resources more resilient to climate change with the goal of protecting 30 percent of our national waters. For example, by focusing on protecting essential fish habitat from fishing and non-fishing impacts, such as energy exploration, offshore wind development, sand mining, offshore aquaculture, dredging and coastal development, we can achieve both goals. ■

## REBUILDING STRIPED BASS, continued from p. 1

Amendment 7 will "update the management program in order to reflect current fishery needs and priorities given the status and understanding of the resource and fishery has changed considerably since implementation of Amendment 6 in 2003." Four issues in the amendment will address conservation needs and will lay the groundwork for a solid rebuilding program:

- **Recreational release mortality.** With an average of 2.8 million striped bass dying after release each year, recreational release mortality comprises a significant portion of total fishing mortality and is an issue that warrants attention.
- **Conservation equivalency.** Conservation equivalency allows states and jurisdictions to implement alternative regulations that are supposed to achieve the same conservation benefit as the standard measures within the plan. The effectiveness of these alternate plans is often difficult to track and evaluate. This issue came to light when 36 conservation equivalency proposals were submitted in response to the recreational measures in Addendum VI to Amendment 6 (2019). The action specified a one fish bag limit

and a slot limit of 28 to less than 35 inches for ocean waters, and a one fish bag limit and an 18 inch minimum size for the Chesapeake Bay in order to reduce striped bass removals by 18% and end overfishing. After the approved conservation equivalency programs were analyzed as a whole, the result was weakened conservation. Addendum VI is predicted to fall short of the 18% reduction goal, achieving only a 15% decrease.

- **Management triggers.** By design, management triggers are meant to achieve the goal and objectives of the fishery management plan. Objectives include maintaining stock size at or above the target biomass and a level of fishing mortality at or below the target. However, even with the current triggers in place, striped bass have declined to an overfished condition, and chronic overfishing has occurred over the last decade. How and when the Board takes corrective action in response to an overfishing, overfished, or poor recruitment trigger is critical to its effectiveness. Corrective action should be timely.
- **Measures to protect the 2015 year class.** Poor recruitment has plagued the striped bass popula-

tion for the last 5 years. A strong 2015 year class is now available to fisheries, and concern has been raised by many stakeholders about the need to conserve this strong year class instead of allowing for an increase in catch. Options will explore limiting fishing mortality on the 2015 year class, recognizing it is the hope for the future of the population.

The above issues chosen by the Board can result in a successful rebuilding action and can set the stage for a vibrant future of sustainable recreational and commercial fishing opportunities. *Wild Oceans* thanks our supporters who responded to our call for action and submitted comments. Without the collective efforts of conservation-minded fishermen, it is unlikely that we would be in a good position for Amendment 7 to make a meaningful difference for striped bass. ■

With the amendment issues selected, a Plan Development Team (PDT) is now charged with developing alternatives. Under the current estimated timeline, a Draft Amendment could be released for public comment in October. Make sure you are signed up for *Wild Oceans* email action alerts to stay up to date!



# Turning the Tide

## Wild Oceans News and Activities

### Bringing Back the Big Fish

- Our Pacific Program Director, Theresa Labriola attended the March 2021 Western Pacific Fishery Management Council (WesPac) meeting as well as meetings of its advisors where they discussed elements of a rebuilding plan for Western Pacific striped marlin. Last year, WesPac was charged with developing domestic measures to address the relative impact of U.S. fishing vessels on the overfished stock. Recently, the U.S. has taken over 15% of the ocean-wide catch. The Council voted to set an 457 mt striped marlin annual catch limit on the longline fleet. This action will do little to reduce U.S. impact as the fleet has only exceeded this limit once in 2019. WesPac seems determined to maintain status quo catch until an internationally agreed upon rebuilding plan requires longline catch reductions. In the international arena, Theresa attended a June meeting of the Permanent Advisory Committee (PAC) to the U.S. Commissioners for the Western and Central Pacific Fisheries Commission. She asked the U.S. to continue to prioritize negotiation of an international rebuilding plan for striped marlin.
- In May, *Wild Oceans* President Rob Kramer attended the Atlantic Highly Migratory Species (HMS) Advisory Panel meeting. The first item on the agenda was NOAA Fisheries' explanation of its announcement to reconsider opening the Gulf of Mexico Gear Restricted Areas to longlining. The decision was a direct result of work done by us and others with the U.S. Senate Appropriations Committee. *Wild Oceans* is helping to lead a coalition of stakeholders to see that these important area protections for spawning bluefin are reinstated for

good (see *Ocean View*, page 2).

