



CNMI P* Working Group Meeting

January 29, 2020
9:00 am to 12:00 pm
Hyatt Chamolinian Room
Garapan, MP

Participants: Frank Villagomez (DFW), Trey Dunn (DFW), Jude Lizama (DFW), Mike Tenorio (DFW), John Syslo (PIFSC), Rey Tebuteb (Bottomfish fisherman, AP), Lawrence Concepcion (Bottomfish fisherman, AP), Perry Mesgnon (Bottomfish fisherman, AP), Paul Roberto (Bottomfish fisherman), Richard Farrell (Bottomfish fisherman, AP), Clay Tam (AP), Tony Flores (MES), Mike Fleming (Bottomfish fisherman, AP), Frank Aldan (DLNR), Lino Tenorio (Bottomfish fisherman)

Council staff: Marlowe Sabater, Floyd Masga

DRAFT REPORT

1. Introductions

Council staff opened the meeting at 9:30 am. Staff welcomed the participants and highlighted the importance of the participation of the local agencies and the local bottomfish fishing community. Processes such as the P* Analysis is where the local agency and the fishing community can participate in the federal decision making process. The scores from the working group will be used by the SSC to set the Acceptable Biological Catch.

2. Recommendations from previous Council meetings

In October 2019, the Pacific Island Fisheries Science Center delivered the peer-reviewed benchmark stock assessment for the bottomfish fisheries in American Samoa, Guam, and CNMI. The SSC deemed this stock assessment as best scientific information available. The Council directed staff to conduct the P* and SEEM analysis. Council staff formed working groups for CNMI and Guam to conduct the P* and SEEM analysis. The task of the CNMI P* working group is to quantify the scientific uncertainty in the benchmark assessment.

3. Overview of the P* process

Council staff provided an overview of the P* process. The Fishery Ecosystem Plans required the Council to revisit the P* analysis once new information becomes available. The P* process determines the risk level to which the fishery will be managed based on the scientific uncertainties surrounding the stock assessment and the stock it described. There are 4 dimensions in the P* analysis: 1) Assessment Information; 2) Uncertainty Characterization; 3) Stock Status; and 4) Productivity-Susceptibility. Each dimension has criteria scored by working group members. The total scores will be deducted from the 50% risk of overfishing described in Langseth et al 2019. The catch that corresponds to the final P* corresponds to the potential Acceptable Biological Catch that the SSC will specify at its 135th Meeting in March 2020.

4. State of the Science for the Territory Bottomfish: Report on 2019 Benchmark Territorial Bottomfish

John Syslo, PIFSC, presented the pertinent information from the CNMI benchmark stock assessment. The presentation focused on the information used in the stock assessment, the comparison of the changes in the current benchmark versus the previous update. Included in the presentation are the pertinent results and the catch projections. Fishermen clarified how much of the data was not included in the assessment. Syslo showed a figure that described the amount of data that was excluded due to non-BMUS landing and the trips were chartered which has a different catch rates.

Mike Tenorio pointed out that there were some available information like the life history sampling in the northern islands that were not included in the assessment because it is not designed for ACL and assessments. Tenorio argued that the creel surveys used in the assessment is also not designed for stock assessment and ACL management. There is a need to standardize the decision process on the use of the different information for incorporation in the assessment.

There data used in the assessment is the creel survey data and commercial receipt books. Only the non-chartered trips were included because chartered trips have a different catch rate. Majority of the data are from the Saipan landed fish and only a few came from Rota and Tinian. Guam fishermen regularly fish in Rota and Rota Banks and the data is not reflected in the CNMI data set. These are attributed to the catch for Guam. Participants suggested exploring doing the assessment on an archipelagic scale rather than by political jurisdiction. It is difficult to assume that the stock in Guam is distinct from the lower Mariana islands.

