The delay is due in part to managers waiting on the science and perhaps waiting for a miracle – a new stock assessment that reveals a plentiful stock. This year, the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean (ISC) agreed to produce a benchmark stock assessment for striped marlin. Instead, they presented a work in progress. ISC scientists identified significant uncertainties in the draft striped marlin stock assessment, and accordingly they will not provide the WCPFC with the updated conservation advice.

The assessment put forth by the ISC in 2022 is highlighted by uncertainty and lacks results that could be used to implement meaningful conservation and management of striped marlin. Recruitment, the number of young fish entering the fisheries, and spawning stock biomass remain low; however, fishing mortality has been significantly lower than maximum sustainable levels since 2004. If we are sustainably fishing the stock, then why is it not recovering? The answer must lie in the environment and what the assessment is missing.

(continued on page 4)
IGFA: A Steadfast Partner in Billfish Conservation

Since its inception nearly fifty years ago, Wild Oceans (then the National Coalition for Marine Conservation - NCMC) has been all about building relationships to affect meaningful change in our marine fisheries and how they are managed. Over this time, many of the groups and individuals that we partnered with have come and gone. Some have changed conservation priorities, some have left the field entirely, while others have simply faded away due to the long-term nature of the fisheries management process. However, for the last twenty years, one of our partners has remained steadfast, choosing to continue to fight a good fight and stay engaged in a meaningful way that truly “moves the needle.”

The International Game Fish Association (IGFA) was founded in 1939 primarily as a body to keep the rules and records for saltwater angling. In the 1990s, the organization began devoting significant time and effort to marine fish conservation and by the mid-2000s, was a formidable ally in the fight to protect and improve marine fish stocks around the world.

Our two organizations collaborate often. In fact, we shared some of the same board members over the years and still do to this day. Together we have partnered on several successful conservation initiatives, including the Take Marlin Off the Menu campaign, the passage of the Billfish Conservation Act, and the technical amendment to the Billfish Conservation Act clarifying that no billfish can be entered into trade in the continental United States, regardless of where it was caught. Therefore, we were excited when IGFA recently decided to partner with us on the new Wild Oceans’ Kona Project.

While Wild Oceans Pacific Program Director Theresa Labriola and I have nearly 30 years combined experience working in the field of billfish conservation, IGFA President Jason Schratwieser and IGFA’s Conservation Director Dr. Bruce Pohlot bring decades of combined billfish scientific expertise to the Kona Project. Schratwieser served as the IGFA’s Conservation Director and lead scientist during my tenure as President of IGFA from 2002-2017 and was IGFA’s lead on the Take Marlin Off the Menu campaign, the Billfish Conservation Act, the FAO Caribbean Billfish Project, and co-chair of the 2016 International Billfish Symposium. Additionally, during that same time, the organization launched the IGFA Great Marlin Race, which is now the largest citizen science billfish satellite tagging project in the world. Pohlot’s Ph.D. research work involved the study of the behavioral dynamics of sailfish and blue marlin in the tropical Eastern Pacific off the coast of Central America. He has completed multiple other projects related to research, consulting and lecturing on the biodiversity and abundance of marine species, new marine technology for abundance studies and satellite tagging.

In the complex world of marine fisheries management and conservation, building relationships and consensus to have a greater influence on the decision-makers is critical – something Wild Oceans has been doing for nearly fifty years. We are pleased to continue this tradition and welcome yet another opportunity to work with our partners at IGFA.

– 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:

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The Scenario Creation Workshop marked phase four of six that comprise a multi-year effort to explore how climate change might affect fisheries on the East Coast. Involving the New England, Mid-Atlantic and South Atlantic Fishery Management Councils, the Atlantic States Marine Fisheries Commission and NOAA Fisheries, the initiative is a remarkable collaboration to "promote fishery conservation and resilient fishing communities, and address uncertainty in an era of climate change."

My fellow workshop attendees included recreational and commercial fishermen, state and federal fishery managers, scientists, environmental organization representatives, and staff from the east coast fishery management bodies. The 75 participants were divided into working groups representing diverse backgrounds and perspectives. Our charge over the three days was "to develop a small number of divergent, plausible, challenging, relevant, memorable stories that outline possible conditions facing East Coast fisheries in the next 20 years."