- *Wild Oceans* is continuing to pursue a strong rebuilding plan for Pacific bluefin tuna. This year, the stock is projected to meet its initial international rebuilding target of about 7% of its historic spawning stock. This has prompted Japan to ask for an increase in commercial catch. At the PAC and the June Pacific Fishery Management Council meeting, Theresa supported continued status quo management of Pacific bluefin tuna to allow the stock to rebuild further before fishing pressure is increased.
- North Pacific albacore tuna are a healthy stock that supports Pacific-wide commercial and recreational fishing opportunities. International managers have initiated a Management Strategy Evaluation (MSE) to develop an international harvest control rule (HCR) for albacore. A harvest strategy that is proactive and adaptive will lead to more consistent, predictable and transparent management if the stock declines. On June 1, Theresa attended the Albacore Stakeholder Workshop hosted by NOAA Fisheries. Stakeholders agreed the most important HCR objective is ensuring that the spawning stock biomass is maintained above the limit reference point.

### Advancing Sustainable Gear

- *Wild Oceans* continues to advocate for a transition away from drift gillnets (DGN) in the Pacific and for authorizing deep-set buoy gear to target swordfish. In 2015, we worked with the Council to develop limits (hard caps) on the catch of marine mammals and turtles by DGN fishermen. However, a decision by the D.C. District Court invalidated those regulations, and the Council went

back to the drawing board to develop hard caps in the DGN fishery. In June, Theresa attended the Pacific Council meeting and asked the Council to adopt hard caps that incentivize fishing practices and tools that avoid and minimize incidental catch of non-target and protected species. The Council is scoping a range of alternatives for action this fall. At the same time, Theresa is working to support continued issuance of Exempted Fishing Permits for deep-set buoy gear (a clean-gear that targets swordfish with 92% efficiency).

### Restoring a Depleted East Coast Forage Base

- Atlantic herring were declared overfished last year at just 29% of the target biomass, and a rebuilding plan is underway. The Magnuson-Stevens Fishery Conservation and Management Act requires federal fishery management councils to develop rebuilding plans for overfished stocks within 2 years. *Wild Oceans* Executive Director Pam Lyons Gromen is following the New England Fishery Management Council's rebuilding plan action, called Framework Adjustment 9. Two options for setting catch limits to rebuild the stock will be considered by the Council in September. The option supported by *Wild Oceans* is based on a control rule designed to leave more herring in the water as forage, and it could rebuild the stock in 5 years. Control rule-generated catch limits are based on stock biomass, allowing for increased fishing rates as the stock rebuilds. The second option sets catch limits based on a constant fishing mortality rate, estimated to rebuild herring in 7 years. Short-term economic benefits to herring fishermen are prioritized over the ecological benefits (to fisheries and to predators) of restoring herring more quickly.

- To the south, Pam has been tracking the latest Atlantic mackerel stock assessment. Atlantic mackerel were declared overfished in November 2019, and the Mid-Atlantic Fishery Management Council responded with a plan to rebuild the stock by 2023. The new stock assessment, peer reviewed on June 29, delivered bad news. The stock in 2019 (the last year of data included in the assessment) was at just 24% of the target biomass, and overfishing was occurring. Even if fishing stopped altogether, the stock is unlikely to rebuild by 2023. The Mid-Atlantic Council will take up the results of the new assessment in August and will decide on a course of action.
- With Atlantic herring and Atlantic mackerel in short supply, commercial fishing operations are looking for other target species to satisfy the bait market. An exempted fishing permit (EFP) application was submitted to NOAA's Greater Atlantic Regional Fisheries Office (GARFO) to explore a new industrial purse seine fishery for Atlantic thread herring that would operate in mid-Atlantic federal waters from New York to Virginia. The proposal calls for an annual catch limit of 6.6 million pounds, a 350% increase from the region's current Atlantic thread herring landings. Trip limits of up to 100,000 pounds would be allowed with purse seine nets that are 2,000 feet long and 180 feet high without any at-sea bycatch monitoring. Atlantic thread herring is an important prey species, eaten by many piscivorous fish, sea birds, and marine mammals, and as such, is one of the unmanaged forage species safeguarded by a 1,700-pound possession limit under the Mid-Atlantic Council's Unmanaged Forage Omnibus Amendment. *Wild Oceans* discovered the EFP application in the June Mid-Atlantic Council meeting materials and alerted our forage fish conservation partners about this emerging fishery. Pam spoke in opposition to the EFP at the Mid-Atlantic Council meeting and mobilized other fishing and conservation groups to weigh in with their concerns. The Mid-Atlantic Council responded by agreeing to hold an Ecosystems and Ocean Planning Committee meeting to discuss the EFP and provide feedback to GARFO. While the

Mid-Atlantic Council's comments on the EFP carry weight, the ultimate decision of whether or not to approve the EFP lies with GARFO. We are continuing to closely track this process and keep our allies informed.

