WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

Fishery Data Collection and Research Committee – Technical Committee

April 20-21, 2017
8:30 a.m. – 5:00 p.m.
Council Office Conference Room
Honolulu, Hawaii

Draft Report

1. **Welcome and introductions**
   Domingo Ochavillo chaired the Fishery Data Collection and Research Committee – Technical Committee meeting. The meeting started at 8:45 am.

2. **Approval of draft agenda, 2016 report & assignment of rapporteurs**
   The draft agenda was approved with minor changes in timing where Justin Hospital presented earlier for him to attend other commitments. The 2016 report was approved with no change. Council staff took notes of the meeting.

3. **Report on previous FDCRC-TC recommendations and Council actions**
   Council staff presented on the actions taken by the Council on the 2015 FDCRC-TC recommendation. The FDCRC-TC recommended the Council directed staff to establish a process for monitoring progress of activities addressing the strategic plan and incorporate that process in the FDCRC-Standard Operating Policy and Procedures. The Council approved the recommendation and Council staff incorporated the evaluation process in the FDCRC-SOPP. The FDCRC members will be presenting the status of the data collection improvement in each jurisdiction at their annual meetings.

4. **Status of the fishery dependent data collection improvement efforts**
   A. American Samoa
   Domingo Ochavillo reported on the data improvement efforts in American Samoa. The Department hired additional technicians to conduct the base surveys and incorporated more shifts (added graveyard shifts in both boat-based and shore-based surveys). This had led to an increase in CREMUS landings. Department staff also conducted regular informal training on species identification. WPacFIN also provided additional training on species identification and protocol for conducting creel surveys. Program staff conducted visits to Manua to check on the data collector and the program since no data is being submitted from there. The Department conducted a workshop with fishers to understand the importance of fishery data collection. The Council also supported the improvements in the commercial receipt book program through the Territory Science Initiative. There was a significant increase in the number of vendors reporting and total number of reports filed. The TSI project also conducted workshops with vendors explaining the importance of data collection and to discuss issues surrounding the fish retail business. The department also reprinted fish posters in Korean and Chinese since majority of the store owners are from Korea and China.

The Department is currently implementing a subsidy program where the fishermen are provided with fuel at a lower price in exchange for providing fishery information on their fishing trip. This program appears to have improved the data collection. Fishers communicate with the department and submit the fishery data. The data collection is slowly turning into a census type of data collection rather than a randomized survey. There is a need to test the effects of the subsidy program in terms of bias to the catch estimation.

The Technical Committee member requests WPacFIN to analyze the fishery data to determine if the 24 hour shift had improved the data. Moreover, requests WPacFIN to update the analysis on the subsidy program to include the following analysis:

- species composition;
- multiple way of calculating the CPUE;
- size changes;
- different fishing methods.

The government furlough is affecting the work shifts for the surveys. The effect of the furlough needs to be documented. It may have some effect on the expansion algorithm.

B. Guam

Brent Tibbatts presented on the Guam data collection improvement efforts. For the boat based survey improvements – DAWR is conducting a 24-survey to determine effects of not surveying during off-hours. The goal is to catch the activities not usually caught in the normal survey hours. The results of the pilot project will be used to evaluate whether to change the survey or the algorithm. There is also a recent change in demographics in the fishing communities due to the in-flux Micronesians. Micronesians are only selling fish in Micronesian stores.

The TSI project is conducting a workshop on the Micronesian stores. The shore-based surveys are also being tested for changes in the coverage. This is a six month pilot program. DAWR is working with JIMAR on this. This calibration work is the first-time ever conducted since the mid-80's. DAWR is planning on conducting this pilot test in a more regular (every 5 years) than 30 year cycle.

C. CNMI

Trey Dunn summarized the data collection improvement efforts in CNMI. WPacFIN worked with their new data collection staff and conducted an overview on how the creel surveys are supposed to function. This training enhanced the understanding of the survey protocol and the importance of sticking to the protocol. The new staff is interested in updating their knowledge through species ID. Some of the staff is going out of their way to enhance the relationship with the fishers.

The CNMI government is currently filling in the vacancies. There are 4 data technician positions and one staff maybe moving to coordination section opening 1 data collector slot. The Data Biologist and Data Manager positions are open. Territorial Science Initiative helps out in the data quality by enhancing the reporting of the vendors.