While warming Atlantic waters are already driving many stocks northward into new territories, the exact nature of how climate change impacts, which are complex and interconnected, will reverberate throughout marine ecosystems and fishing communities in the years ahead is highly uncertain.

Scenario planning is a tool for leaders to prepare for action when faced with an unpredictable future.

"Scenarios are stories. They are works of art rather than scientific analyses. The precision of [their content] is less important than the types of conversations and decisions they spark."

—Arie de Geus, The Living Company

Jonathan Star, our workshop facilitator, has been leading scenario planning workshops for more than 20 years, and his work in the area of climate change includes the Pacific Fishery Management Council’s Climate and Communities Initiative and the National Park Service Climate Change Response Program.

Mr. Star tasked each group with exploring combinations of biological, oceanographic and socio-economic drivers of change that tell a story about a plausible future state of fisheries. Many scenario titles were comical – Sharknado; Gone with the Wind; Manage Fast, Not Half Fast; Total Annihilation; We Hope Not – but the stories they told were sobering. Some groups expanded on opportunities for success in a changing fisheries landscape. "Adaptability" of science, of managers and of fishermen was the key to resilience. And all this left me contemplating how ecosystem resilience fits into the discussion of fisheries resilience.

The Intergovernmental Panel on Climate Change (IPCC) defines resilience as a “system's capacity to anticipate and reduce, cope with, and respond to and recover from external disruptions.” The IPCC’s definition recognizes that social and ecological systems are intertwined, as is certainly the case with marine fisheries. In a study synthesizing attributes of climate change resilience in marine fisheries, Mason et al. (2022) explain that to operationalize resilience, fisheries should be evaluated holistically as social-ecological systems, accounting for ecological, socio-economic and governance dimensions.

Connectivity – within populations, between habitats and through species interactions – is an essential attribute of ecosystem resilience. Through food web connections, an ecosystem’s energy cycle is maintained. Forage species constitute a vital link in the marine food web by consuming plankton and other small marine organisms and transferring this energy up the food chain to top predators.

And this is why the state of the forage base is concerning. Atlantic mackerel and Atlantic herring, historically the most important target species for the industrial bait fisheries in the Northeast, are overfished with long recovery roads ahead. River herring and American shad have been depleted to low levels for decades. Fishermen have turned their attention to available alternatives, like Atlantic menhaden and shortfin squid, and even to unmanaged species like Atlantic thread herring that are moving into new areas. How are the changing forage base and changing forage fisheries affecting predators, and are there strategies managers can employ to safeguard connectivity?

Using ecosystem models to explore management strategies for recovering anadromous forage fish (alewife, blueback herring and American shad), Dias et al. (2022) recommend a portfolio-based approach to forage fish management to provide resilience to stressors, including climate change. Because forage fishes occupy similar niches and are vulnerable to similar anthropogenic stressors, the goal is to maintain a forage complex target biomass with attention to individual stock and species dynamics.²


The 2022 assessment is a slight improvement over the 2019 assessment but states, “...there is still uncertainty in drift gillnet catch data, life history parameters including maturation and growth, and stock structure due to some apparent stock mixing...”. We still do not have well-developed age and growth models for striped marlin in the region. Although it sounds simple, estimating age and growth in these fish is extremely hard, with only a few studies producing sensible results. This research must remain a priority in order to conduct an assessment that can more accurately describe the state of the stock and more effectively inform conservation and management decisions. We must also know how many fish are moving between regions as well as how many are being caught with more accuracy. Without this knowledge, it is difficult to effectively manage the stocks and fisheries.

With an overfished stock, and apparently little hope of recovery through traditional fishery management means, what are we left to do? The assessment tells us the only option is truly to get better data and hope recruitment improves.

Fishermen and conservationists want managers to rely on the best available science, but what happens when managers ask scientists for clarifications and scientists can't provide the answers? Too often, the long wait for the new stock assessment is used as a convenient excuse to continue fishing without guardrails.

According to the best available science, the benchmark stock assessment conducted in 2019, striped marlin are overfished and subject to overfishing. In order to protect striped marlin the WCPFC needs to adopt management measures to reduce catch quota by 60% from 3,397 tons to 1,359 tons. This will rebuild the spawning stock to 3,610 tons or 20% SSB by 2034.