The number of data points used in the CNMI assessment is fewer than Guam and American Samoa. Better data is needed to effectively represent the CNMI's catch and CPUE. There is not enough spatial resolution to the data and the data collection effort is not even across the different islands in CNMI. There were a couple of sporadic research and data collection in the past but all those does not contribute directly to the data inputs for a surplus production model type of assessment.

5. Working group re-scoring session

a. Assessment information

The Assessment Information dimension pertains to the scientific information that was utilized in the assessment. The working group selected which level of assessment category the 2019 benchmark assessment belongs to.

Assessment Information Description	Score
Perfect. Quantitative assessment provides estimates of exploitation and B; includes MSY-derived benchmarks	0.0
Quantitative assessment provides estimates of exploitation and B; includes MSY-derived benchmarks; no spatially-explicit information	2.0
Good. Measures of exploitation or B, proxy reference points, no MSY benchmarks; some sources of mortality accounted for	4.0
Relative measures of exploitation or B, proxy reference points, absolute measures of stock unavailable	6.0
No benchmark values, but reliable catch history	8.0
Bad. No benchmark values, and scarce or unreliable catch records	10.0

The working group determined based on the information presented in the assessment that the new benchmark is a qualitative assessment that provides estimates of fishing mortality and biomass. Since there is insufficient spatial resolution in the data input, there is no spatially explicit information used in the assessment. The working group then scored the various assessment aspects to determine where exactly between 2 and 4 the assessment information falls. The assessment aspects are:

- Reliable catch history
- Standardized CPUE
- Species-specific data
- All sources of mortality accounted for
- Fishery independent data
- Tagging data
- Spatial analysis

Reliable catch history: the working group noted that the term reliable is subjective. Since the assessment used both the creel survey and the commercial receipt book data, this raises serious concerns regarding the completeness of the data, whether it captures a significant portion of the fishery. The conclusion was that the data is incomplete and is capturing mostly the commercial segment of the fishery. The working group believed that the data from the creel is under estimated. The working group scored it a 0.5 reduction.

Standardized CPUE: the CPUE series used for CNMI was standardized as compared to the previous assessment which used a nominal CPUE. The working group did not dock a reduction and scored it a 0.

Species-specific data: since the assessment was done on a complex and the life history input parameter was an average of the available information for the species in the complex, the working group scored a 1 point reduction.

All sources of mortality accounted for: all of known sources of uncertainty were accounted for in the assessment. The model is able to adjust the range of the uncertainties particularly from the varying life history parameters for the natural mortality. Fishing mortality was also accounted for. There was no reduction for this assessment aspect.

Fishery independent data, tagging data, and spatial analysis: none of these information were available for the benchmark assessment. There was a 1 point deduction for each of these assessment aspects.

The total assessment aspect points was 4.5 and was scaled equivalent was 3.3. The total percent reduction score for the Assessment Information Dimension was 3.3.

b. Uncertainty characterization

The working group scored this dimension as a 2.5 percent reduction. Uncertainties were carried forward into the projections. The uncertainties were also characterized in the estimation of the stock status.

Uncertainty Characterization Description	Score
Complete. Key determinant – uncertainty in both assessment inputs and	0.0

environmental conditions included	
High. Key determinant – reflects more than just uncertainty in future recruitment	2.5
Medium. Uncertainties are addressed via statistical techniques and sensitivities, but full uncertainty is not carried forward in projections	5.0
Low. Distributions of Fmsy and MSY are lacking	7.5
None. Only single point estimates; no sensitivities or uncertainty evaluations	10.0

c. Stock status

The benchmark assessment showed that the BMUS complex in CNMI is not overfished and not subject to overfishing. The working group looked at where the 2017 stock status is relative to the MSST and MFMT:

		Biomass			
		Above B _{MSY}	Above MSST	Near* MSST	Below MSST
Fishing Mortality	Below MFMT	0	2.0	5.0	8.0
	Near* MFMT	1.0	3.0	6.0	9.0
	Above MFMT	2.0	4.0	7.0	10.0

