GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

MIGRATORY SPECIES COMMITTEE

Astor Crowne Plaza — New Orleans, Louisiana

January 30, 2017

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Pamela Dana.....Florida
LCDR Leo Danaher.....USCG
Kelly Lucas (designee for Jamie Miller).....Mississippi
Campo Matens.....Louisiana
Lance Robinson (designee for Robin Riechers).....Texas
Ed Swindell.....Louisiana
David Walker.....Alabama

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Doug Boyd.....Texas
Roy Crabtree.....NMFS, SERO, St. Petersburg, Florida
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The Migratory Species Committee of the Gulf of Mexico Fishery Management Council convened at the Astor Crowne Plaza, New Orleans, Louisiana, Monday afternoon, January 30, 2017, and was called to order by Chairman Pamela Dana.

## ADOPTION OF AGENDA
## APPROVAL OF MINUTES

**CHAIRMAN PAMELA DANA:** I am going to call to order the Migratory Species Committee, which, for the record, has not met since August of 2009, and so the members on this committee are myself, David Walker is the Vice Chair, Leo Danaher, Camp Matens, Kelly Lucas, Robin Riechers, and Ed Swindell.

The reason we are holding this committee today is not because we have action items, at least not to my knowledge at this point, but we're holding this committee meeting today as an informational committee meeting.

There is an increasingly -- There is a lot of issues in the Gulf that impact the highly migratory species, the bluefin, the tropical tunas, which are the yellowfin and albacore and skipjack and bigeye, and we've got billfish and swordfish and sailfish, and even king mackerel falls under the migratory species.

I have asked two folks that represent us from NOAA to join us to talk about some of the issues ongoing in the Gulf, and I encourage you to ask them any questions, whether they address it or not, but questions that are burning that you might have about our species and quotas and rules and how we in the Gulf interact with the world, essentially, on Atlantic highly migratory species.

With that being said, I don't have -- I would like to ask that we adopt the agenda as written, or if anyone has any additions to this agenda. Do I have a motion to adopt the agenda? Camp moves to adopt the agenda. Kelly seconds it. The agenda is adopted.

We do not have minutes that are relevant. Only three members of the current Gulf Council were on this Gulf Council during the time of the last meeting, and so we're just going to move then to a presentation by Randy Blankenship, who joins us from the Southeast. He is the Southeast Branch Chief for Atlantic Highly Migratory Species for NOAA Fisheries Service, and he is based out of St. Petersburg. Thank you for joining us, Randy.

**PRESENTATION - OVERVIEW OF MANAGEMENT OF HMS SPECIES**

**MR. RANDY BLANKENSHIP:** Thank you, Pam. Thanks for the invitation to come and speak to you all. As Pam mentioned, I am Randy Blankenship. I am the Southeast Branch Chief for the Atlantic Highly Migratory Species Management Division. That division is a Headquarters Office within the Office of Sustainable Fisheries at Headquarters.

There is an office located in Silver Spring and then branch offices located in Gloucester, in GARFO, that deals primarily with bluefin tuna management and some other issues, and then my office in St. Pete that deals with a range of issues, going from commercial to recreational swordfish to the billfish fisheries to pelagic longline fisheries for yellowfin tuna and interactions with protected species and HMS tournaments and things like that.

This presentation is intended to be a general overview and for information purposes and to help you understand a little bit of the similarities between HMS management and council management processes, but then also some of the differences that make HMS management unique that hopefully will help you understand why HMS management is what it is and why things are a little different there.

Atlantic highly migratory species consists of billfishes, tunas, swordfish, and sharks. The management of those species includes the Atlantic Ocean, the Gulf of Mexico, and the U.S. Caribbean from Maine to Texas and including the USVI and Puerto Rico. Then, also, those fisheries, the United States, as they are prosecuted on the high seas as well.

One of the things that I will do in this presentation is provide a really brief history of management, to help kind of set the context, talk a little bit about ICCAT management and the United States' participation in ICCAT, and then some about HMS management itself, the way that we're structured and set up with our permits, and then a little bit about some big issues that are happening in HMS management, at least just a few, and hitting those at a very high level, and then I would entertain questions after that.

On this slide, we begin a little bit of an overview of the history of HMS management that goes back to, of course, 1976 and the passage of the Magnuson Fishery Conservation and Management Act. That was followed by an amendment in 1990 that gave the authority for HMS management to the Secretary of Commerce,

specifically moving management of Atlantic tunas from the Northeast Regional Office, now called GARFO, to NMFS authority and not just within that region.

Then also moving shark management from the councils and then also swordfish and billfishes, transferring those from the councils as well and listing them a little differently within the Act, some by species and some by group and some by family. Then, also, the HMS Management Division was created in 1992.

