

# The Horizon

#### FOR THE FUTURE OF FISHING

# **Rooting for the Return of Bluefin**

A Decade of Conservation Restores Pacific Bluefin Tuna

**By Theresa Labriola** 

By the time I started fishing in Rhode Island waters, the golden age of sportfishing had passed. We had squandered the ocean that provided fish in seemingly endless abundance. The giants were extirpated from the coastal waters by the 1970s. The crowded waves of forage fish, of menhaden, herring, and butterfish were depleted. But, I still heard the tale of Kay Topping catching a giant bluefin tuna just a mile or two off of Watch Hill, RI. And, I still cast my line in search of my own stories.

A similar fate played out in the Pacific. In 1898 Charles Frederick Holder landed a 183 pound bluefin with a rod and reel and ushered sportfishing into California. Large bluefin tuna became the backbone of southern California sportfishing. Then, a surge in post WWII industrial commercial fishing squeezed the stock. Echoing the Atlantic, larger bluefin tuna were soon non-existent in California waters. By 2011, the spawning stock biomass shrunk to less than 3% of unfished levels.

Then, a historic rebound rewound the ocean 100 years. Record Pacific bluefin recruitment in the mid-2010s led to bigger schools, then bigger fish. Californians began chasing and catching fabled bluefin measuring over 300 pounds. In 2021, California recorded a new state record bluefin weighing 395 pounds. Coastal waters frothed with bluefin once again leaving anglers and conservationists to wonder, how do we sustain this boom not only for today, but for future generations.

Pacific bluefin tuna recovery requires oldschool sportsmanship. Charles Holder's historic catch led him to create the Tuna Club of Avalon with an aim to conserve ocean resources. Wild Oceans' founders carried this conservation ethic forward. Even as bluefin tuna return in numbers that surpass historical records, the fresh memory of the collapse reminds us that we need to coexist with the sea,



The only way to sustain the recovery of Pacific bluefin and recreational opportunity is to err on the side of conservation.

sharing the resource with a myriad of other creatures and respecting its natural limits.

The Pacific bluefin tuna spawns in the western Pacific. Some juveniles traverse the open ocean and spend several years feeding and maturing in the California Current until they return west to spawn. International fisheries managers began to place meaningful restrictions on the catch of bluefin tuna in 2014 and to restrict the industrial fishery that was targeting the smallest, youngest fish. Last year, scientists determined that the decade of conservation had restored the spawning stock biomasses from less than 3% of historic levels to more than 20%. In return, managers followed their basic instinct in natural resources management to set extraction at a level called maximum sustainable yield and increased commercial quota by about 50%, leading many to wonder "what comes next?".

This summer, the Inter-American Tropical Tuna Commission and Western Central Pacific Fisheries Commission are scheduled to adopt a long-term harvest strategy for Pacific bluefin tuna, an ecosystem approach to management that goes beyond basic instinct and considers and balances social, economic, ecological and institutional objectives. A harvest-strategy ends the cycle of valuing quota above all else. This presents us with an opportunity to prioritize safety, to minimize the probability that the stock will fall below the point in which fishing is no longer considered sustainable, and status, maintaining the stock in the "green zone" so that it is not overfished and there is no overfishing.

The harvest-strategy is not the end. Its success depends on our continued improved understanding of bluefin behavior and biology. Scientists have collected bluefin diet information to help determine whether and how forage availability aligns with recruitment and growth. Others have tagged eastern Pacific tuna to piece together the puzzle of Pacific bluefin growth and maturity and better understand what triggers their return to the west to spawn. These priorities become more important in the face of changing ocean conditions.

Fishing in southern California, just like fishing in Rhode Island, marks the local economy, it was, and still is, woven into the local life. Wild Oceans' work to return Atlantic and Pacific bluefin tuna to our shores has brightened this cultural tapestry. We cannot change the past and the ways we strained the ocean, but everything we do can change the future.