PIFSC scientist calculated that the 2017 estimate was 21 percent from the MFMT threshold and the B is 8 percent above the B at MSY. The working group scored this dimension as a 1 percent reduction.

d. Productivity and susceptibility

The productivity attributes were scored by the Life History Program of the Pacific Island Fisheries Science Center. Each of the 13 species in the complex was scored using the attributes from Patrick et al. 2009. The following are the productivity attributes:

Productivity attributes	High (0)	Moderate (5)	Low (10)
<i>Rate of population increase - r</i>	>0.5	0.16-0.5	<0.16
<i>Maximum age</i>	<10 yrs	10-30 yrs	>30 yrs
<i>Maximum size</i>	<60cm	60-150cm	>150cm
<i>von Bertalanffy growth coefficient (k)</i>	>0.25	0.15-0.25	<0.15
<i>Estimated natural mortality</i>	>0.40	0.20-0.40	<0.2
<i>Measured fecundity</i>	>10e4	10e2-10e3	<10e2
<i>Breeding strategy</i>	0	between 1 and 3	≥4
<i>Recruitment pattern</i>	high recruitment success	moderate recruitment success	infrequent recruitment success
<i>Age at maturity</i>	<2 yrs	2-4 yrs	>4 yrs
<i>Mean trophic level</i>	<2.5	between 2.5 and 3.5	>3.5

Scores of 0, 5, or 10 are given to each species. The attribute scores for each species were averaged out to get the productivity scores per species. The working group

reviewed the productivity scores and only revised the maximum size score for *Lethrinus rubrioperculatus* from 5 to 0 based on a paper published by Trianni et al. 2011. Below are the species productivity scores:

Species	Productivity scores
<i>Caranx lugubris</i> (black trevally)	4.5
<i>Aphareus rutilans</i> (lehi)	6.15
<i>Etelis carbunculus</i> (ehu)	6.15
<i>Etelis coruscans</i> (onaga)	6.45
<i>Pristipomoides auricilla</i> (yellowtail snapper)	4.9
<i>Pristipomoides filamentosus</i> (opakapaka)	5.65
<i>Pristipomoides flavipinnis</i> (yelloweye opakapaka)	5.2
<i>Pristipomoides seiboldi</i> (kalekale)	5.15
<i>Pristipomoides zonatus</i> (gindai)	5.35
<i>Caranx ignobilis</i> (giant trevally)	4.8
<i>Lethrinus rubrioperculatus</i> (red gill emperor)	3
<i>Lutjanus kasmira</i> (blue lined snapper)	4.1
<i>Variola louti</i> (lunar tail grouper)	5.2
Average	5.12

The final productivity score was 5.12 which is the average of the score of all species in the complex.

The Susceptibility Attributes were scored by the bottomfish fishermen. The fishermen reviewed the previous susceptibility scores from the 2015 P* analysis. Below are the susceptibility attributes that the working group scored:

Susceptibility attributes	Low (0)	Moderate (5)	High (10)
Areal overlap	<25% of stock occurs in the area fished	25%-50% of the stock occurs in the area fished	>50% of the stock occurs in the area fished
Geographic concentration	stock distributed in > 50% of its range	stock distributed in 25-50% of its range	stock distributed in <25% of its range
Vertical overlap	<25% of stock occurs in the depths fished	25%-50% of the stock occurs in the depths fished	>50% of the stock occurs in the depths fished
Seasonal migrations	Seasonal migrations decrease overlap w/ the fishery	Seasonal migrations do not substantially affect the overlap w/ the fishery	Seasonal migrations increase overlap with the fishery
Schooling/aggregation	Behavioral responses decrease the catchability of the gear	Behavioral responses do not substantially affect the catchability of the gear	Behavioral responses increase the catchability of the gear
Morphology affecting capture	Species shows low selectivity to the fishing gear	Species shows moderate selectivity to the fishing gear	Species shows high selectivity to the fishing gear