Then, in 1996, when Magnuson was amended again, specifically that amendment required the establishment of separate advisory panels for highly migratory species fishery management plans. At that time, there were two. One was for HMS and the other was for billfish, and there were two advisory panels. In 2006, the Consolidated HMS FMP brought those two FMPs together. Then, similarly, it brought the two advisory panels together into one, which is what we have right now.

There are some provisions of the Magnuson-Stevens Fishery Conservation and Management Act that are shared with the council process. Some of them involve the National Standards. Four of them are mentioned here. For example, preventing overfishing, minimizing bycatch, promoting safety at sea, and using best available science.

There are also some similarities in fishery management plan content requirements, such as that they contain measures necessary to rebuild overfished stocks, to describe essential fish habitat, and then also with some of the cumulative impacts assessment, and those are just some examples, but there are some provisions that are unique to HMS.

One is the advisory panel, which I have mentioned already, and then certain international considerations and certain FMP requirements that include things like the requirement for the HMS Management Division to consult with councils and also the ICCAT Advisory Committee that was established under the Atlantic Tunas Convention Act.

It is through that that you will see HMS Management Division staff sometimes come and present to you all about issues that we're dealing with in management that affect a certain region, and so we may talk to the Gulf Council or we may go and speak to the South Atlantic Council or the Caribbean Council on those kinds of issues and get your input. There are also provisions in there that are intended to not disadvantage U.S. fishermen in comparison with competition from foreign fleets and some other

provisions as well that are unique to HMS.

The United States is a participant at ICCAT, which is the International Commission for the Conservation of Atlantic Tunas. It is a regional fishery management organization that develops management recommendations for tunas and tuna-like species. Those are tunas, billfishes, swordfish, and, increasingly, sharks. Now, under the current convention, sharks are not included as tuna and tuna-like species, but yet ICCAT has made some recommendations related to sharks, as they are considered bycatch in the directed fisheries for tunas and tuna-like species.

Recommendations that are made by ICCAT are binding on the United States. They include things like quotas, minimum size limits, trade restrictions, statistical documentation, vessel lists, and similar-type things.

Also, the HMS Management Division implements those recommendations from ICCAT under the authority of the Atlantic Tunas Convention Act, or ATCA. ATCA was passed in 1975. It provides the domestic authority for implementing those recommendations, and it also specifies that management of those fisheries, of those ICCAT-managed fisheries, include research. ATCA also specifies that subsequent actions to the recommendations cannot increase or decrease any U.S. allocation of quota or fishing mortality that’s agreed to at ICCAT.

The United States, in its participation at ICCAT, involves participation and attendance at several workshops, intercessional meetings throughout the year, as well as participation in the annual meeting in the fall of each year. This last year was in Portugal, and this next year will be in Morocco.

Also, participation on the ICCAT Standing Committee on Research and Statistics, or SCRS, and Craig Brown, who is with the Southeast Fisheries Science Center, is going to give us a presentation following mine, and he is one of several scientists at the Southeast Center that actively participate in the SCRS work.

Also established under ATCA, as I mentioned before, is the ICCAT Advisory Committee. The ICCAT Advisory Committee provides input for the U.S. delegation on position setting and negotiations with ICCAT, and it provides some specific advice on proposals that come from other countries as well.

The ICCAT Advisory Committee includes representation from commercial fisheries, recreational fishing organizations, environmental groups and academia, and it also has some representation from councils, which Pam Dana has served as that representative from your perspective. Members are nominated to that ICCAT Advisory Committee every two years.

Getting back to the management overview for domestic management, you all are very familiar with several other laws that you have to abide by in the fishery management process in the federal government, and HMS management is no different.

Some of them involve, of course, the Endangered Species Act, the Marine Mammal Protection Act, and several other Administrative Acts and Executive Orders listed here that I think you all are familiar with.

This slide provides a table to try to kind of portray the diversity and complexity of the HMS operational infrastructure, but also the comprehensive nature of it. Within HMS management, we have vessel permits for commercial and recreational fisheries, and so recreational fishing vessels must be permitted, or have an HMS angling permit, as well as the commercial vessels.

Those permits are issued from different places. The open-access commercial permits and the recreational permit are issued through a website online, where fishermen can go in and purchase the vessel permits there. The Southeast Regional Permits Office is where the limited-access commercial permits are issued from, as well as one open-access permit for the Caribbean.

Then there are also exempted fishing permits issued from our Headquarters Office and HMS tournament registration occurs in my office in St. Pete, and then there is one incidental HMS squid trawl permit that is issued out of GARFO.

On the dealer side of things, we also have dealer permits for swordfish, shark, and tunas. The swordfish and shark dealer permits are issued out of the Southeast Regional Permit shop and the tuna dealer permit is issued out of GARFO. There is also an international fisheries trade permit that issued by the National Permits System.

