

Securing sustainability and resilience for coastal fisheries: lessons learned from the Gulf of Mexico

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Many coastal fisheries around the world are in trouble. Human impacts such as overfishing, degraded water quality, climate change, and habitat destruction have led to the demise of many coastal fisheries. Because of that, there is much current research to better understand the sustainability and resilience of coastal fisheries in the face of these changing global conditions. More importantly, there is a need to work together across disciplines and stakeholder groups, including the academic, fishing, outreach and education, and regulatory and management communities, to find viable solutions that can secure the sustainability of coastal fisheries.

With that in mind, a Coastal Fisheries Town Hall was held at the 2019 CERF conference in Mobile, Alabama, with the specific objectives of:

- (1) summarizing the most important common threats and challenges for coastal fisheries,
- (2) identifying possible solutions to secure sustainable coastal fisheries, and
- (3) determining how stakeholder groups can work together more effectively to implement the identified solutions.

Four panelists representing the research, fishing, outreach/education, and regulatory/management communities, presented insights on the challenges faced by coastal fisheries management as well as potential solutions to ensure healthy, sustainable coastal fisheries. The panelists were Marcus Drymon, Assistant Extension Professor at Mississippi State University; Scott Bannon, Director of the Alabama Department of Conservation and Natural Resources; Julie Lively, Associate Professor at Louisiana State University; and Ronnie Daniels, charter fishing operator at Fisher-Man Guide Service. Recognizing the complex and multi-disciplinary nature of coastal fisheries management, we invited two additional experts in the topic: Ken Heck, Senior Marine Scientist Emeritus at the Dauphin Island Sea Lab, and Bobby Abruscato, charter fishing guide and tournament angler. .

The panelist presentations were followed by a moderated discussion between the panelists and audience. Just Cebrian from Mississippi State University moderated the Town Hall, and Melissa Partyka from the Mississippi Alabama Sea Grant Consortium took notes of the panelist presentations and discussion with the audience. The focus was on the Gulf of Mexico, but with important implications and relevance for other regions in the US and worldwide. Below we

summarize salient take-home messages along with supportive text verbatim from participants extracted from the notes. A complete transcript is included at the end of this document.

Take-home messages

1) Due to pollution, habitat destruction, climate change and overfishing, many fisheries (e.g., oysters) in the Gulf of Mexico have experienced major losses over the past few decades despite serious efforts to curb such declines. Other species, however, have recovered substantially (e.g., red snapper and red drum), which proves that sustained efforts with appropriate management policies and cross-disciplinary collaborations may be effective in fisheries recovery. Regardless, making a living as a traditional commercial fisherman in the Gulf of Mexico, which is often based on circular fishing (i.e., alternating fisheries over seasons), remains challenging, and sometimes unviable.

“People are the problem, but they are also the solution” (Scott Bannon)

“Places I fished growing up no longer exist and my kids will no longer see them” (Ronnie Daniels)

“Can’t make a living doing circular fishing” (Scott Bannon)

2) Fewer young people from traditional fisheries families are following up with the family fisheries business. Instead, many jobs in the traditional fisheries business are done by immigrants to the region. Large, persistent fisheries declines, along with the uncertainty surrounding the recovery of such fisheries, are at the base of this change in the demographics of the traditional commercial fisheries work force.

“We are a fishing community, but there are no young people coming up in the business... A lot of work going to immigrants and not locals” (Scott Bannon)

“Every state has seen an aging of the commercial fleet” (Julie Lively)

“Commercial fishermen are dying off, hard to get someone excited about going into this industry when they see their families beat down” (Ronnie Daniels)

3) Some traditional commercial fishermen are turning to recreational charter fishing. However, most of the increase in recreational charter fishing seen recently is due to recreational fishers transitioning into guided charter fishing for supplementary economic income.