On other data improvement efforts, the DFW Life History Program is moving towards grouper analysis. The Division is going to conduct tagging of reef fish. Mandatory reporting rules and regulation – request the Council to support the finalization of the mandatory rules and regulations.

D. Hawaii

Reginald Kokubun presented on the commercial fishery data collection improvement efforts. DAR is working on drafting the legislative package and rules to close the regulatory gap where fish dealers are not required to have a dealer license. However, fish dealers are required to submit a report on a set deadline. DAR is working with WPacFIN to modernize the database system. DAR is developing the scope of work for the web portal. DAR is also attempting to standardize the reporting format from monthly report to trip report for all fisheries.

Thomas Ogawa presented on the non-commercial fishery data collection improvement efforts. This covered the current HMRFS and the MRIP pilot projects aimed at improving HMRFS. DAR cannot implement new survey design because it has to be certified by MRIP. DAR conducted various pilot surveys including: roving survey, aerial, and mail survey. DAR finalized the final draft report and under review by MRIP Operations Team and Executive Steering Committee. The last pilot survey project, MRIP implemented a new sampling strategy to increase temporal coverage. The current surveys are not covering certain parts of the day and there is no random sampling involved. DAR conducted time walks in the morning and afternoon and the third walk on the peak fishing period. DAR is still analyzing the data.

In the discussion, members cautioned that the CPUE should be normalized to the whole day rather than only during the peak hours to avoid over expansion of the catch estimate. The MRIP design forces conducting surveys even on the low fishing activity period. MRIP staff will also be placed on reduced hours. This may affect the variance due to the reduced survey hours.

E. MRIP and TSI Projects

Council staff presented on the status of the Marine Recreational Information Program and Territory Science Initiative projects in the Territories. For MRIP, the Council is implementing a pilot project aimed to capture the non-commercial spear fishery in Guam and CNMI. There are two parts to the project: first is the self-reporting through the network of spear fishers that belongs and are related to the spearfishing clubs. The second part is the roving creel survey specifically designed to capture the spatial and temporal occurrence of the non-commercial spear fishery. The creel survey utilize mobile technology (e.g. Samsung Galaxy tablet with 4G connection) to capture the data. The self-reporting is also done via the cloud based reporting system.

The Territory Science Initiative implements data collection improvements in the commercial receipt book system in American Samoa, Guam, and CNMI. The project aims to train the vendors to report on the commercial fish sales and provide recognition

to encourage the vendors to report. Currently there are 50+ vendors participating in American Samoa, 8 in Guam, and 7 in CNMI.

F. WPacFIN Database Transition and Online Interface

Toby Matthews presented the data collection improvement activities of WPacFIN. The program is supporting DAWR on the pilot study conducting the 24 hour shift. WPacFIN conducted two workshops in American Samoa: first on species ID – created keys for species in the database. The second 2nd workshop focused on the survey design and techniques. WPacFIN is implementing the R-application development. One product of WPacFIN is the survey schedule app. and an additional app for the power analysis to plan out the sampling days and number of interview. Matthews is also re-writing the expansion algorithm in R and will be integrated with the MySQL database. WPacFIN conducted an analysis of the American Samoa subsidy program and compared the data before and after on the CPUE. The results showed that the subsidy program increased the boat fishing effort but not proportionally higher catch and catch rates. The subsidy program had increased the participation in the data collection program and increased species resolution especially for methods that is not usually captured in the creel.

The question was posed if the subsidy program really increases the accuracy of the data. There was no difference in CPUE but there is an increase in the number of interviews that may increase the precision of the estimate. There was a question on whether the subsidized fuel allows fishermen access to a different fishing ground. It was acknowledged that this information is not easily attainable. The subsidy program may affect the trip cost for socio-economic information. It also improved the relationship between the department and the fishers.

Matthews reported on the status of the WPacFIN transition to MySQL database system. There is less IT requirement and MySQL is free. WPacFIN had set up the test server at the agency level on mid-2016. So far the database transition seemed to function well. WPacFIN is also creating a mirror database for DAR. E-Hawaii gov for DAR – oracle database and converted it to MySQL. The data migration is almost complete. WPacFIN is now in the development phase of the data entry portal. Once the R system is in place then the agencies will have access to the data for analysis.

