



Fishery Data Collection and Research Committee – Data Sub Committee

May 8, 2019

8:30 a.m. – 5:00 p.m.

Council Office Conference Room

Honolulu, Hawaii

Draft Report

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8:30 a.m. – 12:00 p.m.

1. Welcome and introductions

The meeting started at 8:40 a.m. Domingo Ochavillo chaired the meeting. Present were Yvonne Mika, Tepora Lavatai, Brent Tibbatts, Mike Tenorio, Keena Leon-Guerrera, Tom Ogawa, William Dunn, Hongguang Ma, Stefanie Dukes, Michael Quach, and Scott Bloom.

Council staff present were Marlowe Sabater and Thomas Remington.

2. Approval of draft agenda, 2018 report & assignment of rapporteurs

The agenda was adopted with no changes. There were no questions on the 2018 meeting report. Remington was assigned rapporteur.

3. Report on previous FDCRC-TC recommendations and Council actions

Council staff reported on the four 2018 FDCRC-TC recommendations and how the Council took action on those recommendations. The first recommendation was that the Council direct staff to work with PIRO Federal Programs Office to investigate potential mechanisms to improve the territory/state agencies ability to address their logistic issues for data collection. Council staff met with PIRO Federal Program Officer Scott Bloom regarding this recommendation, but ultimately, the improvements will have to come from the local agencies.

The second recommendation was that the Council direct staff to convene the MRIP Ad-hoc Committee to finalize the planning for the implementation of activities described in the MRIP Regional Implementation Plan. A conference call of the RIT Council is scheduled for November 1, 2018. The MRIP HMRFS and Creel Survey Review Workshop are scheduled for May 2019.

The third recommendation was that Council direct staff to work with the Territory fishery agencies in developing collaborative working arrangements to improve the Commercial Receipt Book to meet the requirements of ACL management. Also, it was recommended the Council direct staff to work with a contractor and coordinate with WPacFIN in the planning and development of an online cloud database and application to support the improvements Commercial Receipt Book system. Council staff met with Mirage InfoDesign LLC regarding a potential Saltonstall-Kennedy project that would develop the online cloud database in support of the commercial receipt book program. Council staff also drafted a proposal to be submitted to the Saltonstall-Kennedy Grant Program via Coastline Group LLC to develop a centralized data

collection hub in CNMI that would also include tools for a port sampler. The Saltonstall-Kennedy pre-proposal was approved for submission for a full proposal. Contracts for Territory Science Initiative data collectors were renewed on September 1, 2018 to continue the collection of commercial receipt book data. The contract for David Viggiano was executed on September 1, 2018 to develop a fish logging application that can serve as the data entry portal to upload the data into a cloud database. Council staff also worked with Tim Lam and Molly Lutcavage to submit a proposal to Microsoft and Google AI in developing machine learning software that identifies and measures fish species, automatically logging the data to be used for data collection, but it did not get funded.

The final recommendation was that the Council direct staff to work with the Territory fishery agencies to analyze their regulatory processes and support the agencies in the development of a rule package for the agency's consideration to attain mandatory licensing/permitting and reporting. Council staff conducted a series of license and reporting coordination meetings from July 27 to August 4, 2018. Both Guam and CNMI have draft license and reporting regulations. The CNMI regulation package was reviewed by the CNMI Attorney General (AG) on September 18, 2018 and is up for comments. The Guam regulation is currently stalled due to the nonexistence of the Guam Ocean Fishery Management Council (GOFMC) that is supposed to provide oversight in the review and approval of fishery regulations in Guam. A letter was to the AG was sent on April 25, 2019 requesting for a legal opinion to carry out the process to establish a mandatory license and reporting without the establishment of the GOFMC.

4. Status of the fishery dependent data collection improvement efforts

A. American Samoa

Ochavillo presented on the status of fishery dependent data collection improvement efforts in American Samoa. Improvement efforts included new visits, staff, and workshops for outreach, more data collection efforts, surveys, and interviews, increased commercial vendor invoice collection, and species posters and brochures in multiple languages. It was clarified why there was so much improvement surrounding Manua; it is an outer island of the Territory, and focused efforts on visits there have brought about the observed changes. This was described as a huge step up for American Samoa. Pre-visits have been utilized for commercial vendors to mitigate the issues associated with vendor turnover.