Inside This Issue	
Cover Story	1
📕 Ocean View	2
📕 Kona Project	3-4
Atlantic Menhaden	5
Turning the Tide	6 -7
Wild Oceans Board Meeting	8

# **Ocean View**



Dy Ken Inninan

#### "Home is the sailor, home from the sea, And the hunter home from the hill."

1 14

- "Requiem" by R.L. Stevenson

Frank Carlton went home on Christmas Day 2024 in the lovely coastal city of Savannah, where more than 50 years ago he founded the National Coalition for Marine Conservation, now Wild Oceans. He was 91.

For all of us, there are events and encounters that change the course of our lives. For me, one of those was meeting Frank in 1978. I was a young man looking for a job and he'd been thinking about hiring someone to ease the burden of a small, all-volunteer non-profit.

Frank was a practicing physician, an erudite southern gentleman who loved to hunt and fish. I was a long-haired kid from New Jersey who did neither. But we shared a passion for the outdoors and a love of writing and literature. Long story short, Frank took a chance on me and I became NCMC's first employee. It was a life-altering decision that set me on a rewarding 42-year career in marine conservation, for which I am eternally grateful.

When I retired as President of Wild Oceans in 2019, Frank suggested I write a book and tell the story of marine fish conservation in America. If I ever did, I would start with Frank.

He was there at the beginning, arguing in front of Congress for a 200-mile conservation zone around the US and a system of Regional Councils to manage our fisheries, while giving a voice to American anglers. He helped enact international treaties to protect Atlantic tunas and salmon and served as one of the first US commissioners to each. He initiated a series of annual symposia that for 20 years brought fishermen and policy makers together to discuss the issues of the day.

These are some of the tangibles. It's the intangibles that made the difference for me and our organization as we followed in the path he blazed.

I remember very early on trying to fathom what Frank had created with NCMC. Was it a fishing group founded by environmentalists or an environmental group made up of fishermen? Both, actually. Frank taught me that the resource always comes first and to approach each issue with the head of an environmentalist but with the heart of a fisherman. That's his legacy.

Fifty years ago, a national conservation group with a focus on ocean fish and fishing was unique. Just as unusual was a group that sought to bring fishermen, non-fishermen and scientists together to protect the ocean and its creatures in ways that will sustain us all well into the future. That's also his legacy.

Finally, Frank was a lover of poetry. I remember when he told me Matthew Arnold's "Dover Beach" was the greatest poem ever written. It was one of my mother's favorites, too. "The sea is calm to-night..."

Late in life Frank wrote and published his own poems. Indeed, his family says he "sought and found poetry in every aspect of life." He couldn't ask for a better epitaph than that.

### 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:**

Stephanie Choate, Co-Chair

Peter Truslow, Co-Chair

Tim Ervin, Vice Chairman

Rob Kramer, President

Theresa Labriola, Pacific Program Director

Zane Ruzicka, Atlantic Coast Programs Coordinator

#### **Board of Directors:**

Mary Barley (Islamorada, FL) Bill Boyce (Saugus, CA) C. J. Bright, Jr. (Kailua-Kona, HI) Tim Choate (Coral Gables, FL) Stephanie Choate (Tulsa, OK) Tim Ervin (Onekama, MI) Ken Hinman (Lovettsville, VA) Peter Truslow (St. Petersburg, FL) Will Tomlinson (Nassau, Bahamas)

#### **Directors Emeritus**

Stanley Arkin (New York, NY) John Heyer (Sedona, AZ)

## Kona Project Update/Results – 2025

#### **By Rob Kramer**

In late 2021, Wild Oceans launched the Kona Project with an ambitious goal: to advance conservation efforts for Pacific billfish by filling critical gaps in our knowledge of their early life stages, spawning grounds, and essential habitats. For decades, protections for billfish have been limited by what we simply didn't know. The Kona Project set out to change that, offering a science-based pathway to improve management by increasing our understanding of billfish larvae and spawning habitat requirements in the Pacific.