“Handful of guys have moved from commercial to guides, but most are recreational guys coming over” (Ronnie Daniels)

“You’ve not seen a move from commercial to guides, more recreational fishers have gone to guides as supplemental money” (Bobby Abruscato)

4) Aquaculture may offer solutions to augment the supply of fresh domestic seafood, but several challenges remain such as potential environmental damage, viability and effectiveness of fish production, and locating profitable markets.

“Pond raised fish don’t do as well for some of the species” (Scott Brannon)

“Need for niche market, some of these fishers are going to need to work with local restaurants to promote different types of fish” (Ronnie Daniels)

“Different proteins being marketed. This particular consumer is looking for a more refined product and they’re willing to pay for it” (Marcus Drymon)

5) Paramount to identifying successful management policies for coastal fisheries is to work together across disciplines (research, fishing, education and outreach, and management and regulatory sectors); communicating in a transparent and effective way; building and maintaining trust among all parties; and ensuring a culture of sustained collaboration with agreeable adaptive management strategies to satisfactorily deal with unforeseen change.

“Misinformation is a problem. Have to be clear about what you’re saying. Fishers need to be able to understand what you are saying” (Ronnie Daniels)

“There is common ground that can be found, but when fishermen feel they’ve been betrayed by other scientists it requires long-term maintenance” (Marcus Drymon)

“Need to learn all of the user groups, sit in on council meetings so that you can hear how the other sides are feeling about things. Don’t just check the box, really listen” (Julie Lively)

Transcribed meeting notes

Fisheries townhall meeting—CERF 2019

- Just: worldwide fisheries are in great trouble, there is a need to work together
 - Specific goal of summarizing common threats and challenges
 - Identify solutions
 - Articulate how to work together
- Marcus: a single species keeps coming to mind when thinking about fisheries challenges
 - Atlantic tarpon well described in “the Gulf”. Tarpon catching sparked a craze that only 10 years later the tarpon began to become scarce
 - Explosion of recreational fisheries had large impacts on those populations, there hasn’t been a commercial fishery for tarpon. Recreational fishing is now dominated by catch and release, yet tarpon populations haven’t rebounded.
 - Clear link to habitat loss, estuarine habitat essential during critical period of their development.
 - Cooperative research program with local tarpon guides to catch/tag fish
 - Tagging provided key information on the movement of tarpon along the coast and hanging out around the mouth of the MS river
 - Rate limiting with price of tags being >2K, Anglers began to send in money to help fund tags so that they could learn more about tarpon movements
 - Citizen science potential solution to this issue
- Scott: Have to talk about threats and solutions together.
 - To understand about people and how they use the resources you can look at licenses.
 - >75K to 128K licenses in 2019
 - So, people are the problem, but they are also the solution
 - When the economy is good people fish and they fish offshore and for a variety of species, pressure gets moved around from fish to fish based on the regulations which can be difficult for some species

- Mobile is going through a lot of growth which means more people fishing on the coast as well as more people coming to visit
 - Need to manage the people to sustain the fishery, a lot of smart people out there that have some great ideas
 - Need to partner and collaborate with other agencies and universities to get it done,
 - Water quality is a challenge in AL, low DO and freshwater discharge are contributing to poor water quality
 - Need to be concerned about how things are being handled in other parts of the country because we are downstream, need to collaborate
 - Need to educate people about the resource, that you don't need to keep all of the fish. Educate the public to change the mindset and get people excited about the trip without taking the species.
 - Having people support the science by buying tags and helping to tag fish
 - Need to collaborate and be willing to “take” ideas from others and be willing to share ideas
 - Big fan of public meetings even when he takes a whooping, doesn't matter if they (the public) are right or wrong it's how they feel
- Julie: Direct threats of climate change, whether talking about commercial or recreational fishing, those communities are right on the coast where the impacts or climate change are going to be felt.
 - If fish are moving one way and people are moving the other than that is a problem for sustaining fishing communities
 - How you're telling the story of your science matters because people can take your information and twist it for their own agendas
 - Lots of yelling going on at meetings, but the loudest isn't always the best ideas
 - Researchers may not always know what the applications or the implications of their research are, need to talk to an extension professional to see messaging
 - Need to talk to charter guides and fishermen about what they see, they have answers before the scientists even know the question to ask
 - Need to learn all of the user groups, sit in on council meetings so that you can hear how the other sides are feeling about things. Don't just check the box, really listen.
 - Sharing science with others, particularly those outside of the academic community. Some science is too important to stay in academia.
 - Need voters from everywhere to care about these issues. Take the time this holiday season to talk to people about your science and get them connected to your science through things they care about.
- Ronnie: first time at CERF, hadn't heard about it.
 - Loss of land, estuaries. Places he fished growing up no longer exist and his kids will no longer see them.
 - Mississippi river is a giant problem, and much bigger than a MS or LA problem. Drains 60% of country need to think more creatively about what to do with all of that water.
- Ken: Like to mention tropicalization, movement of species from warm water regions to the colder regions. But difference with GOM there is no place to move north since they're bound by the continent. How will those tropical species interact with the native species?