Efforts to translate outreach materials were highlighted; it was noted that the important differences in Chinese language lie between Traditional and Simplified. A majority of the 55 vendors are Chinese-owned. Hopefully in the next run of updating the receipt book, Chinese names can be added. Pictures of the fish were suggested if space constraints are an issue with including languages. There are no Chinese vendors in the outer islands. The outreach program could be helped by Plan Team member Minling Pan (NMFS PIFSC), who could potentially talk to the Chinese vendors when she visits in a few months.

A Seafood Vendor Workshop is scheduled for next month after being delayed; the Council donated 30 scales for this Workshop. The improved relationships between the managers and the vendors have led to increased dialogues that have led to an increase in the number of permittees over time. Stores would turn away fishermen if they do not have licenses once they learn more rules regarding fish sale from the outreach efforts. The most permittees in one year has been 71 individuals.

There was discussion about fishers being brought in from Western Samoa. If the individuals have an immigration ID, they typically do get a fishing license. Those in Samoa on a 30-day stay cannot be issued a commercial fishing license. If the immigration ID would expire within two months, the individuals cannot be issued a commercial fishing license either. These licenses are good for a year from date of issuance (or when the immigration ID expires). Many of the commercial spearfishers are likely not from American Samoa, but have commercial fishing licenses. The overall total proportion of commercial fishers that have a license versus those do not have a license is unknown. There were 12 citations issued in one day recently for lack of commercial licenses. It may be good to know more about fishery participation if DAWR is willing to find out and share.

While the licensing system is in place in American Samoa and has been for five years, there is no way to calculate who is actually out fishing – i.e., the participation. The ability to collect a license number needs to be built into a data collection system.

Freelance commercial fishermen that jump from vendor to vendor are present in American Samoa, and relationships with managers are fluid. Roadside vendors are also present, though there are relatively fewer because the government set up a public fish market that diminished the numbers of roadside vendors a few years ago. Enforcement officers patrol this public fish market on an ongoing basis.

B. Guam

Tibbats presented on the status of fishery dependent data collection improvement efforts in Guam. Two years ago, a six-month pilot study was completed where 24-hour data collection was conducted to see if creel survey data expansions were representative. There was 92-94 percent of fishing activity captured from the survey schedule in place, but SCUBA spearfishing data was lacking; this has changed in recent years with these fishers now coming in more during regular survey hours. These are typically commercial fishers.

There is increasing cooperation with the Micronesian-owned fish stores in Guam due to increased outreach. Last year, seven of these vendors were reporting. Life history information is more reliably coming from the BioSampling program when species-specific data is needed. It was found that 80-90 percent of the seafood on Guam was imported in 2017; detailed analysis on imports is ongoing and should be available in the next year or two. Other outreach efforts on Guam have improved in recent years, for example showing record sizes of certain species of fish caught on island, etc., and incentive has been created that helps to collect fishing data. These are data that are not captured by the creel surveys, and are instead treated as opportunistic interviews within the current sampling regime. At the same time, fishers have reported catching very tiny bottomfish species at around 300 ft. depth in rocky sloping habitats; individuals of these species tend to go deeper as they get bigger.

There is an official record book kept by Guam. There were some questionable records removed if species identifications were questionable. Media such as magazine and newspaper articles also provide fishing records. Digitizing these ads and providing them to the fishing community has been good for bridge-building.

There have been instances with people selling their fish catch online – parrotfish, octopus, etc. There is no monitoring of these sales as they are not officially a regulatory concern. It was noted that American Samoa agencies facilitated fish sales online, but sales stopped on the agency page after they reminded the fishers they needed licenses. A similar situation exists in Hawaii, where there are several websites to buy fish from fishermen but no way to capture the data.