In our early reports, we introduced the Kona Project as a multi-phase initiative designed to assemble the most comprehensive database of larval billfish ever compiled in the Pacific. Working with leading scientist Dr. Mike Musyl, we began a detailed meta-analysis and literature review, focusing on larval discoveries across Hawaii and the wider Pacific Ocean. Today, thanks to the hard work of Dr. Musyl and our other partners, Phase 1 and Phase 2 of the Kona Project have reached key milestones:



#### Kona Project - Phase 1 Results

Although he encountered some unexpected delays, Dr. Musyl, has completed his analysis examining literature and historical data going back over 70 years in a meta-analysis to document larval *istiophorid* abundance patterns and habitat in the Pacific Ocean. The database we have compiled is the largest repository on the distribution of larval billfish (*istiophorids* and swordfish) in the Pacific. It has also served to identify several potential spawning and larval habitats (previously unknown) and it will act as a critical baseline for future studies. Additional outcomes of the study include:

• By utilizing length data, we approximated the ages of larval specimens to identify potential spawning areas.

• We gathered information on salinity and temperature from the

literature to further characterize larval billfish habitat parameters. • The analysis revealed potential new spawning areas and non-uniform distribution patterns among larvae, underscoring the need for additional research on larval istiophorids in the Pacific.

• Our Pacific-wide analysis of just what exists and doesn't exist pertaining to billfish spawning and larval research lays the groundwork, pinpointing gaps in knowledge, to guide future research efforts.

y = 2.3191\*exp(0.086478x)

Length-based age model using parameters provided in Sponaugle et al. (2005)



Salinity at capture (‰) 95% CI 34.7 - 34.9 ‰ (all samples)



Temperature at capture (°C) 95% CI 26.7 – 27.0 °C (all samples)

#### Kona Project - Phase 2 Results

We have also completed the Phase 2 preliminary study with University of Hawaii scientist Dr. Yanli Jia. This part of the Proiect used information on larval billfish in terms of their age and spatial-temporal distribution compiled in Phase 1 as inputs to a particle tracking tool to simulate the movements of billfish larvae as they were carried by ocean currents during the lifetime of each sample. Velocity fields from an ocean circulation model provided the background flow environment. For each larval sample, tracking begins from the time and location of its capture, moves backward in time, and continues for a duration concordant with its estimated age. The end location was then considered to be its most likely spawning origin. The procedure that Dr. Jia established for tracking larval billfish movements has never been attempted by anyone else on billfish and is readily adaptable to conduct more simulations, which we have already begun.



Particle positions after 21 days of tracking backward in time



Placement of particles ("virtual larvae") at the start of each simulation (blue patches) near Kona Coast and around Cross Seamount





Larval billfish samples discovered during Phase 1 of the Kona Project

#### Kona Project -Larval Analysis

In a collaboration with the University of Hawaii, we were able to provide 12 months of funding for researcher Ms. Andrea Schmidt at NOAA's Pacific Island Fisheries Science Center (PIFSC) to analyze the over 1800 larval billfish samples discovered during Phase 1 of the Kona Project. A dataset was produced using in-situ oceanographic data for all samples conducted over the time series (temperature, salinity, dissolved oxygen, and chlorophyll) as well as habitat information (i.e., inside/outside surface slicks, winds, sea surface height anomalies, eddy productivity, moon phase, etc.) and remotely sensed ocean information spanning the 20-year period the samples were collected. We compiled observations of 1963 larval billfishes (from 998 discrete surface tows in West Hawaii) over this 20-year period. Additional outcomes of the study include:

- The first complete multispecies larval billfish dataset with coupled environmental data in the Pacific Islands Region ready for statistical analysis.
- The first high level analysis of these dataset to explore additional products that are now possible.
- The production of a dataset that will be critical for improving our understanding of how oceanographic features and environmental changes affect larval growth, survival, and ultimately population replenishment.