### Managing Forage Fisheries to Provide for Predator Needs

- Directed catch of Pacific sardine has been prohibited for the past seven years due to its depleted state. In April, Theresa attended the Pacific Council meeting to advocate for maintaining the prohibition on directed catch and for better alignment of the science with the management of sardine. The Council acted to limit this year's sardine catch to just 3,000 mt, including incidental take, catch of bait fish, and exempted fishing permit allocation.
- In May, *Wild Oceans* joined in with a diverse coalition of fishing and conservation groups, led by CCA Louisiana, to support a state bill (H.B. 535) that would have established an exclusion zone, extending 1/2 mile from the coastline with special buffers around barrier islands, where menhaden fishing would be prohibited. Safeguarding coastal waters from large-scale gulf menhaden removals and industrial fishing nets would protect near shore predator-prey interactions and preserve sensitive shoreline habitat where many species of estuarine and marine life spawn, nest and forage. The bill passed the House but did not survive the Senate.
- The central subpopulation of northern anchovy is a key forage species in the Pacific Ocean. Anchovy support a diverse assemblage of dependent predators including tuna, salmon, whales and seabirds. For decades, managers set an indefinite fixed catch limit that was not responsive to changes in stock status or abundance. In 2014, we began advocating for a new method of managing anchovy that responded to the dramatic natural stock fluctuations. In June, Theresa attended the Pacific Council meeting and supported a Framework for managing anchovy that responds biannually to either a decrease in the population or an increase in commercial catch. The Council voted to advance the Framework for final adoption in November.

### Engaging our Allies

- *Wild Oceans* held its annual Board meeting May 21-23 in Islamorada, Florida. The first in-person meeting of the full Board in two years, it was great to be back together. At the meeting, the Board reviewed the annual work plan based on the new 5-year Strategic Plan and discussed priorities for the coming year. On the afternoon prior to the meeting, a question-and-answer session was held with guest speaker, Dr. Clay Porch, Director of NOAA's Southeast Science Center. Also during the meeting, a presentation was given by Mr. Cam Jaggard, Principal Associate with The Pew Charitable Trusts on a new initiative to preserve critical coastal habitat important to forage fish and other near shore gamefish. As pioneers in forage fish conservation, *Wild Oceans* agreed to assist with this new initiative.

### Improving Policies for Better Fishing

- By invitation, Rob Kramer joined a NOAA sponsored Recreational Stakeholder Listening Session. This was the first public listening session specifically targeting the recreational fishing community to gain input on the preliminary report released by the White House titled *Conserving and Restoring America the Beautiful*. This report provides recommendations on how the United States should achieve the goal of conserving at least 30 percent of our lands and waters by 2030, as directed by President Biden's Executive Order on Tackling the Climate Crises at Home and Abroad.

### Promoting Ecosystem-based Approaches to Management

- At the March Pacific Fishery Management Council meeting, Theresa built support for an initiative to connect California Current Integrated Ecosystem Assessment indicators to the Pacific Fishery Management Council's Fishery Ecosystem Plan (FEP) goals and objectives, associating indicators with targets or "healthy" states to be maintained and unhealthy states to be avoided. This initiative would enable the Council to better track FEP progress. ■



## New Fellowship Awarded to University of Central Florida Student



Thanks to the generosity of **Fish Florida**, the Forage Fish Research Program (FFRP) was able to award another \$15,000 fellowship to a Florida graduate student this year. Kira Allen from the University of Central Florida officially became the ninth FFRP fellow after her proposal was reviewed and enthusiastically approved in June following the 5<sup>th</sup> Annual Forage Fish Data Workshop.

FFRP fellows collaborate with the Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute (FWRI) to advance our understanding of forage

fish. Kira's research will focus on Apalachicola Bay, one of the most biologically diverse and productive estuaries in North America.

Located in the northwest corner of Florida, Apalachicola Bay is vital to fisheries in the Gulf of Mexico. More than 95% of all species harvested commercially and 85% of all species harvested recreationally in the Gulf spend a portion of their life in estuarine waters. The bay is also a major foraging area for fish and birds. Bay anchovy, menhaden and pinfish make up the most abundant populations in Apalachicola Bay.

Fed by the Apalachicola River, Apalachicola Bay's rich variety of wildlife depends on the supply of freshwater from the river. Upstream in Georgia, river water is diverted for

human use, impacting the bay's ecosystem. Sea level rise threatens to exacerbate changes to salinity, habitat and nutrients brought about by reduced freshwater flow.

Kira plans to address the effects of reduced freshwater input and sea level rise on the bay's forage fish. Using a coupled hydrodynamic and food web model, she will investigate changes in forage fish biomass and how these changes impact the food web.

As a member of the Florida Forage Fish Coalition, *Wild Oceans* is proud to play a role in supporting Kira's research by helping generate financial support for the fellowship awards. Learn more about the Coalition's work by visiting [floridaforagefish.org](http://floridaforagefish.org). ■