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Bottomfish Plan Team Meeting Report

28-29 April 1999
Council Office Conference Room
Honolulu, Hawaii

1. Introductions

Bob Moffitt, Chairman of the Bottomfish Plan Team, asked all attendees to introduce themselves and then assigned rapporteurs for the first days agenda.

2. Improvements to annual report modules

The Plan Team briefly discussed the progress on the previous years recommendations and addressed general improvements to the Bottomfish Annual Report.

Overall, Team members were satisfied with the current format and content of the annual report. However, some suggestions for improvement were brought forward during the discussion of the different modules:

(i) include scientific names in the Tables, especially for those species that are not listed in Table 2 (page 3) of the 1997 Annual Report.

(ii) that CPI data be included, preferably with the Historical Annual Statistics Tables, so that interested users may utilize these to explain trends in the economics portions of the reports.

Since the new SFA requirements have not been approved, current analysis/reporting (using SPR) are sufficient for this year=s report. For the 1999 report, however, each Area should report total landings by the three (3) sectors: Commercial, Recreational and Charter. The Team recognizes problems and feasibility constraints associated with extracting data based on these three categories but agreed to do the best they can for next year=s reports so as to satisfy the new SFA requirements.

Team members reported on the progress of the following 1997 Annual Report recommendations:

1997 American Samoa Recommendations:

1) DMWR should identify funds for the continued collection of appropriate data to improve the estimate of SPR for the bottomfish complex.

Status: This rec was included in 1996, 1997 Annual Report with no progress made over the past year.

1997 Guam Recommendations:

1) Action taken on recommendation 1 to continue working with the WPacFIN program coordinator to develop and implement a customized computer software program that will update, standardize and reprocess Guam=s creel survey data remains ongoing. Included in this effort is the assignment and training of staff to input and process the DAWR creel survey database from 1980 to present.
2) With additional funding from WPacFIN and technical assistance from NMFS, considerable progress was made on recommendation 2 to complete a baseline biological and catch study of the red-gill emperor. The ongoing study consists of three sets of research cruises to compare virgin-stock shallow-water bottomfish catch and biological data collected at Bank A to that of a more heavily fished bank closer to Guam (Galvez Bank and White Tuna Bank). The first set of trips were made in late-September and early-October, and the second set in mid-October and early-November. The third and final set of research trips under the ›98-›99 WPacFIN contract is slated for early-May. The results of the research project are expected to be completed by the end of September, 1999.
3) The recommendation to establish mean fish size, percent immature and SPR indicators for Guam=s shallow-water bottomfish complexes is presently being addressed by the ongoing red-gill emperor project funded by the WpacFIN program. However, technical assistance is still needed to establish the above-mentioned fishery indicators for the deep-water complex.

1997 Hawaii Recommendations:

1) The BPT reiterates its concerned regarding the condition of MHI onaga, ehu, and hapuupuu. The Team commends DLNR, and Walter Ikehara in particular, for their hard work and persistence in developing a comprehensive state plan to manage MHI bottomfish. The Team recommends that the Council continue to support the state plan.
   Status: Council has issued resolution supporting state plan.

2) Again, the BPT strongly encourages the State to proceed expeditiously with computerization of the fish and seafood dealer reporting system and integrate this with the fishermen's commercial catch reporting system.
   Status: Walter Ikehara and Dave Hamm indicated the state, with WPACFIN support, is developing a new dealer reporting system that will incorporate electronic submission of reports via Internet. A programmer was hired and is currently working on this project.

3) The BPT encourages NMFS and the State to increase the level of bottomfish catch monitoring of the Honolulu auction and expand this sampling to major dealers on all other main Hawaiian Islands.
   Status: Auction monitoring may no longer be important now that Council is

getting away from using the SPR indicator.

4) The BPT recommends that the archipelago-wide SPR for bottomfish species included in this report be used to determine the overfished status of the species rather than any of the SPR values given by fishing zone, MHI, Mau, or Hoomalu. Considering the direction of initial genetic results and the simulated larval distribution studies, the Team believes that there are single archipelago-wide stocks of each species and that SPR values for smaller areas indicate local depletion, not overfishing of the stock. We realize that local depletion is not a good practice and that management measures should be taken to correct the situation, but feel that in the case of the MHI, that the state management plan is a large step in the correct direction and that noticeable improvement will be forthcoming.

Status: The rationale seems to have been well-received.