Together, these results lay the groundwork for the next phases of the Kona Project—one that further refines our understanding of where billfish begin their lives, spend their time, and ultimately provide the science to protect the places they depend on.

For more information on results, visit wildoceans.org

### Atlantic Menhaden Natural Mortality Rate is Reduced, But Not Nearly Enough

According to University of Miami Scientists Ault and Luo

**ByRoger Fleming** 

A swe previously reported, in September 2024, Drs. Jerry Ault and Jiangang Luo presented their paper titled "Investigation of Atlantic menhaden mortality rates" to the Atlantic States Marine Fisheries Commission's (ASMFC) Atlantic Menhaden Stock Assessment Subcommittee (SAS). Their paper concludes that the natural mortality rate estimate (M) currently used in the menhaden stock assessment is significantly high because it was based on flawed data analyses contained in a 2019 paper by NOAA biologists Emily Liljestrand and Amy Schueller, and University of Maryland's Michael Wilberg.

The M is a key factor in estimating coastwide menhaden stock size and setting fishery catch limits. The Liljestrand et al. (2019) M of 1.17 was 14 standard deviations above the mean of estimates contained in 13 previously peer-reviewed papers. Among other problems, the use of an incorrect M results in an overestimation of the stock size and leads to overfishing. Because Atlantic menhaden is the key forage stock in ASMFC's Ecosystem Reference Point model, menhaden stock assessment errors can ripple through other ASMFC assessments such as those for striped bass.

In response to Drs. Ault and Luo's paper, the SAS formed a Natural Mortality Working Group (M-WG) that met several times to evaluate these new findings and determine if the M currently in use should be revised. Drs. Ault and Luo worked with the SAS to help them understand their analyses, and in February 2025 the SAS confirmed that several important mistakes were made in the Liljestrand et al. (2019) paper, including erroneous assumptions concerning tag recovery rates, fishing effort, and magnet efficiencies on which their paper relied. As a result, the SAS concluded that the current M was more than 20 percent too high and lowered it from 1.17 to 0.92.



While these corrections and revisions are welcome, Drs. Ault and Luo remain steadfast that the M-WG did not go far enough, and that their revised M was still considerably higher than it should be. Drs. Ault and Luo's findings show the M should be lowered to no more than 0.54. The M-WG attributed the difference to Drs. Ault and Luo's inability to access confidential fishing effort – data that was requested, but not authorized to be shared by fishing vessel owners Omega Protein.

Drs. Ault and Luo disagreed and showed the SAS that their scientific methods are sound, and further, that lack of access to the confidential data had little to no effect on their results. In a March 14<sup>th</sup> memorandum submitted to the SAS, Dr. Ault stated "The ASMFC SAS has failed to apply standard objective statistical criteria in selecting the appropriate mark-recapture model estimates of natural mortality rate. Instead, they made a subjective, *ad hoc* choice for the value of M to be used in the upcoming stock assessment."

After addressing comments from peer reviewers, Drs Ault and Luo's paper has been resubmitted for journal publication. Their revision includes a short precedent addressing this issue and is expected to be published soon. The paper should be a focal point of the formal peer review of the SAS's work in July 2025. Wild Oceans will continue to support Drs. Ault and Luo's efforts to get this critical menhaden science right. Atlantic menhaden is the only major East Coast forage species that is supposedly at relatively healthy levels, and is critical to the health of striped bass, osprey, and countless other predators. It must be managed responsibly based on the best scientific information available.

### Turning the Tide News Activities



From January 13-17th, Atlantic Coast Programs Coordinator Zane Ruzicka traveled to Falmouth, Massachusetts to attend the Marine Resource Education Program, a five-day intensive workshop on the fishery regulatory process. Zane attended several presentations on fishery management and science, with topics including fishery statistics, survey methods, managing scientific uncertainty, stock assessment communication, and the science-to-management process under the Magnuson-Stevens Act. As a MREP participant, Zane had the opportunity to connect with several regional fishery science and management experts after presentations and during field trips to nearby research centers. Through this program, Zane continues to learn how to navigate the complex fishery management process and communicate science to stakeholders. These skills and understandings are imperative to Wild Oceans' mission as the organization continues to advocate for critical ecosystem components and action on the best available science.