Regarding the WPacFIN website, the first phase is to address the Council data needs (e.g. annual SAFE report, ACLs, fishery management impact analysis). WPacFIN will be conducting a survey on the data being used by each agency that utilize fishery data housed within WPacFIN. Matthews conducted a demo on the features of the new WPacFIN website

For each territorial fishery agency, WPacFIN created a secured FTP connection directly to the Science Center. The system was set up to update the database every month. The data will be updated quarterly and will line up with the freezing of the data. Data needs to be frozen to provide historical consistency. WPacFIN also conducted data integration in Saipan to include the TSI data to the DFW commercial purchase receipt system database.

G. Discussions

There were no additional discussions.

H. Public Comment

There was no public comment.

5. Updates on ecosystem monitoring and research

A. Pacific Island Fisheries Research Program

Council staff presented the status of the projects under the Pacific Islands Fisheries Research Program. The Council is overseeing four of the six projects submitted to the PIFRP. One project, "Evaluation of ecosystem services under human and environmental drivers in Hawaii" is being funded and administered by PIFSC. The remaining 4 projects have been contracted out and are at different stages of implementation:

- Alternative estimation methods for annual catch of federally managed species in the Western Pacific (Sunny Bak-Hospital)
- Trophic Models Supporting Ecosystem-Based Fisheries Management and Climate Change Planning in American Samoa (Iain Caldwell)
- Movement Patterns and Connectivity of Bigeye Tuna (Thunnus obesus) exploited by Hawaii-based Pelagic Fisheries (David Itano and Jeff Muir)
- Fishing community perceptions of the MPA siting process and its implications (David Loomis)

B. Life history research

Joseph O'Malley gave an update on the life history program. The Life History Section of the SAFE report was updated with new species that was worked on in the previous year. The program collects data in three primary ways. The commercial fisheries biosampling program in American Samoa, Guam, and the CNMI collects samples. Selective market sampling provides life history information, and data are collected on research cruises as well. Prior to 2010, no information was known about the species in the Marianas, and now they have all of the life history information for a few species and ongoing work for the remaining species. Soon they will have information on Naso unicornis from across the region. They compare fished to lightly fished areas, to compare size and age structure between the two different areas and develop age-based mortality estimates.

The MOUS cruise focused on juvenile deep-7. They had the opportunity to look for nursery areas. They found some other paka nurseries on the north side of Molokai and Hamakua coast. They confirmed that ehu settle with adults. They think they found juvenile gindai on the last day, which is extremely steep rocky habitat, which fishermen agree with. It's more habitat than depth driven, except for possibly the paka. There are flat, featureless areas around this island and we fished a lot of them and didn't catch anything. People may think it's hydrology, proximity to offshore canons, etc. We caught them in mud outside of Kalaupapa.

The life history program held a life history workshop in Perth. The program also has several publications.

C. Socio-economics

Kirsten Leong provided the o socio-economic ecosystem monitoring and research updates. The PIFSC Socio-Economic Program has several data improvement efforts underway including the following: 1) longline trip cost database; 2) foreign trade database; 3) non-commercial fishing characterization. The Longline Trip Cost Database collects trip-level data for 8 cost items related to longline fishing operations. It currently has a 64% response rate for observed trips. This covers the Hawaii and American Samoa longline fisheries. The Foreign Trade Database monitors the trend in the total market supply, local market share, product substitution, prices and country of origin of fresh and frozen products. The Non-Commercial Fishing Characterization effort is useful for monitoring the pulse of non-commercial fisheries and trends in fishery issues. The program maintains a marine supply directory (n=145+) that can also serve as outlets for research outreach and communications. Leong also presented an overview and elements of the Fishing Community Snapshop Tool and the PIFSC Data Portal

D. Guam ecosystem research

Terry Donaldson presented on the overview of the ecosystem research conducted under the University of Guam Marine Laboratory. Habitat assessment survey and linking diversity through the surveys are conducted on behalf of the US Navy on selected reef areas. There is also the regular monitoring through the Coral Reef Monitoring Program with Dave Burdick. This monitoring conducts visual surveys around Guam obtaining species composition, benthic and fish trend information via monitoring of spatial and temporal changes over time. Recent monitoring documented the impacts of the coral bleaching. The reefs have been resistant during the earlier stages but recently got hit hard.