Desirability/value of the fishery	Stock is not highly valued or desired by the fishery	Stock is moderately valued or desired by the fishery	Stock is highly valued or desired by the fishery
Management strategies or current regulations on the species	Targeted stocks have catch limits and other local management regs; regs fully enforced	Targeted stock have catch limits and other local management regs but no strong enforcement	No regulations both at federal and local side hence no enforcement needed
Fishing rate relative to M	<0.5	0.5-1.0	>1
Biomass of spawners (SSB) or other proxies	B is 40% of B0 (or max observed from time series of biomass estimates)	B is between 25%-40% of B0 (or maximum observed from time series of biomass estimates)	B is <25% of B0 (or maximum observed from time series of biomass estimates)
Survival after capture and release	Probability of survival >67%	Probability of survival between 33-37%	Probability of survival <33%
Fishery impact to EFH or habitat in general	Adverse effects absent, minimal or temporary	Adverse effects more than minimal or temporary but are mitigated	Adverse effect more than minimal or temporary and are not mitigated

Fishermen estimated that the stock occurs is around 25 to 50% of the area they fished. They considered the bottomfishing in the northern islands. They scored the areal overlap attribute mostly a 5 across the 13 species. Fishermen scored the geographic concentration to be mostly 0 because bottomfish species occurs through the Mariana island chain and are not concentrated on a few islands. Aside from black jack, fishermen score the vertical overlap to be 5s and 0s depending on the species. Blackjack occurs on a wide range of depth compared to onaga that is mostly on the deep depths. A score of 5 was given across the board for the seasonal migrations. None of these species are known to do seasonal migration. Fishermen noted that it's the fishermen that have the seasonality where Saipan fishermen go to the northern islands to bottomfish during the summer months when the sea is calm. Same with the schooling attribute because even if some of these species are known to have small schools, it only has a moderate vulnerability due to the type of gear and the duration of the bite. Morphology affecting capture is mostly 5 except for onaga and giant trevally which are vulnerable targets of the hook and line fishery. Regarding desirability and value of the fishery, only ehu, onaga and gindai that scored as 10 and the rest are 5s. These are the primary valued target of the CNMI bottomfish fishery. Management strategies and regulation attributes were scored 5 across the species because there are regulations in place but enforcement is weak. The rest of the attributes were scored as 0 (low). Survival after capture and release was not scored because the bottomfish fishery is not a catch and release fishery hence it's not applicable.

Below are the species level susceptibility scores:

Species	Productivity scores
<i>Caranx lugubris</i> (black trevally)	3.2
<i>Aphareus rutilans</i> (lehi)	3.2
<i>Etelis carbunculus</i> (ehu)	3.2
<i>Etelis coruscans</i> (onaga)	3.6
<i>Pristipomoides auricilla</i> (yellowtail snapper)	3.2

<i>Pristipomoides filamentosus</i> (opakapaka)	3.6
<i>Pristipomoides flavipinnis</i> (yelloweye opakapaka)	3.2
<i>Pristipomoides seiboldi</i> (kalekale)	3.6
<i>Pristipomoides zonatus</i> (gindai)	3.2
<i>Caranx ignobilis</i> (giant trevally)	3.2
<i>Lethrinus rubrioperculatus</i> (red gill emperor)	2.7
<i>Lutjanus kasmira</i> (blue lined snapper)	2.7
<i>Variola louti</i> (lunar tail grouper)	2.7
Average	3.18

The final susceptibility score was 3.18 which is the average of the score of all species in the complex.

The overall score for the Productivity and Susceptibility dimension is 4.15

6. Conclusion

The P* working group finalized the scores for all 4 dimensions:

Dimension	Score
Assessment information	3.3
Uncertainty characterization	2.5
Stock status	1.0
Productivity-Susceptibility	4.2

The total reduction score was 11 percent. The highest risk level that the CNMI bottomfish fishery can be managed will be at 39 percent risk of overfishing.