There are also a considerable amount of reporting requirements for the various fisheries, both recreational and commercial. I am not going to go into those in any specificity, because I think it would take quite a while, but I am happy to explain and

talk about those as needed, and then, similarly, there is dealer reporting that is required through E-Dealer, which provides near real-time information on dealer activities and then also bluefin tuna dealer reporting that goes into the Northeast HMS Office.

A little bit of a highlight here for some of the differences between the HMS Advisory Panel and the council process. The HMS Advisory Panel is advisory in nature only. We take their advice very seriously, as opposed to the council process, as you know, which voters approve or disapprove. You have votes to approve or disapprove actions to submit to the National Marine Fisheries Service.

For the HMS Advisory Panel, NMFS decides what actions to consider and implement, as opposed to the council process, where NMFS approves or disapproves the action that has been sent to them. Under the HMS Advisory Panel process, HMS staff seek the input of Science Center staff and other experts, while the SSC process for the councils is very valuable there, to provide that scientific input. The advisory panel for HMS meets about twice a year. Meanwhile, the councils meet around five times a year.

Hitting on, at a very high level, some current issues for HMS management, first of all, as related to bluefin tuna and the continued implementation of our Amendment 7, about three years ago or so, there was a presentation made to you all in San Antonio, during the proposed rule stage of Amendment 7, and some of you might remember that. That would be that opportunity to consult with you all about that.

That implementation is ongoing. It’s the program that implemented the individual bluefin tuna quota system as well as some new gear-restricted areas in the Gulf of Mexico and in the Atlantic.

This map shows the Gulf of Mexico, and the blue boxes are the two new gear-restricted areas that have been implemented in the Gulf from April 1 to May 31 of each year, in order to provide some additional protection for spawning bluefin tuna when they are prevalent in the Gulf of Mexico, and this is a restriction on pelagic longline fishing within those boxes.

That is in addition to the already existing pelagic longline closed area year-round of the Desoto Canyon, which are the cater-corner boxes in the Gulf of Mexico. This is just a couple of issues that are happening with the implementation of Amendment 7.

Then also another hot issue for us in HMS right now is related to dusky shark management under Amendment 5b. The proposed rule for that was out in 2016, and the comment period ended in December. We have been considering those public comments and developing the final rule and final EIS for that initiative, and that should be out later this year.

Also, with swordfish, we are continuing the efforts to revitalize the swordfish fishery, which, for several years in the United States, has been underharvesting its quota that is issued from ICCAT, and so, within the bounds of domestic laws that we have to operate, we still work to, kind of on a systematic basis, look for ways to provide additional opportunities to harvest that swordfish quota, and that's an ongoing process.

Also, bycatch remains a big issue for HMS that we are continually thinking about. They involve things like protected species, like sea turtles and marine mammals, and then also billfish bycatch, just to name three groups. Under the Endangered Species Act, we actually have reinitiated consultation for the pelagic longline fishery and all other HMS fisheries right now. Those consultations are underway.

Then, finally, I wanted to spend a little bit of time talking about the last thing on this slide, which is the Deepwater Horizon Oceanic Fish Restoration Program. This is a program that is spearheaded by the Restoration Center, which is part of NOAA, and has dealt with the restoration process for Deepwater Horizon across the board.

The HMS Management Division is working actively to support the Restoration Center in implementation of this particular program. This program is working in partnership with the National Fish and Wildlife Foundation, or NFWF, to work with voluntary pelagic longline fishermen in order to help restore the injury that occurred to pelagic species of fish in the Gulf of Mexico, and this would occur through a voluntary program, where fishermen that participate would agree to not fish with pelagic longline during a portion of the year.

The program is temporary, it's voluntary, and it amounts to a six-month pelagic longline fishing repose each year. Outside of that six-month period, the fishermen would be able to fish with pelagic longline, as they normally would. Once again, participation through this program is voluntary, and the owners of those vessels would be financially compensated for not fishing with pelagic longline gear.

NOAA and NFWF are working with the industry to minimize the economic impacts to local businesses that are associated with this. One provision for that is that the pelagic longline vessels, when they are not fishing with pelagic longline, would fish with greenstick gear, which is a gear used for tunas, or buoy gear, which is used for swordfish, in order to continue to have some fishing activity, buying fuel, buying ice, buying supplies, to make those trips and then also having some landings from those, although the volume of landings does not replace totally the pelagic longline landings that occur.

The project is planned to continue for five to ten years, depending on the annual participation that occurs, and this year, in 2017, we are in the first year of implementation, which is considered to be a pilot year, when we have a lower amount of participation than we anticipate having in the years to come, and so that is an ongoing thing right now.

For more information, you can go to this website that I have put on this slide, which is the National Fish and Wildlife Foundation website, as they are a cooperating partner in implementing this program. With that, I will conclude my presentation and leave it to Pam about whether we have questions now or go to Craig.

**CHAIRMAN DANA:** Thank you, Randy, very much. I think probably we'll let Craig do his presentation, and that might spur a little bit more questions, and, Randy, just we will turn it to you to answer questions after Craig finishes up. Craig, are you on the line?