Theresa Labriola, our Pacific Program Director, has continued her work to help the Pacific Council produce an HMS Roadmap that outlines Council goals and priorities and develop performance criteria for new highly migratory species gear. Performance criteria can help identify and measure the Council's goals for new gear. She attended the Council's Highly Migratory Species Management Team and Advisory Subpanel meeting on January 13 – 15th where they further refined the Roadmap. The Pacific Fishery Management Council created the Highly Migratory Species Fishery Innovation Workgroup (FIW) to complete an HMS Roadmap that outlines Council goals and priorities, amends the Council exempted fishing permit (EFP) process and develops performance criteria for EFPs. Theresa attended the first two meetings of the FIW on February 27<sup>th</sup> and April 23<sup>rd</sup>. She outlined Wild Oceans priorities which includes supporting alternative HMS gear that utilizes known strategies, such as circle hooks and active tending of gear, that improve target species catch and reduce bycatch of sharks, finfish, marine mammals and sea turtles. In addition, she attended the Council meeting on March 11<sup>th</sup> in Vancouver, WA and provided the Council with public comments regarding next steps for the Roadmap and performance criteria.



On January 30<sup>th</sup>, February 12<sup>th</sup>, 21-22<sup>nd</sup>, and March 3-4th Wild Oceans consultant Roger Fleming attended webinar meetings of the Atlantic States Marine Fisheries Commission's (ASMFC) Atlantic Menhaden Stock Assessment Subcommittee's Natural Mortality Working Group, Atlantic Menhaden Stock Assessment Subcommittee, and the Atlantic Menhaden Ecosystem Reference Point Working Group Assessment Workshop. As a result of these meetings, the ASMFC's Stock Assessment Subcommittee concluded the Atlantic menhaden M should be lowered to 0.92 from 1.17. While this progress is welcome, analysis by the University of Miami Drs. Ault and Luo continues to show that the M should be lowered to no more than 0.54. As a result, the menhaden population size remains overestimated, allowable catches too high, and it is likely that Atlantic menhaden are overfished. The results of these meetings are described in greater detail on page 5.



Theresa travelled to Monterey, CA for The First Intersessional Joint IATTC-WCPFC Northern Committee Working Group on Pacific Bluefin Tuna, a key international meeting held on February 5-7<sup>th</sup>. Scientists provided Japan, Mexico, United States, Korea and Taiwan with the initial results of the Pacific bluefin tuna Management Strategy Evaluation (MSE) that analyzed twenty different long-term harvest strategies ahead of the anticipated adoption of a harvest strategy in July. As a member of the U.S. Delegation, Theresa highlighted Wild Oceans priorities that a harvest strategy focus on health of the stock and to make conservation the number one priority over yield.

### Salmon Technical Team. Meeting

In February, Theresa attended the Pacific Council's Salmon Technical Team meeting. The team discussed next steps on converting the salmon stoplight tables which analyze various ocean ecosystem indicators to provide outlooks on the likelihood of juvenile survival to adulthood into risk tables to better incorporate climate and ecosystem information into management.



The Inter-American Tropical Tuna Commission (IATTC) held the 1st Climate Change Workshop from February 24-26<sup>th</sup>. Theresa attended as a member of the U.S. delegation. Workshop attendees reviewed the preliminary recommendations for a climate change work plan goal and scope and framework and heard from global experts. The attendees agreed that the goal should not only focus on measures to ensure that fisheries, their ecosystems and habitats are climate resilient, but also the effects of fishing on the climate resilience of ecosystems and habitats.