A couple years ago, a case on Guam spurred a law saying you could not sell parts of sharks or rays and skates. It was recently found that sale of all invertebrates is illegal on Guam as well, though commercial export is acceptable. This is seemingly a regulatory oversight to cover what is not being protected (e.g., giant clams, octopus, squid), but it had not really been enacted until its recent rediscovery.

C. CNMI

Tenorio presented on the status of fishery dependent data collection improvement efforts in CNMI. Many new staff were hired recently, and a new vehicle is being acquired for creel surveys. Species identification in data collection interviews has been improved alongside receipt book collection. There have been problems in the past with some vendors (of the estimated 29 total) not submitting data regularly throughout the year; this is not likely due to any issues, per se, as they are participating in the system but are just not consistent in submitting. This is a good example as to why mandatory data reporting is on the horizon. Creel survey data entry has rebounded after Super Typhoon Yutu, though there have been back-ups in the commercial invoice input. Lastly and perhaps most importantly, regulations are still being developed for mandatory data reporting. These regulations are in the phase of having scoping meetings with the public currently, who have been generally receptive to the incoming regulations with a few exceptions. The key to implementing these regulations has been having the Council and AG push them through the required processes. Everything may be in place for the law itself within the next six months, but there will be a lot of outreach with the vendors and some phase-in time. A data form still needs to be developed as well, starting with the sample form and being iteratively generated from there. It is about finding out from the fishermen what issues there are, etc., and then incorporating those associated changes into the regulations.

There were potential issues with documenting fishing trips that consisted of individuals walking out onto reefs. WPacFIN has various techniques to establish ID numbers for these kinds of trips and fishers from both the data collection and dealer sides, but it was difficult to train the fishers that they had to separate their catch, etc. It took several years for WPacFIN to establish their system. This process is still a struggle even in Hawaii, especially considering issues associated with fish catch from multiple days or trips all being sold at one time. WPacFIN will send the CNMI DFW a copy of their form for this kind of data collection and other associated materials.

Freelance fishermen exist in the CNMI as well. Vendors (of which there are four major) hire groups of seven or eight fishers to go out and harvest product for their store. There are maybe 80-90 active fishermen, but there is no way to track this number at the moment. There are likely fewer consistent fishermen (estimated 40-50). Not all commercial fishermen are associated with vendors, as some go house-to-house or straight to the hotel/restaurant (potentially not considered by the current data collection system).

D. Hawaii

Ogawa presented on the status of fishery-dependent non-commercial data collection improvement efforts in Hawaii. Right now, all data are collected via mail survey. There was a workshop meant to be held in January, but it was delayed due to the shutdown. The main focus will be to certify the HMRFS survey design akin to those in other fishery regions. It is an access point survey, but one of the major changes is to turn it into a roving survey that makes more sense for an island to compliment the mail survey. Private boat fishers will still be monitored using the access point method, though. Since the Territories do roving surveys, their input could help along the process of certifying the method for Hawaii. Trip-based estimates are being converted into gear-hour estimates to cover more distance and sample individuals still fishing; this can optimize the number of interviews conducted. The expansion/estimation portion of this process is slated to be overhauled as well. The merits of interviewing one person on the fishing boat versus all fishers on the boat was briefly discussed, with Hawaii currently opting to only interview one person since all catch for the vessel typically ends up in a single reservoir.

E. MRIP and TSI Projects

Council staff presented on the status of fishery dependent data collection improvement efforts via the Marine Recreational Information Program (MRIP) and Territory Science Initiative (TSI). TSI was presented first. Data are input to local agency offices before being aggregated. These projects are meant to improve commercial receipt book information in the Territories. Summaries of the TSI results from American Samoa, Guam, and CNMI were presented, including proportion of TSI catch estimates to commercial catch, species composition of TSI data, and revenue estimates. There was a dip in vendor reporting in Guam in 2018, but those data are likely still incoming; some vendors have closed as well, in 2019 in Guam there are only five vendors reporting. Data collection for CNMI in 2017 waned throughout the year as well.