**DR. CRAIG BROWN:** Yes, I am.

**CHAIRMAN DANA:** Awesome. Craig Brown is joining us from Miami. He missed his plane this morning, because the traffic was bad over there, but he comes out of the Southeast Science Center, where is a stock assessment scientist there. Dr. Brown, take it over.

**DR. BROWN:** Thanks, Pam. You would think that, after all the time that I've been in Miami, I would have realized how crazy traffic can get, but it's one of those days, and so I'm sorry I couldn't be there in person, but, as Pam mentioned, I am the Branch Chief for Highly Migratory Species of the Sustainable Fisheries Division, and that can be confusing a bit, because Randy just introduced himself very similarly. The difference is that our division is associated with the Southeast Fisheries

Science Center, and we deal with the research and assessment of the highly migratory species.

I am going to give you an overview of the stock assessment process, including the research that supports it, and giving you some examples as well as to what the Southeast Fisheries Science Center is doing in the Gulf.

Randy touched on the role of ICCAT. The species that are actively managed in one way or another within ICCAT are listed here, and it includes bluefin, bigeye, skipjack, yellowfin tunas, albacore, swordfish and various billfish, and some sharks. Nearly all of them, with the exception of porbeagle and rarely blue shark, are in the Gulf of Mexico.

There is also responsibility in ICCAT for collecting data on other species. That would include Spanish mackerel and king mackerel, although they haven't yet been assessed within ICCAT, but my group, the Highly Migratory Species Branch out of Miami, is also responsible for domestic assessments within the SEDAR process.

Just to kind of touch on some of the differences in the process, and I think Randy touched, again, on some of this, but just to emphasize some of the differences. The ICCAT Advisory Council is like a blend of council advisory panels and the SSC, but, unlike an SSC, there is no authority to set an ABC. The management measures are negotiated by the country delegations at the commission meetings, and, within the U.S., our domestic regulations can't conflict with those measures, but there is latitude to use those domestic regulations to do various things, to ensure compliance and allocation, et cetera.

The scientific body of ICCAT is the SCRS, and so it defines the procedures for collecting, compiling, and transmitting the data for access to the SCRS and coordinating research across the member countries and carrying out the stock assessments. Every member of the commission could be represented on the SCRS. I am the lead scientist for the U.S. scientific delegation to SCRS.

The SCRS acts like an SSC and SEDAR combined, in that it conducts research and analysis and reviews the results and, ultimately, delivers the management advice, the scientific advice for management, to the commission, but, of course, the commission is free to ignore the advice, and that happens every now and then.

The next thing is I just want to give you an example, if you

happen to go to iccat.int and want to look up some of the stock assessment results. You will see this type of graph as one of the standard graphs to communicate the management advice. This is to describe the current stock status.

One of the things to pay attention to within ICCAT is the convention objective, which currently is to maintain populations at levels which will permit the maximum sustainable catch, although, currently, it's being negotiated, and that might be changed to maintain populations at least at levels which will permit the maximum sustainable catch, but this is what we have right now.

The way that is generally interpreted is that the target is basically the F level, the fishing mortality level, at MSY and the biomass level that supports MSY. That could be either total biomass or spawning stock biomass. On this particular graph, where you have, on the X-axis, your biomass relative to the biomass MSY, and, on the Y-axis, you have the relative F, your target then would be right here, at the intersection of one and one.

What that means is that, if you fall below the biomass at MSY, which is to the left of that vertical line, it's overfished. If the F is above the fishing mortality at MSY, then it's overfishing, and so you have that depicted in the red zone here. In the green, it's where neither of those is occurring. The yellow, of course, is where one or the other is taking place, either overfishing or an overfished state.

In this example, you can see there is a lot of dots in blue and black, and so the blue is depicting the results from one model that the scientists feel is appropriate, and the black is from another model that they also feel is appropriate, and they couldn't determine whether one was better for advice or not, and so they are depicting both.

You have the median of the blue points shown here. Now, the blue points, the scatter, is depicting the uncertainty around the estimate of stock status, and then, under the black, you have also the uncertainty around that median, and so, since we can't, in this example, put one model forward over the other, the advice, finally, is built on a median of the two.

To further communicate the uncertainty, we put these marginal distribution plots on the axes, and so this would be representing the distribution of uncertainty for fishing mortality, because it's running along the same direction as the

Y, and that is -- If you just drop down all those points in blue against that axis, it would build up into a distribution, like this, and the same with the black ones, to form this distribution.

Finally, you have the overall distribution shown here on the mirror image, and it's the same thing up above it, is the biomass uncertainty, and so these are all things that the commissioners have asked for to help communicate the uncertainty. I am not sure they are happy that they asked for that detail, but there you have it. Hopefully it isn't too confusing.