5) The BPT recommends that the Council request that the Secretary remove onaga, ehu and hapuupuu from the Aoverfished@ category based on the archipelago-wide SPR values presented in this report.

Status: DNA work for hapuupuu not yet done, and may be difficult given that it is endemic to Hawaii (no outgroups to compare with). The Council is working to help fund HIMB purchase a DNA sequencing machine to continue work on Hapuupuu and other species.

1997 NMI Recommendations:

1) Establish an ongoing bottomfish monitoring program to provide needed data for the commercial bottomfish fishery, contingent upon the Council identifying funds to implement and maintain the program, with assistance from NMFS/WPacFin.

Status: Logbook program for the northern island bottomfish fishery has been established through NMI DFW and WpacFIN.

2) Establish baseline (virgin stock) parameters (CPUE, percent immature) for the Guam/Northern Marianas deep-water bottomfish complex (e.g., survey on grouper, snapper) utilizing data collected during Resource Assessment Investigation of the Marianas Archipelago (RAIOMA) cruises (1981-1984), the current fishing in the Northern Islands and sampling aboard DFW research vessel to help calculate SPR, with assistance from NMFS.

Status: Repeat from 1997; ongoing routine data collection and fisheries sampling being done by DFW.

3) Establish baseline (virgin stock) parameters (CPUE, percent immature) for the Guam/Northern Marianas shallow-water bottomfish complex (e.g. red-gilled emperor) by sampling program aboard DFW research vessel to help calculate SPR, with assistance from NMFS.

Status: Repeat from 1997;.ongoing routine data collection and fisheries sampling being done by DFW.

4) With assistance from NMFS/WPacFIN, software should be developed and implemented to separate fishery statistics for the main islands fishery and from the Northern Islands fishery with separate descriptions and statistics reported in the annual report module.

Status: Repeat from 1997; ongoing routine data collection and fisheries sampling being done by DFW..

3. 1998 annual report modules

American Samoa Module:

Fini Aitaoto reported that the CPUE in 1998 was NOT less than 50% of the aggregate CPUE for the first 3 years of available data and therefore shouldn=t cause concern about this fishery. Additionally, the proxy estimate of the worst case SPR of 0.45 indicated that recruitment overfishing is not occurring in this fishery. In fact, this years decline in landings and effort is mainly due to the significant drop in the number of boats participating in this fishery as the local highliners switched to and concentrated on longlining.

The significant increase in the prices of bottomfish is attributed mainly to the deepwater snappers (mainly *Etelis* and *Pristipomoides*) landings sold to restaurants. The notable landings of these deep-water species this year may reflect a healthy deepwater resource around the territory.

Significant declines in participation, catch and effort that occurred this year may seem to reflect a collapsing fishery. The above-mentioned biological and economic indicators, however, signifies a healthy fishery that is being utilized by a modest portion of the native fishing community and show no indication of any serious problems. Two 1998 recommendations were endorsed (see Section 13).

Guam Module:

Andrew Torres reported on the status of the Guam fisheries and reviewed the Guam module of the annual report. Three main points highlighted include: (1) Guam is back into a Ayellow light@ condition based on the CPUE indicator. In 1998 it dropped down to *2.51* pounds per hour (average CPUE for first three years of data collection: 6.9 lbs/br); (2) DAWR will continue work with WPacFIN program coordinator to fine-tune offshore expansion survey program. This is especially crucial given the yellow light condition of the fishery and the belief that use of an aggregate CPUE likely provides a misleading picture of the status of the fishery; and (3) DAWR, with continued assistance from WPacFIN, hopes to complete the study of the redgill emperor, *L rubrioperculatus,* in 1999. Completion of the study will provide essential data to help monitor the status of the shallowwater bottomfish complex.

Andrew also reported that in addition to the headboat bottomfish charters that have begun operating out of the Agat Marina over the past few years, a new headboat bottomfishing charter business recently began operating out of the Agana Boat Basin. The Illig River boat ramp was recently improved which could lead to significantly increased fishing effort to the east side of the island. The aggregate CPUE for bottomfishing declined in 1998 which includes the new headboat charterboats, and may reflect a local depletion of the shallow bottomfish complex. Further analyses should be possible for next year's module to separate the charter sector from the

non-charter sector to see what affect that has on the CPUE. Four 1998 recommendations were endorsed by the Team (see Section 13).