However, catch limits alone cannot shield striped marlin from excess fishing mortality. Once the limit is reached, longliners will continue their pursuit of target species, and catch, kill and discard striped marlin as bycatch. Accordingly, we need complementary, ocean-wide conservation and management measures to ensure fishing mortality is reduced on paper and on the water.

We cannot remain silent while managers are paralyzed by the information they don’t have. We must pursue conservation measures that we know will help the stock recover regardless of whether it's depleted or severely depleted. Domestically and internationally, through the Kona Project, Wild Oceans and the International Game Fish Association continue to urge managers to protect striped marlin by:

• Expanding the use of circle hooks;
• Requiring release of all live striped marlin;
• Modifying longline gear to reduce striped marlin catch by removing hooks adjacent to floats or increasing hook depth;
• Protecting striped marlin spawning and nursery grounds; and,
• Mandating reporting of live and dead discarded striped marlin.

We are also working to advance our knowledge about the spawning cycles of striped marlin and other billfish in the Pacific so we can tailor effective conservation measures to bring back the big fish. ■
Billfish, a family of fishes that includes marlin, sailfish and spearfish, are as mysterious as they are majestic. Sadly, they are also among the most threatened fish in the ocean as a result of decades of overfishing by commercial fleets on the high seas.

Wild Oceans has been dedicated to “Bringing Back the Big Fish” since we were founded nearly 50 years ago. The Wild Oceans Kona Project is advancing conservation of Pacific billfish by exploring their life history and identifying spawning and nursery areas critical to their survival. (The billfish life cycle graphic above explains the fascinating journey of a growing billfish.)

The research component of our project, as reported in the last edition of the Wild Oceans Horizon (Issue 168), continues to progress. Over the last few months additional larval capture data have been discovered and added to our comprehensive database. Additionally, lead scientist Dr. Mike Musyl and colleagues are actively trialing species-specific growth models. The age and growth study of the larvae is important as it will inform how far larvae could move (or be advected) and where they were potentially hatched. Knowing this, the presence of larvae at different sizes (ages) can be used to estimate spawning areas using common sense bounds and movement scenarios.

The next couple months will be devoted to data analysis and manuscript preparation. We intend to publish the details of the study and the possibility of re-discovering new spawning sites in the Pacific in a peer-reviewed journal.

Did you miss the last issue of the Wild Oceans Horizon and the previous update from the Wild Oceans Kona Project? Make sure you are signed up to receive our newsletter in your mailbox or through email.

Sign up at: https://wildoceans.org/keep-me-informed/
Large Marine Fish Conservation:
Strategies that Rebuild and Sustain Big Fish Populations

• This year, *Wild Oceans* Pacific Program Director Theresa Labriola was appointed to the General Advisory Committee to the U.S. Delegation of the Inter-American Tropical Tuna Commission (IATTC). She attended her first meeting (June 29-30) and provided comments in support of a strong rebuilding plan for Pacific bluefin tuna, for development of a Harvest Control Rule (HCR) for North Pacific albacore, and for continued work to define “large” circle hooks to be used for the protection of sea turtles. She is also a member of the Permanent Advisory Committee to the U.S. Delegation of the Western and Central Pacific Fisheries Commission (WCPFC). She attended their June 8 meeting and provided comments in support of a strong rebuilding plan for Pacific bluefin tuna, for development of a HCR for albacore, and for continued work to complete a new assessment and modeling. Scientists were unable to provide updated stock biomass (SSB) will be achieved by 2029. We share some concern that the recent high recruitment is resulting in an overly-optimistic projection. This meeting was followed by the Scientific Committee for WCPFC, August 9-17, where stock status and conservation advice was reviewed for North Pacific striped marlin and Pacific bluefin tuna.

• The WCPFC/IATTC Bluefin Joint Working Group (JWG) met from July 11-13. This working group negotiates management measures for Pacific bluefin tuna that must be adopted by the IATTC and WCPFC. The JWG reviewed the stock assessment and strong recovery, and recommended maintaining bluefin tuna limits at status quo for this year. Importantly, the JWG agreed to work towards a harvest strategy in the future.