Another product that we normally include in the advice to the commission is something called a strategy matrix. In this case, we are projecting forward with different assumptions about management measures, either constant catch for total allowable catch or some fraction of the F at MSY. For example, if you had a result, a stock status, in 2016, and you wanted to know where you would be ten years later, if you put in 22,000 tons, then, in 2026, you would have an 80 percent chance of being within the green zone of not overfished with no overfishing.

In this case, we have a reflection of the frequency of the assessments by stock. In the left column, the stock, you can see that some of the species are split into multiple stocks. We have a Western and an Eastern Atlantic Stock for bluefin, but just one stock, currently, regarded for bigeye and yellowfin, and you can see, from this plot, the blue represents every year that we had a stock assessment.

One thing about the ICCAT stock assessments is that they're generally regarded as the equivalent of full stock assessments. In the case of bluefin, we had something unusual, in that it was considered an update, but, in that case, the update was, in many cases, a full stock assessment, except there was limits to the new types of analyses that could be conducted, but the process within the SCRS typically, particularly for stocks other than bluefin stocks, is to be very open with the types of methodology that are employed, with a preference for using the previous models that provided management advice, until they were shown to be better by some new method.

The SCRS has officers that chair various working groups, and you can see, on this slide, that the U.S. has a lot of representation. The current Chair of the SCRS, and that is the one who presents the management advice to the commission, is David Die, who is with the University of Miami, the Cooperative

Institute with NOAA.

The names that are underlined on this slide are all members, regular members, of the U.S. scientific delegation. It consists of -- The core of the delegation are scientists from the Southeast Fisheries Science Center, although, depending upon the species being assessed or the study that's being undertaken, it could include scientists from other labs or from academia or private scientists.

Here we have the upcoming meeting schedule for 2017, and so you can see that we'll be pretty busy. In fact, there are both data preparatory meetings and assessment meetings for shortfin mako, swordfish, and bluefin tuna, and so you can imagine that swordfish and bluefin tuna are particularly high-priority stocks for the United States.

Finally, in yellow, at the bottom, this is the main meeting, the plenary session, at the end of the year, where the scientists all review the work of the year and compile it into a single volume of executive summaries by species and all the other recommendations coming from the SCRS, and that gets presented to the commission meeting, which takes place generally in November.

I wanted to kind of touch on some of the research that's going on, but, unfortunately, I am not keeping track of time. Is there someone who could let me know how much time we've got available here? How much time is left, more or less?

**CHAIRMAN DANA:** You're doing okay.

**DR. BROWN:** Give me a shout when there's a few minutes left, so we've got time for questions.

**CHAIRMAN DANA:** Okay.

**DR. BROWN:** Ultimately, this is kind of gee-whiz stuff that I think that you will be interested in seeing, but I don't want to delay the meeting at all, and so I can stop at any point, but at least I find it interesting. I hope that I can communicate some of that enthusiasm.

The Southeast Fisheries Science Center has hosted the Cooperative Tagging Center, which began in 1954. There is about 270,000 fish of eighty different species that have been tagged during the course of the program. On this particular slide, we are looking at nearly 200,000 deployments of tags on these seven highly migratory species.

There are some additional deployments that you can't see. This is just looking in the Northwest Atlantic, but there were some deployed by fishermen throughout the Atlantic, although the bulk of them do occur closer to us. You can see there is a lot of them in the Gulf of Mexico.

Here are the recapture locations for those same species. Many of these are transatlantic crossings, but, then again, many of these are also ones that were tagged overseas originally.

We also conduct the Recreational Billfish Survey. The tournaments must register and report the catch and effort data to the Southeast Fisheries Science Center, and there is also some onsite biological sampling. For example, we have a sampler who goes to the tournaments and also to the docks, when there are tournaments, in the area of Venice, Louisiana, and collects biological samples from the HMS species.

I am going to touch on larval surveys as well, which can be important. I should point out that this presentation of research is by no means comprehensive, and, in fact, it's a little biased towards what we're doing within the Highly Migratory Species Branch, what we're associated with, and so there is -- I have left things out for time constraints and not for any intentional neglect for the work that's being done, for example, by the folks in Panama City on aging or Pascagoula on evaluating bycatch mitigation.

We have here data from the larval survey that takes place every spring from April to June, and that's been really important in our bluefin assessments that collects bluefin larvae, and those are used to develop relative abundance indices of the spawning stock.

There is a new technique that we're exploring now that is kind of exciting that may enable us to estimate the number of the spawners directly, and that's a genetic mark-recapture technique that, now that genetics has advanced to the point that we can identify individuals, both the adults and their progeny, there is a technique called close-kin analysis that has been successfully applied to minke whales and southern bluefin tuna that we're looking into.

Essentially, you can identify parent-offspring pairs and estimate the number of parents, like in a mark-recapture experiment. I am going to cover briefly how it works, but don't worry. There is absolutely no testing that is going to go on

with any of this.