On February 26<sup>th</sup>, Zane attended the Community Engagement Meeting for 2026 June Management Track Stock Assessments. During this meeting, New England Fishery Management Council Staff and Scientists listened to community member insights on what was happening on the water that could help inform management track decisions. Assessment scientists were specifically looking for onthe-water observations or data sets on topics such as distribution, stock health, fishing dynamics and management, and the role these stocks play in the ecosystem. Zane's attendance of the meeting was a part of his information gathering process for the forage fish analysis he started in September 2024. Wild Oceans continues to investigate where and when in the management process advocacy efforts are best targeted on forage fish that are critical to ocean food webs.

### Mid-Atlantic EFH 5-Year Review Summary Report

As a member of the Mid-Atlantic Fishery Management Council's (MAFMC) Ecosystem and Ocean Planning Advisory Panel (EOP), on March 4<sup>th</sup>, Rob attended a joint meeting of the EOP and the MAFMC's Ecosystem and Ocean Planning Committee. The meeting was held to discuss the results of the Essential Fish Habitat (EFH) 5-Year Review Summary Report that covers 9 required EFH components and make recommendations to the full Council at their meeting in April. The 9 components topics are:

- 1. EFH designations (maps and text)
- 2. Impacts of Council-managed fishing activities
- 3. Non-MSA fishing activities that may impact EFH
- 4. Non-fishing activities that may impact EFH
- 5. Cumulative impacts (fishing & non-fishing)
- 6. Conservation recommendations to minimize the adverse impacts of fishing on EFH
- 7. Food habits information
- 8. Habitat Areas of Particular Concern (HAPC) designations
- 9. Habitat research needs

A recommendation was made that the Council approve the Report and submit to NOAA for implementation.

### Mid-Atlantic EAFM Risk Assessment Summary Report

As a member of the MAFMC's EOP AP, Rob met again on March 20<sup>th</sup> to review a draft of the 2025 Ecosystem Approach to Fisheries Management (EAFM) risk assessment summary report. The draft summary reflects recent revisions to the risk assessment, incorporates the latest data and scientific information, including the 2025 Mid-Atlantic State of the Ecosystem Report, and continued improvements to indicators based on previous input from the EOP Committee and AP. The EOP Committee and AP provided additional feedback before the 2025 EAFM risk assessment report was finalized and presented to the Council in April.



Theresa co-chaired the Pacific Council Ecosystem Advisory Subpanel (EAS) meeting on March 6-7<sup>th</sup> in Vancouver, WA. She led the team through a review and discussion of the Annual State of the California Current Ecosystem Report. The EAS made recommendations to 1) expand the collection of diet data to better understand the role of predator and prey relationships in the ecosystem, 2) provide additional analyses on sea turtles, particularly loggerhead and leatherback, including likelihood of presence, diet, and availability of forage, and 3) explore the use of eDNA as a cost-effective opportunity to construct annual and long-term insights into fish community dynamics, especially the ability to detail regional forage availability and to understand food habits of dependent predators. The EAS met on April 8<sup>th</sup> to review the Council's Research and Data needs and again asked the Council to prioritize research that helps us better understand the forage needs of dependent predators.



On April 4<sup>th</sup>, Zane attended the New England Fishery Management Council (NEFMC) Scientific and Statistical Committee (SSC) meeting. During this meeting, the Atlantic Herring Plan Development Team and ASMFC's Atlantic Herring Technical Committee met jointly to discuss recommended overfishing limits (OFL) and acceptable biological catches (ABC) for Atlantic Herring for 2025 and 2026. While the SSC had originally recommended an OFL of 18,273 and an ABC of 6,741 for 2025 and an OFL of 21,659 and an ABC of 10,885 in 2026, industry pressure caused the final recommendations out of the SSC to the NEFMC to be higher. This occurred even though Atlantic Herring carries an overfished designation by NOAA. Wild Oceans will continue to monitor the ABC and OFL recommendations when they reach the Council and advocate for policies that will be restorative for Atlantic Herring populations.