Sustainable Fishing Practices:
Selective Gear that is Compatible with Ecosystem Health

• In order to advance sustainable fishing gear, Theresa reviewed 14 swordfish exempted fishing permit applications pending before the Pacific Fishery Management Council (PFMC). She identified pros and cons of moving forward with modified deep-set buoy gear and linked buoy gear trials. She attended the June meeting of the PFMC, gave comments in support of pilot studies that begin with sustainable gear, are well defined, and are observed by federal fishery observers. She also discussed the need to identify performance criteria for new gear development to help objectively evaluate the results.

• Theresa continued to work on installing hard caps on the Pacific drift gillnet fishery in order to limit their interaction with protected species. In 2021, the 7 vessel drift gillnet fishery caught two humpback whales. Without hard caps, there are no consequences and the fishery can continue without pause. She drafted and submitted a joint letter of support for hard caps with IGFA, ASA, and CCA-Cal and provided public comments to the Council. The Council is expected to choose a final preferred alternative for hard caps at their November 2022 meeting.

Ecosystems: Food Webs, Habitat and Biodiversity

• Wild Oceans Executive Director Pam Lyons Gromen traveled to Riverhead, New York to attend the Mid-Atlantic Fishery Management Council (MAFMC) meeting from June 7-9. The primary issue for *Wild Oceans* was the Atlantic mackerel rebuilding amendment. The Council and the National Marine Fisheries Service (NMFS) decided to veer from the Science and Statistical Committee’s (SSC) rebuilding plan recommendation that *Wild Oceans* supported through oral testimony and a sign-on letter that we organized. The alternative selected by the Council allows twice as much catch as the SSC recommendation and is a troubling departure from their standard control rule and risk policy that calls for a low risk of overfishing when a stock’s biomass is low. Despite our strong opposition, the Council also held to a 129 MT mackerel fishery river herring & shad cap used during the last few years, which was scaled for much higher quotas. This will allow a higher tolerance of river herring & shad in the mackerel catch.
• On July 21st, Pam participated in the joint MAFMC Ecosystem and Ocean Planning (EOP) Committee and Advisory Panel (AP) meeting to discuss the proposed designation of the Hudson Canyon National Marine Sanctuary and develop recommendations for the public comment period. In 2016, the Wildlife Conservation Society (WCS) nominated the canyon for sanctuary designation noting that it “is the largest submarine canyon along the United States’ Atlantic coast and one of the largest in the world... ...rivaling the depth and scale of the Grand Canyon.” Hudson Canyon is an ecological hotspot, providing habitat for a diversity of fragile, long-lived deep sea corals; more than 20 protected marine mammal and sea turtle species; and hundreds of species of fish and invertebrates. It is of no surprise that the canyon is also a highly-important fishing ground for both commercial and recreational fisheries. NMFS estimates that the area generates $22 million each year in commercial ex-vessel revenue alone. As an AP member, Pam spoke in support of the Council engaging constructively in the designation of the sanctuary. She highlighted sanctuary goals proposed by WCS that call for permanently precluding offshore oil, gas, and mineral exploration and development in the canyon, and ensuring a future for sustainable fisheries under existing regulatory authorities. Fearing that sanctuary designation may result in the fishery management councils losing their authority to regulate fishing within the sanctuary boundaries, some fishermen expressed strong opposition to the sanctuary and asked the Mid-Atlantic Council to do the same. In the end, the Council submitted a letter tentatively supporting the Hudson Canyon National Marine Sanctuary as long as the designation does not conflict with existing fishery management authorities or result in additional restrictions on commercial and recreational access. The Council’s letter listed a number of sanctuary goals that were aligned with Council goals, including conservation of marine wildlife and habitats, sustainable economic uses of the Hudson Canyon, increased education and awareness of ocean environments, and promoting research and monitoring.