UOGML is also conducting spawning aggregation studies looking at transient and resident aggregation location and periodicity. UOGML has data on kyphosids, lethrinids, balistids, scariness, labrids, and snappers. Surgeon fish aggregation site was located in the Cocos lagoon but was not characterized. Surgeon fish aggregation sites are frequently visited by manta rays to feed. Parrotfish forms aggregation but the density is low. There are only few areas where you can find large aggregation.

UOGML is collaborating with HIMB to conduct a Jungle Histology Workshop in Guam on June 2017.

E. Discussions

There were no additional discussions.

F. Public Comment

There was no public comment.

6. Marine Recreational Information Program

This section of the agenda provides an overview to the FDCRC-TC about the NMFS Marine Recreational Information Program. MRIP does not have a strong presence in the Western Pacific region aside from the pilot project implemented in the territories and the State of Hawaii.

A. MRIP Overview

Hongguang Ma provided an overview of the NMFS-Marine Recreational Information Program. In 2004 National Research Council of the National Academy of Sciences was asked to conduct an independent review of existing recreational fisheries data collection programs, mainly MRFSS. NRC reported in its findings in 2006 and provided extensive recommendations. The reauthorized MSA requires NOAA to fulfill the recommendations in the NRC report. MRIP was established to develop improved data collection and information management program. The MRFSS program started in 1979. MRFSS had two independent and complimentary surveys: a Costal Household Telephone Survey (CHTS) for fishing effort and an Access Point Angler Intercept Survey for catch rate. Catch is estimated as the product of catch rate and effort. The telephone survey uses random digital dialing of coastal households. The intercept survey is conducted at shore fishing sites, boat ramps and harbors.

NRC review of MRFSS suggested to produce catch estimates based on the survey sampling designs and to eliminate flexibility in sampling implementation. In the past the surveyors attempted to conduct the intercept surveys during peak fishing hours to maximize the number of completed interviews. For effort survey NRC suggested that a comprehensive, universal sampling frame with national coverages be established. There are coverage and efficiency issues with CHTS. For example, with random digit dialing (RDD), cellphone only households are not included. In addition, the proportion of fishing houses in the general population is low. Thus it is not efficient.

From this review, MRIP was created to improve the data collection in the recreational fisheries. A new design for intercept survey was adopted for use in Atlantic and Gulf states in 2013. The new design emphasizes on maximizing # of primary sampling units (site days or site times) rather than the # of interviews. Surveyors are scheduled to conduct the surveys in the assigned 6-hr time blocks including night time, and they are not allowed to change the survey time and sites so that the inclusion probability can be clearly specified for catch rate estimation. For the effort survey, a national saltwater angler registry is in place now. With the angler registry, a mail survey with dual frames was tested in some states. Due to exemptions and non-compliance, the angler registry does not include all recreational anglers. Additional sample frame (e.g.. USPS address database) is used to increase the coverage. The new effort survey was implemented side-by-side with existing telephone survey in 2015 in Atlantic and Gulf states. The telephone survey will be terminated at the end of 2017.

Tom Ogawa presented on the details of the HMRFS surveys and the survey improvement efforts through MRIP. HMRFS, as part of MRFSS was re-initialized in 2001. The survey in 2003 included all three fishing modes, i.e., fishing from shoreline, fishing from private boats, and fishing from charter boats. The intercept survey for charter fishing mode was terminated in early 2007. The intercept survey of HMRFS is stratified by month and fishing mode. The current survey covers shoreline fishing and fishing from private boats. Ogawa described the algorithm that generates the estimate of catch. He then described the different pilot projects being conducted by MRIP to improve the recreational catch information.

B. MRIP National Academy of Science Review

Council staff presented on the summary of the NAS review of MRIP. The review covered the following sections:

- Study Design and Estimation Considerations for MRIP
- Sampling and Statistical Estimation for FES
- Sampling and Statistical Estimation for APAIS
- Framework for Continued Scientific Evaluation, Review, and Certification
- Degree of Coordination
- Communication and Outreach with Stakeholders
- Plans for Maintaining Continuity

Staff highlighted the different recommendations from each of the section of the NAS report.