- Bobby: I think the state of AL are taking the only step they can take at this point. Speckled trout, redbfish, tarpon...those are the impacted species. DWH saw rebound of species because lack of pressure. Once everyone started fishing again after the closures the numbers went back down.
 - Fishermen have gotten really good at catching fish, building reefs has helped to concentrate fish and they are easily caught. Concentrates fishermen as well as fish. Electronics have improved for finding fish, making it much easier to find fish. Technology improvements have really improved fishing. Social media has helped fishermen find fish and not have to find them themselves. Technology has made us better fishermen.
 - Real severe winter in 2015, lost a lot of fish and that population is just starting to rebound. What ADCNR has done a lot but we'll just start to see results of this year.
- Shawn Powers USA: Impacts of this on the workforce. Number of guides has increased. Is that commercial fishermen transitioning or is that something else? Are commercial fishermen moving?
 - Scot: Commercial fishing in AL is almost a lost art. We are a fishing community, but there are no young people coming up in the business. Oyster fishing has gone down because of some of the environmental issues... opening up later this year for limited area. 53-year-old buying a license was one of the youngest to by an oyster license this year. It's a way of life, generations have done this, but you can't make a living doing it anymore. Can't make a living doing circular fishing. Some people have transitioned to aquaculture, but most of it isn't local. A lot of work going to immigrants and not locals.
 - Bobby: You've seen not a move from commercial to guides, more recreational fishers have gone to guides as supplemental money. Weekend guys that were only fishing two days a week are not working 5 or seven days a week which is putting a lot of pressure.
 - Ronnie: handful of guys have moved from commercial to guides, but most are recreational guys coming over. Commercial fishermen are dying off, hard to get someone excited about going into this industry when they see their families beat down.
 - Marcus: guys that can no longer make a living...some are having a hard time keeping sharks off their lines and so now have started transitioning to fishing for sharks
 - Julie: every state has seen an aging of the commercial fleet. Survey with freshwater fishermen in LA, average age was in the 60's. Over 75% would not encourage their children to go into fishing. Don't know who they're going to be in a year or two.
- NC State U: Battle between aquaculture and commercial fishing. Mass exodus from fishing. How do we balance economic stability and fisheries stability? Promoting the local sense of place and the local economies.
 - Scott: challenges for off-shore aquaculture based on the regulation and the conditions. Quirks to moving aquaculture forward in the GoM. Will start to see more of that in AL, we are doing it for oysters and have started restocking red drum and flounder. Someone may need to take this on as a more commercial enterprise. WE are doing FL pompano and speckled trout; the oyster aquaculture doesn't replace commercial fishing because they have very different markets. Pond raised fish don't do as well for some of the species.
 - Julie: everyone wants cheap protein to save the world, but the prices for fish are not enough to keep fishing families going. Need smaller markets not just one big commodity.