Essentially, you have a population in which you can conceive of each juvenile as having tagged his parents, by virtue of the DNA marker that it carries. You have a sample of those, and so you have -- The fish highlighted are the adults and juveniles that you sample, and you get the genotypes from them. From that, you can identify matches of parent-offspring pairs. Then you can use that in a formula to basically expand the number to an estimate of the total spawners.

Now, the larger your population, the larger your sample size needs to be, but western bluefin is of a size that we think we can get this information from sampling about a thousand or more larvae each year. The idea is to use larvae so we don't have to worry about mixing between eastern and western stocks. Then about 30 percent of the adult catch, and that can be reduced if you sampled over multiple years.

The only problem is, so far, we've been having difficulties in confirming that the genetics of historical larval samples can be used, but we're continuing that work, and, if we're successful with that, it's a game-changer, really, because it can help us to groundtruth our assessments.

Some other important work that is going on is we have a problem with not only bluefin, but with a lot of our stock assessments, and that is that indices tend to be produced by each country's scientists, and they don't always show the same trends, and they're not always the same level of confidence in the results, and the data programs are not always the same.

You also have cases where the fisheries take place either overlapping or immediately adjacent, and so we're looking at ways to combine the analysis and get a single index across the different datasets, and so this work was started last year. Just last week, scientists from all four countries that fish for western bluefin, the U.S., Mexico, Canada, and Japan, met in Mexico to advance this work further, in hopes of helping with this year's assessment.

We also have some young-of-the-year work underway for bluefin, trying to develop an index, and, on the left, you see what a bluefin looks like at that size, but we haven't been able to catch any from the volunteers that have been participating in our program. It's always someone else who has seen them.

Then a major component of our research program here in Miami

deals with pop-up satellite archival tags, where the data is collected on depth, temperature, and light level, so we can estimate location. Then, after a time, the tag pops up and transmits the data to satellites.

Here are some tracks for our work in the Gulf of Mexico on bluefin tuna. All of these bluefin were tagged from longline vessels within the Gulf of Mexico during spawning season. The primary objective of the study was to evaluate post-release mortality, but its design enables us to do a lot of other analysis as well, and it can be interesting to look at this.

For example, if you look at that information in conjunction with sea surface temperatures and kind of loop it over time, you can see, starting in March and as we move into April, we tagged -- This was in 2012, and we tagged a number of tuna, and you're watching them all simultaneously. As the temperature warms up in the Gulf, you also see them kind of leave, en masse. We recovered a number of these tags, including some that went all the way up to Prince Edward Island.

We also have done a lot of work in the Gulf with yellowfin tuna, both tagging from longline vessels and from rod-and-reel vessels. Here are our tracks for yellowfin tagged in the Gulf of Mexico. Most of our releases have been in the Northeast quadrant, and so I wouldn't say this is a comprehensive analysis of where they are in the Gulf, but it's interesting that very few of them left the Gulf in the time the tags were retained on them.

Granted, some of that is the fact that the tags didn't stay as long as we would have liked, but our longest example was 172 days, the orange track that is just swimming back and forth along the edge of the shelf off of Louisiana and Alabama.

We started working with Mexico, and we've been tagging in Mexican waters. Here is an example of a fairly large yellowfin that was released. It was at large for forty-seven days before the tag popped up, and we recovered it, and so we have data recorded every ten seconds. On this particular day, highlighted in blue, you can see that this is just one day, looking at the diving behavior, and the color is the temperature, and so we have this one case where it dove to over 500 meters, and very rapidly. At one point, it was diving at about twenty miles an hour.

Later on in the same track, the fish stayed at the surface, except for one dive that lasted a couple of hours and went down

to below 1,200 meters, to water temperatures of around six degrees Celsius, which is kind of impressive for a so-called tropical tuna.

This may seem confusing, but, basically, this is a graph from the data that we get every ten seconds. We just summarize it by night and day, and here is a nighttime. You can see the brighter colors are the highest level.

Each color is 10 percent of the total observations, but, because they're so dense, you can see that there is a cluster of activity near the surface, at around thirty degrees, and then a smaller activity that's a little deeper during the night. Mainly, they are clustered at the surface, whereas, if you look during the daytime, they're going much deeper, and the black dots that are stringing out here are individual dives. We've also done some work on blue marlin in Mexico, and this will complement some work that's being done in the northern Gulf of Mexico. That is basically all I had.

**CHAIRMAN DANA:** Thank you, Craig. That was very informative. You guys are doing great work over there at the research center, and we appreciate your time. Maybe I will open it up to questions from the entire council on just anything HMS or international, ICCAT. Kevin Anson.

**MR. KEVIN ANSON:** Thank you, Madam Chair. I don't know if this is for Randy or Dr. Brown, but what source or sources do you use primarily to account for recreational landings, the ones that you use, I guess, to monitor the actual country quota?