C. MRIP Strategic Plan

Council staff presented the overview of the MRIP Strategic Plan. The Government Accountability Office conducted a review and analysis of the NMFS-MRIP Program after a request made by the US Congress. One of the GAO recommendations was to develop a comprehensive strategy to guide MRIP's data collection efforts. The MRIP Executive Steering Committee engaged in a strategic planning process facilitated by ASQ. The planning process involved a series of conference call, face-to-face meeting, and team homework. The strategic plan will include appropriate responses to the NAS recommendations. It contained the overall program goals and strategies, timelines and performance metrics. The plan included 6 major goals: 1) Meet Customer Needs; 2) Provide Quality Products; 3) Inform our Key Stakeholders; 4) Assure Sound Science; 5) Operate Collaboratively; and 6) Meet Program Resources and Funding Needs. The MRIP Strategic Plan is currently open for comments. The Regional Implementation Plans should feed into the MRIP Strategic Plan.

D. MRIP Regional Implementation Plan

1. Discussion on status of current data collection

The current data collection is faced with several challenges:

1. Lack of adequate manpower with a technical understanding on the surveys – collecting and handling data requires understanding of the technical nuances of the survey. The territories have a very limited pool of manpower that is capable of consistent implementation of the survey protocol. Staff that receives training and skills is often lost to a more promising position from other agencies and the federal government.

2. The spatial and temporal coverage is not adequate to capture the full range of fisheries – the current surveys covers areas that are accessible. The survey design was developed in the late 80s and the fishery had already evolved since then. There had been several shifts in the dynamics of the fisheries and the surveys no longer capture an accurate picture of what is going on

3. Government system limits the expansion of the data collection program – some of the government HR regulations limits the ability to expand the program including the

hiring of staff, ability to provide support for purchase and compensation for surveys beyond the normal government hours

4. Lack of stable funding support to enhance the data collection – the funding for data collection is a composite of several funding sources. There is no dedicated funding source for pure data collection.

5. Lack of governance structure to support further improvements to the program – each agency conducts the data collection independent of the other jurisdiction. WPacFIN provided the technical support for the database management but the existing governance structure was inadequate to coordinate the regional implementation to the standard needed for federal fishery management

6. Insufficient use of available technology to enhance the data collection – there is a strong interest in using emerging technology to augment the skills that are lacking to implement a bias-reduced data collection

7. Lack of support to enhance the timeliness of the data input and catch estimation – management often require near real time data. The safe guards for timely catch estimation are not in place.

8. Lack of understanding of the importance of the survey design due to absence of a comprehensive program review – the creel survey program was designed in mid to late 80s and has not been comprehensively been reviewed.

2. Discussion on needs

Participants engaged in the round robin on the needs:
Programmatically, the creel survey program should undergo a comprehensive review by MRIP to determine the efficacy of the survey system to produce estimates within the standards required as a requirement from receiving the NSWAR exemption.

American Samoa proposed to expand the temporal and spatial coverage of the exiting creel surveys. American Samoa also proposed to expand the bottomfish monitoring in Aunuu and the Pago-Pago Game Fishing Association monitoring.

Guam proposed to expand the survey coverage and increase the effort for the aerial surveys. This also includes the use of mobile technology on the surveys.

CNMI included the spatial and temporal expansion in the island of Saipan and improving the data collection in Tinian and Rota. CNMI also proposed to use mobile technology for data collection.

Hawaii is already underway to its certification. Their proposal covers the implementation of the pilot projects that would support the transition to the new system.

The additional needs revolved around implementation of mobile technology in the surveys and the development of algorithm to extract the non-commercial segment of the total catch from the existing surveys. Other priorities include the improvements to the timeliness of data submission and catch estimation.

E. Discussions

There were no additional discussions.

F. Public Comment

There was no public comment.

7. General Discussions

There were no additional discussions

8. FDCRC-TC Recommendations

Regarding fishery data collection improvement, the Fishery Data Collection and Research Committee-Technical Committee recommends the Council:

- Request NMFS-WPacFIN to:
  - evaluate the effects of the 24 hour shift in Guam and American Samoa for the improvements in the catch estimation;
  - update the analysis of the impact and effectiveness of the American Samoa subsidy program to also include: 1) analysis of the changes in species composition; 2) effects on CPUE defined as catch per trip and catch per hour; 3) changes in size structure; comparing before and after the implementation of the subsidy program;
- support the CNMI Division of Fish and Wildlife in finalizing the rules and regulation package to support the public law on mandatory reporting

9. Other Business

There were no items brought up for other business