In February, March and April, Roger attended meetings of the Atlantic Herring Plan Development Team, the Atlantic Herring Advisory Panel and Committee, and the New England Fishery Management Council (NEFMC). Although continued work on Amendment 10 was approved as a priority at its December 2024 meeting, the NEFMC delayed this work for a meeting cycle to update the Atlantic herring 2025-2027 specifications to provide a small increase in catch for herring fishermen in 2025 from 2,710 to 4,556 metric tons. Only 15 years ago the fishery caught over 100,000 metric tons. With the Atlantic herring resource and allowable catch at historically low levels due to overfishing, the sliver of good news was that the Council voted to keep the allowable catch in 2027 at the projected 2026 level of 13,165 metric tons in view of the uncertainty in the assessment model and risk to the resource. The Council also voted to not allow carryover of unharvested catch to the following fishing year in 2025 and 2026. Unfortunately, at the urging of the Council's Executive Director, the Council also voted to "pause" Amendment 10 due to budget cuts and the need to develop new regulatory "flexibility" measures to address Presidential Executive Orders demanding reduced federal regulations. The Council promised to restart work on Amendment 10 in November 2025. Wild Oceans will continue its work to ensure the Atlantic herring and mackerel resources are rebuilt and that Amendment 10 moves forward to restore a near shore "buffer zone" from midwater trawling.



#### Wild Oceans Hosts Hawaii based Kona Project Scientists at Annual Board Meeting

On May 7<sup>th</sup>, the Wild Oceans Board gathered in Kona, Hawaii for their annual meeting to reflect on accomplishments, review financials, and map out future priorities. Against the backdrop of the Pacific waters where much of the organization's work is being conducted, board members, staff, and invited local researchers explored some of the most exciting developments in marine conservation that Wild Oceans is spearheading.

The meeting spotlighted Wild Oceans' flagship Kona Project. With Phase 1 complete (see article on page 3), presentations focused on Phase 2 accomplishments. Dr. Jonathan Whitney with NOAA's Pacific Islands Fisheries Science Center and Dr. Justin Suca with the University of Hawaii presented findings from a 20-year larval billfish dataset, showing how temperature, salinity and other environmental factors correlate with the early life of several billfish species. This work was made possible with funding from Wild Oceans and is helping to form the basis for better management in Hawaiian waters and beyond. Augmenting this effort, Dr. Martini Arostegui with Woods Hole Oceanographic Institution shared an update on his Wild Oceans supported research project to model billfish bycatch risk across the North Pacific. The end product will identify "hotspots" where conservation strategies can reduce unintended catch of billfish.

Pacific Programs Director Theresa Labriola shared updates on her wide-ranging efforts to improve management of billfish



and tuna across the Pacific, as well as advancing Ecosystem-Based Fisheries Management on the US west coast. From council meetings to international bodies, Theresa has been a consistent and strategic voice for science-driven policy. By staying engaged through diverse coalitions and pushing for precautionary, long-term management strategies, she's helping to keep iconic fish and their prev on a path to recovery.

Atlantic Coast Programs Coordinator Zane Ruzicka provided presentations on several forage fish including Atlantic menhaden, Atlantic herring, and River herring. Zane and Wild Oceans consultant Roger Fleming's efforts have been concentrated on regulating destructive gear types in New England and Mid Atlantic waters. Zane also presented his Masters Capstone Project, which represents the culmination of a year-long forage fish crisis policy review to propose tactical paths forward for Wild Oceans to consider. Through present programming and strategic planning, Wild Oceans looks to ensure the long-term sustainability of forage fish.

From the Pacific to the Atlantic, the message of all presentations was clear: Wild Oceans remains committed to innovative, science-based strategies that will keep the oceans wild.

P.O. Box 272122 Tampa, FL 33688 PHONE 727.677.8127 www.wildoceans.org

GET INVOLVED VISIT: WildOceans.org The Ocean gives us all life. Help us give back. Any and every donation to our organization grants us the chance to continue effecting real change for the future of the ocean and our world.