The MRIP project focused on collecting data on non-commercial spear fishery. An online data form was developed (ispearfish.org), and an online collector was contracted in Guam but not CNMI. A small incentive is provided to the fishers (quarterly raffle) with the most validated reports. There were near-real time results because it was electronic reporting; almost 700 records were collected (mostly from the CNMI), and over a quarter of the fish were parrotfish. There are anywhere from 7 to 106 “interviews” collected per month. A fixed project period seemed to be less intrusive, further encouraging fishers to participate since the data collection only lasts a year. Most fishers (> 60 percent) reported their catch on the same day that they landed it, though there were a few that came in several weeks after. Fishing occurred mostly during sunny, flat surf days, whereas approximate fishing location showed a more distributed group of fishers. The average fishing “trip” was just over four hours, and the spearfishers typically went out in pairs. The general CPUE for spearfishers was 0.5 lbs. per hour; around 30 percent of fishing trips were “skunks” with no reported catch. These data are difficult to compare to the creel surveys, because it is hard to capture spearfishing data in the creel surveys. This project can act as a sporadic spot-check on this fishery, though.

When the creel samplers targeted the fishers, they would tell the fishers where they would be and vice versa, exemplifying the close relationship between the fishers and data collectors. Word of mouth has been highly utilized as well. There was no validation of the data given the nature of the reporting; the only evidence possessed is whatever the fisher attaches to their report. There were naturally some fishers that had no catch, and you needed to have catch information to enter

the raffle (which is random selection). It is not clear what subset of the spearfishing population was captured by this project, likely over 50 percent of the non-commercial community in one year. There is a chance for continuation of this project, but was originally intended for one year. Because this is specific to non-commercial fishers, they were encouraged to fish as normal regardless of the raffle. Most of this catch is for personal consumption or gift-giving. A lot of fishers in this group can be young (20 years) as well. It was suggested to open the raffle to even those fishers who got “skunked”.

Competitions are good opportunities to collect spearfishing data as well. The Council held competitions during the Council meetings in CNMI last year.

F. WPacFIN Database Transition and Online Interface

Dukes presented on transition of the WPacFIN database and updates to the online interface. The online WPacFIN database has been online since last winter, is accessible to all, and has many data forms/categories. Many data requests have been able to be diverted to the online interface. The main issues are that the data available online are strictly non-confidential at a single species level; this could create minor discrepancies when comparing with summary data forms. A recent review discovered some issues in programming that are being fixed in the 2018 data associated with gear groupings. It has been successful so far, but it is unclear as to the future of updating this database/interface due to some PIFSC reorganization. Going forward, there is a desire to standardize data between the WPacFIN and international fisheries, perhaps with some sort of data governance. It was suggested that MRIP data somehow be incorporated with this interface, and it was confirmed that the server databases could potentially be integrated.

G. Discussion

Discussions took place during and directly after each individual presentation.

H. Public Comment

There was no public comment.

5. Status of the MRIP Pacific Island Regional Implementation Plan

Council staff presented on updates to the status of the MRIP Regional Implementation Plan. MRIP reorganization was initially described. FDCRC members were asked to review the document to provide status updates in writing on activities described in the plan; for example, HMRFS, territories creel survey review, etc. were to be considered. Different examples of items that need status updates were given. There has been a \$3 million grant allocated for this program (non-federal match), so now is an opportune time so submit projects.

There will be an MRIP workshop in May for Hawaii, but not the territories. The MRIP review for territories will be held off until after the data workshop in August, and appropriate survey overviews and certifications are complete. This workshop is a preliminary introduction to the MRIP program and process.

Council staff will send out an email to ask for updates on the MRIP and to gauge interest in the \$3 million.

6. Application of electronic reporting for the bottomfish fishery

Council staff presented on the ongoing application of electronic reporting in bottomfish fisheries of the Western Pacific region. Electronic reporting is being implementing support of the mandatory licensing and reporting in CNMI. There was a focus on user friendliness and gathering important parameters. The application will include a map and reporting grids that would be validated by the location services on the fisher's tablet or phone. There is going to be eventual integration with market data via trip identifiers. While bottomfish are the first group that this will be implemented for, electronic reporting will likely be spread to other local fisheries as well. The project is expected to wrap-up by the end of 2019 before fisher testing. It was suggested that the fishers should perhaps be able to see the dealer report of their data to allow for them to ground truth their own number as additional potential validation.