**MR. BLANKENSHIP:** For recreational landings, and so you're talking about several different species here, but --

**MR. ANSON:** Let me clarify that. It would be the yellowfin tuna.

**MR. BLANKENSHIP:** For yellowfin tuna, and, Craig, you can help me out on this too, but yellowfin tuna are -- The recreational landings there would be coming from some of the survey information that would come from the Large Pelagic Survey, which is from Maine to Virginia, and then MRIP surveys outside of that area. That would be some of the primary information that would be used to estimate recreational landings.

For yellowfin tuna, there is not the requirement for angler-reported landings like there is for swordfish and billfish and bluefin tuna, because yellowfin don't have that same requirement

domestically. Craig, do you have anything to add to that?

**DR. BROWN:** Yes, I can expand on that. Basically, like for the other HMS species recreationally that we're reporting, we try to incorporate all of the potential information we can. We include the MRIP estimates. The Large Pelagic Survey takes precedence, where the Large Pelagic Survey exists. We include the headboat survey, although it's pretty rare that we see fish from there, and we include the Texas Parks and Wildlife Department Survey, although that, I think, has maybe more of a bias towards the bait fishery, but you occasionally get some HMS.

The tournament sampling reports some yellowfin that weren't otherwise being captured, at least before tournaments were included in the sample, and so we try to cast a broad net to bring in all the catches we have, but I think we could certainly recognize that we may be -- It's difficult to capture recreational landings of highly-migratory species. I know that NOAA is taking some steps to try to improve that in recent years.

**CHAIRMAN DANA:** Thank you, Craig. We've got a follow-up by Kevin.

**MR. ANSON:** Just to keep on that same subject, you said you want to try to cast a broad net for available data sources, and so I'm curious. I didn't hear LA Creel, Louisiana's LA Creel survey, and so they have the mandatory reporting requirement for tuna there, and my understanding, working in Alabama, is that yellowfin tunas are considered more of a rare event type of species and those are hit-or-miss in the landings, oftentimes, and so you might get zeroes for a year or two and then you might get some relatively large landings.

LA Creel, I think, hit upon that a little bit better and was able to provide more consistent and reliable results, as far as landings, and do you use theirs? Have you looked at their survey?

**DR. BROWN:** I am aware that they have started this effort, and you're talking about their recent expansion, right?

**MR. ANSON:** Yes, and they've included reporting of yellowfin in the last three or four years, I guess.

**DR. BROWN:** Yes, and I'm not directly involved with that effort, but I am aware of it, and I am aware that NOAA is looking at what's being done in Louisiana and considering how that might --

How to handle that, moving forward, for our estimates, but I am certainly open to incorporating those estimates in future updates to the historical data.

We have been looking at things in parallel, and we have to be careful that we're not -- Since you have estimates coming out of the MRIP, we have to be careful not to double count, essentially, but I am aware of that effort going on, and we have plans to look into how we might modify our methods to try to incorporate that, but we haven't done it yet.

**MR. BLANKENSHIP:** I wanted to just add to that, to say that one of the really good things about our HMS Advisory Panel is we have representation from the different states, and I know that the representation from Louisiana, with Jason Adriance, is very good, and he is on top of a lot of the numbers that he gets a chance to review, and we really depend upon his eyes as well, and so I am confident that we will be able to continue that kind of communication, to make sure that that kind of information is incorporated appropriately.

**MR. ANSON:** Thank you.

**CHAIRMAN DANA:** Are there other questions? Lieutenant Danaher.

**LCDR LEO DANAHER:** Thank you, Madam Chair. The question is really more for Mr. Blankenship, and it goes back to his presentation on I think it was Slide 11, with the map of the boundaries, in particular the new rectangle boundary that is basically like due south of the Texas/Louisiana area. My question is how did the group or panel come to the conclusion on the boundaries for those particular areas?

**MR. BLANKENSHIP:** Those particular areas were based upon an assessment of pelagic longline observer data, over a several-year period, and the timing of bluefin tuna interactions in that data and looking at various combinations of the timing of such a restriction, and we came to that conclusion. It's fully described in the draft environmental impact statement for that measure, for Amendment 7.

**LCDR DANAHER:** Thank you, sir. I've got a follow-on question, and it's with regards to outreach for those HMS fleets that operate in the Gulf of Mexico, and I am curious as to what measures are being taken, because that is a new area for this year, and, from an enforceability standpoint, that's pretty far offshore, and so it's -- I am anxious or interested to know the outreach process.

**MR. BLANKENSHIP:** Actually, it's been implemented for a couple of years now, and the outreach process was one of sending letters to individual permit holders in that fishery, as well as outreach through HMS News, through leaders within that fishery and that community, including key points of contact in Louisiana and some of the concentrations of pelagic longline vessels there in Louisiana as well.