• The Florida Forage Fish Research Program (FFRP) convened a meeting of the Florida Forage Fish Coalition partners on July 28th to review new fellowship proposals for 2022-2023. The group, including Wild Oceans President Rob Kramer, unanimously chose Ms. Dakota Lewis of the University of Florida and Mr. Barry Walton of Florida State University. The Coalition is excited to fund these two impressive students as they undertake their research over the next year. Dakota was a previous FFRP fellow while working on her Masters degree at the University of Central Florida and will now study forecasting of future estuarine fish communities in Florida Bay using machine learning while she works towards her PhD at UF. Barry, a PhD student at FSU, will be studying how redfish and spotted seatrout use their habitat and food resources in Apalachicola Bay through examination of biomarkers. Many thanks to Fish Florida, Inc. for providing the funding to help support these two new fellowships!

• The Atlantic States Marine Fisheries Commission (ASMFC) held its summer meeting August 2-4. Pam attended the meeting via webinar to listen to discussions about Atlantic herring, striped bass and menhaden.

> Atlantic Herring: Funding is running out for the Maine Department of Marine Resources’ (DMR) portside sampling program, which collects valuable information from fisheries about the biology of Atlantic herring as well as river herring and shad that are taken as bycatch. Atlantic Coastal Cooperative Statistics Program funding will expire at the end of 2023, which could result in the termination of this important program if steps are not taken to locate alternative sources of support. There was widespread agreement among the states that the benefits of the program are well worth the annual cost of around $26,000. Commission staff will coordinate with state agencies over the next several months to develop solutions for continuing the program.

> Striped Bass: A new assessment is underway, and the results will be reported to at the ASMFC’s Annual Meeting in November. Amendment 7 to the striped bass plan, approved in May, requires the striped bass stock to be rebuilt by 2029. Board action to reduce mortality may be needed if the assessment indicates rebuilding is not on track.

> Menhaden: Draft Addendum I to Amendment 3 to the Interstate Fishery Management Plan for Atlantic Menhaden is out for public comment until September 30. The Draft Addendum considers changes to commercial allocations, the episodic event set aside program, and the incidental catch and small-scale fisheries provisions. Pam collaborated with our long-time partners in the Menhaden Coalition to submit recommendations for options that are in the best interest of the health of the menhaden resource and the predators that depend on menhaden as forage.

Climate Change: Resilient Ecosystems and Fishing Communities

• The East Coast Climate Change Scenario Creation Workshop took place in Washington, D.C., June 21-23. Pam was one of 75 participants selected to attend. Over the three days, working groups comprised of diverse stakeholders explored biological, oceanographic and socio-economic drivers of change to develop scenarios that describe how climate change might affect fisheries in the next 20 years. The scenarios will be used to develop a suite of recommendations, to be implemented in the near-term and long-term, to assist managers in adapting and responding to potential climate change impacts. (Read her take on the workshop on p. 3.)
Wild Oceans' Story Told by Ken Hinman at Islesboro Forum

On July 31st, former Wild Oceans President and current board member Ken Hinman told Wild Oceans' story to a standing-room-only crowd at the Islesboro, Maine Community Center. Wild Oceans Co-Chairs Peter Truslow and Stephanie Choate Oppenheimer, along with fellow board member Tim Chaote, who all reside on the island in the summer, were excited to share our organization's history with fellow islanders and arranged for Ken to be a guest speaker.

Each summer, the Islesboro Forum hosts prominent figures from diverse disciplines to promote community discourse on topics of special interest or concern. Speakers have included novelists, poets, historians, Pulitzer Prize winners, diplomats, investment managers, economists, environmental scientists, political scientists, corporate leaders, university presidents, and elected officials.

Ken spoke on the evolution of marine fisheries management in the U.S. and how Wild Oceans has played an integral role during our nearly 50 years as a conservation organization. Through the management struggles and successes of four iconic Atlantic fish – cod, swordfish, striped bass and menhaden, Ken illustrated our proven formula for success: keep conservation the number one objective; work with a diverse alliance of groups in common cause whenever possible; and choose issues that establish precedent and principle for long-lasting change. (View a video of Ken's talk on our website, WildOceans.org.)

After the presentation, guests were treated to an authentic “Oklahoma Barbeque” compliments of Stephanie’s husband E.J. and his good friend, chef Ryan Henry. During the barbeque, residents socialized with board members and Wild Oceans President Rob Kramer learning more about how Wild Oceans contributes to the future of fishing.