7. Machine Learning Software to support fishery data collection

Bak-Hospital presented on her seven-month project to develop machine learning software in support of fishery data collection in the Western Pacific region. The goal was to build a fish image classification system, an associated web-based app with accessible user interface, and eventually evaluate biosampling videos. Clay Sciences annotation software was used. There were a total of eight videos annotated at this point in time (i.e., bounding boxes, species identification, etc.) at about 99% accuracy if there are no obstructions. There are 55 remaining videos on deck for the project, but because accuracy is so high for these species already, they may not annotate all of them and instead opt to train the software for more difficult species identification. Potential uses for this software include regular surveying as well as electronic monitoring and reporting. Both species identification as well as length are collected from this system, but a relative object is needed in the video to estimate length.

It was suggested that it would be ideal to have software that do species ID and length from photos submitted by fishers themselves. If a surveyor is using the software in this way, then there could be a consistent object that can be used in further training of the program.

The software can only handle one fish at a time, but perhaps in the future multiple could be used. The length to weight conversion utilized life history information collected from other sources. It was noted that this software can handle hundreds of different species if there sufficient videos to train the software. It was suggested to integrate the weight/scale data into this system if available to so. The software would likely work for species identification if there is curvature in the fish individual, but length measurements may not be as reliable. Once the framework for the software is established, it will become much cheaper to conduct this project and continue training the software into the future.

8. Report on the Hawaii BioSampling Program

John Wiley and Cassandra Pardee from Poseidon Fisheries Research gave a report on updates to the Hawaii BioSampling Program. There many coral reef fish species in the Western Pacific region that have little to no life history information. The goal of the project was to determine common market species and estimate life history parameters for them. They would go to three different markets on Oahu in gathering 6,000 samples from 67 local reef and bottomfish species from 14 families. The majority of fish sampled were mempachi and weke followed closely by taape. Length frequencies for species assessed by Nadon (2017) were presented and results were compared. There was also sampling at local (spearfishing) tournaments in addition to the

markets. The processing of the fish samples (otoliths and gonads) was also presented; there was a focus on Acanthurids for this portion of the project. Poseidon Fisheries Research currently needs much smaller fish to find minimum lengths, but these can be difficult to find in the markets. There are plans to have students in Maui carry on this project as well.

The samples collected in the markets are mostly caught by surround net followed by spear.

It was suggested that there a lot of aquarium collectors out of work, and they may be able to help provide samples of small individuals.

9. Pacific Insular Fisheries Monitoring and Assessment Planning Summit

Dukes briefly presented on the upcoming week-long Western Pacific Insular Fisheries Monitoring and Assessment Planning Summit to take place on August 5-9 or August 12-16; it is likely to be scheduled for August 12-16, 2019. All territory data source streams will be evaluated at by participants. There will be three impartial panelists present from the mainland to help when decision points arise. The effort is to ensure that a good look is taken at how data are collected, who uses it, and how can it be made more robust. Data collection resources are not meant to be removed, but perhaps reallocated if anything.

10. Work Session in collating information needed for the workshop

There were no documents, presentations, or discussions associated with this agenda item. Council staff and Dukes interviewed representatives and decision-makers from the Territories about their local data collection programs in preparation for Pacific Insular Fisheries Monitoring and Assessment Planning Summit in August 2019.

11. General Discussions

Discussions took place during and directly after each individual presentation. Discussions associated with recommendations had to do with wordsmithing and clarification.

12. FDCRC-TC Recommendations

Regarding fishery data collection, the FDCRC-TC recommends the Council request the Department of Marine and Wildlife Resources to include the time series of number of commercial permit holders and number of citations for non-compliance to the commercial permit in the American Samoa Annual SAFE Report.

13. Other Business

There was no other business.

PAU