- Ronnie: Need for niche market, some of these fishers are going to need to work with local restaurants to promote different types of fish. Oystermen are creating their own markets by working with restaurants.
- Marcus: HMS fishery is different than 20-30 years ago; different proteins being marketed. This particular consumer is looking for a more refined product and they're willing to pay for it. Sharks provide the protein of something that is sustainable and provides high quality protein. Swordfish in the GoM are different than they used to be, they can target fish specifically and efficiently. Shift in the fishery and in what the consumers are demanding.
- Linda Deegan: Lived on fowl river as a kid, family hung out with shrimpers and crabbers. They were making it clear that there needed to be a better way to manage. But once she became a scientist her opinion didn't matter anymore. How do we bridge trust when they don't believe the science? She's been the one that has been guarded, but she got into this field to help.
 - Markus: About building relationships. Took a long time to build relationship with sole commercial shark fishermen, same thing with tarpon fishermen. There is common ground that can be found, but when fishermen feel they've been betrayed by other scientists so requires long-term maintenance.
 - Scott: Trust is a big deal. Told their doing a much better job of getting the word out but you're still terrible at it. Don't just tell me something is broken without telling me your ideas of how to fix it. We go to meetings, and only present the information that their able/willing to hear. Need to be thick skinned when asking for opinions. If I hung up on every mad person I'd have more free time. Go meet with that person, have a discussion with that person, become real to that person. People are the most important. Need to be real to them. They become real to you and then you can start sharing ideas and building in trust. Can't be big bad government here and poor little me there. This is how we get better at it so we can get to the point of talking about your mom and them.
 - Julie: Can only ask people to show up to community meetings so often. Need to show up to their meetings yourself so that your face gets recognized. Fear that the data will be used against them, but lack of data can be used against them, too.
 - Ronnie: Misinformation is a problem. Have to be clear about what you're saying. Fishers need to be able to understand what your saying, otherwise it will lead to interpretation and you don't want them interpreting around the dock.
 - Scott: If you don't know your audience you're going to mess it up. If you don't present the data correctly than they aren't going to learn anything. Presentation at fishing organization on citizen science but lost the audience at scatter plot. Know your audience.
- Sara Burns, FWRI: Know your audience in terms of their history. Commercial fishing and the net bans impacted communities, but not everyone knows that history. Without knowing that history of your partners you might not start off on the right foot. Marrying a fisherman helps to build trust! Recreational community buying into the science, but they need to conduit to talk to regulators. Some guides want tighter regulations, they want it to shut down. Do guides here want tighter regulations?
 - Ronnie: A lot of the guides in LA and western MS would love to see the guide limit taken away or a lower recreational limit there. Wanted to burn the capital down when it was instituted, but it's working. You don't have to kill every fish, and they are able to keep larger quality fish now. Reasonable restrictions are supported.

- Scott: Not for shutting a fishery down. Charter community is extremely supportive because they could see what was happening and knew there needed to be a change. A lot of support for restrictive change.
- Ken Taylor, LSU: Worked as a fisheries technician for years. Guides in TX upset by TPWD and they didn't want to work with the regulators. We were seeing fewer flounder in gill nets in TX, in LA seems like there are fewer flounder. What are the guides seeing? In AL, are you seeing anything from the changes that were made?
 - Scott: Only first season under new regulation but hoping in three years to look at it hard and see if we see an improvement.
 - Ronnie: Had a very poor year in 2018, one of the few operations that offer flounder gigging at night. Scientists have shown them graphs of the curve in the flounder populations but seem to be on the upward part of the curve
- Conclusions: where do you see coastal fisheries in the next 50 years
 - Scott: gets healthier for the very things we've discussed here. The fishermen, the citizens and s
 - Julie: seeing more communication so will help
 - Markus: healthy coastal ecosystems, healthy coastal communities moving forward
 - Ronnie: If we can keep the different sectors working together then we'll be sustainable.