Then also outreach through communications through vessel monitoring system opportunities, and that is how that is monitored, through VMS, and so there is a regular ability to communicate effectively when vessels are moving into that area.

**LCDR DANAHER:** Thank you, sir. I just wanted to make sure that I understood you correctly. When is that particular area looking to be implemented for enforcement?

**MR. BLANKENSHIP:** It has been implemented, and it is in place from April 1 to the end of May.

**LCDR DANAHER:** And that's for this year?

**MR. BLANKENSHIP:** Yes.

**LCDR DANAHER:** Thank you.

**CHAIRMAN DANA:** Any other questions? Okay. Again, thank you very much, Randy and Dr. Brown, for your time. I appreciate just the work you're doing, and I hope that you will leave the door open for us to ask questions and engage with you, as appropriate, in the future.

**DR. BROWN:** Absolutely. My pleasure.

## REPORT ON ICCAT PORTUGAL

**CHAIRMAN DANA:** Okay. I know we're over time, but barely, and I've talked to Martha, who is the Chairman of the Spiny Lobster, and she said that she can do her committee if I take maybe five minutes right now to just review the ICCAT.

You've got a little background on the ICCAT, but, in November, I joined the U.S. delegation, where I represented all the five councils that have membership on the Atlantic HMS Migratory Species AP at the International Commission for the Conservation of Atlantic Tunas, which, again, is ICCAT.

This annual international meeting brought together partnering nations and others from about fifty-four nations from both sides of the Atlantic, from Mexico to Venezuela to Africa and Iceland. China and Japan have membership as well.

It was pretty fascinating to see how the ICCAT process works, in that the multinational, multilateral decisions are made by consensus and not by vote, and so, in essence, if one nation does not agree with an amendment or a proposal, then that proposal simply does not move forward, and so you need 100 percent consensus for anything to pass through.

For example, there was a move to prohibit the removal of shark fins at sea and require all sharks to be landed with their fins naturally attached, fully or partially, and, while the vast majority of nations supported the shark fins being attached, three nations, Japan, China, and Morocco, and were opposed to it, and so consensus was not met and the proposal failed.

Things that did move forward, of interest to the Gulf, included the adoption of the first ever conservation and management measures for sailfish, requiring participating nations in ICCAT to maintain measures to limit sailfish mortality, including live release and using circle hooks and following minimum size and other efforts. That comes second-nature to us in the United States, but we can't assume that it does to the other nations that participate in ICCAT, and so that was a good thing.

We also had the extension of management, essentially quota measures, for the North and South Atlantic swordfish, the Western Atlantic bluefin tuna and tropical tunas, with include the yellowfin, bigeye, skipjack, and albacore.

On yellowfin, it was determined that the Atlantic stock is overfished, but not incurring overfishing. However, the United States voiced concern regarding the impact the high catch of juvenile bigeye and yellowfin tuna was having on the overall status of the stock.

In the Gulf of Guinea, off of Africa, there is a large number of vessels, mostly from -- They are large vessels, mostly from the EU, that are able to deploy up to 500 floating FADs per vessel, which, to us, that's kind of -- In the United States, we don't have -- Or we're not supposed to be having FADs, but, in other parts of the Atlantic, it's happening and allowed.

The FADs are highly effective in attracting bigeye tuna, and yellowfin hang around with bigeye tuna. The problem is that

many of the fish that are attracted to these FADs are juveniles, and so the high level of mortality is being considered a threat to our overall yellowfin tuna stock here in the Gulf, because of the fishing habits over on the other side of the Atlantic.

There was pushback by the EU, the European Union, and other large vessel, purse seining and longlining, countries to reduce the number of FADs per vessel, and so the compromise was to establish a FAD working group to look at the issue of reducing juvenile mortality, et cetera, in the future.

All-in-all, this was a tremendous amount of hard work being done by the U.S. delegation over the course of just eleven days. The day started at ICCAT at seven in the morning, with a daily delegation pre-briefing, followed by non-stop ICCAT proceedings, going from nine to six o'clock. Then, after the ICCAT session would end, then the U.S. delegation would hold post-briefings, sometimes until ten o'clock, and that didn't mean that the delegates didn't return to their rooms and keep working on some of these proposals.

It was literally anywhere from seven in the morning until ten at night days, and that's a long workday, and I was just very impressed with the commitment and the smarts of the U.S. team, comprised of NOAA, HMS, the State Department, U.S. Coast Guard, and some private sector reps. That is essentially it, and I think, unless we have any other comments, any other business, we can probably adjourn.

One last thing is I did have some attachments that Steve Atran put into our briefing books, and one of them was the eleven-pager of all the activities that happened under ICCAT, if anyone is interested in that, and, again, we've got the contact information for Randy Blankenship and Dr. Craig Brown, if you have questions that you want to ask offline. If there is no other business, we will adjourn.

(Whereupon, the meeting adjourned on January 30, 2017.)

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