Hawaii Module

Bob Moffitt reported that in the 1998 module, the 1997 values have been updated now that the data set is essentially complete and the 1998 values are presented with data collected to date. The 1998 data set is nearly complete for the NWHI and appears to be reasonably complete for the MHI. The 1997 MHI landings estimate rose from 403,000 reported in the 1997 report to 513,000 pounds in the 1998 report with the 1998 MHI landings estimate currently at 462,000 pounds. CPUE for 1997 was revised upward from 146 to 164 pounds per trip and the 1998 estimate is 194 pounds per trip. The number of vessels reporting catches in 1997 was updated to 495 from 368 with 480 vessels reporting catches in 1998. The 1997 MHI SPR value changed for hapuupuu from 19% as previously reported to 22% with the 1998 value estimated at 24% and the average SPR for 1997 revised upward to 20% for 1997 and at 21% for 1998.

In the Mau zone the number of vessels participating in the fishery dropped from 9 to 7. Landings for 1998 dropped from the 105,000 pounds reported for 1997 with CPUE dropping as well from 1,976 pounds per trip to 1,689 pounds per trip. Average SPR remained high at 62%. In the Hoomalu zone the number of vessels participating in the fishery rose from 6 to 7 vessels.. Total landings rose in 1998 from 241,000 pounds to 266,000 pounds. CPUE dropped from 6,351 pounds per trip to 5,315 pounds per trip, but average SPR rose from 65% to 78%.

Two 1998recommendations were endorsed by the Team (see Section 13).

NMI Module:

The most notable change in the NMI bottom-fishery from 1997 to 1998 was the large reduction in landings of the redgilled emperor, which decreased 46% from 20,355 to 11,082 pounds. This was attributed to the decrease in effort on this species, where the number of large vessels active in the Northern Islands decreased from 3 at the start of 1998 to 1 by the end of the year. In addition, of the three vessels only one was consistently active throughout the year. Also noteworthy was the large increase in landings of lehi, which reached an all-time record high of 4,822 pounds, an increase of 338% from 1997. Landings per trip increased from 1997, continuing a five-year trend.

The number of bottom fish trips and boats making bottomfish landing as well as total bottomfish revenues declined slightly from 1997. These three parameters were still above the 16-year average therefore not signifying a large decline.

The price per pound of bottomfish increased over 1997. Onaga once again commanded the highest price, with the lehi second.

Four 1998 recommendations were endorsed by the Team (see Section 13).

4. 1998 annual report region-wide recommendations

The Plan Team reviewed the 1997 and 1998 area specific recommendations and felt that a major constraint to progressing on these recommendations is the due to the lack of available

funds. Some work is being done to collect basic biological information, but information is also needed on economics and social aspects of the fisheries. Two region-wide recommendations were endorsed by the Team (see Section 13).

5. Status of amendment addressing SFA provisions

The discussion focused on the disapproval of three requirements of the Council=s SFA Amendment that was submitted to the National Maurine Fisheries Service in September 1998. These rejected sections included Bycatch, Overfishing, and Fishing Communities.

Regarding Bycatch: The problems identified by the NMFS concerned the shortfalls in data collection regarding bycatch, the lack of specific measures to be taken to reduce bycatch, what measures were taken by fishers to reduce bycatch and the non inclusion of seabirds as bycatch. NMFS did not like the terminology of ›discards= used by the Council, as opposed to ›bycatch=. Extensive discussion focused on the designated shortfalls and how the Council may remediate such concerns. Apparently, NMFS did not recognize the relatively insignificant nature of the bycatch in the insular island areas. An interesting irony raised by Mr. Hamm was that tag and release programs increase the incidence of bycatch, a fact verified by Mr. Dalzell. It was suggested by Dr. Pooley that restricted gear types be included in the revised SFA to satisfy the NMFS request that documentation of reduction measures in bycatch be addressed. The fact that certain species of fish are typically found to be cigua-toxic and thus discarded as bycatch was raised, along with ways to reduce such activity. Mr. Ikehara stated that kits were available to test species in question, but that the price was rather high. Mr. Heacock suggested that an education program be instituted to inform fishermen of methods to release such fish, as recommended by Dr. Pooley, as ›quickly and safely as possible. To reduce mortality of bycatch the Team suggested that fish be returned to the sea quickly and in the best condition possible as to enhance its survival.

Overfishing: The standard used to measure overfishing in the past, and which has been part of the Bottomfish Management Plan since its inception, SPR, was found by NMFS to be inadequate because it does not address stock biomass. Instead, a new measure is required, based on CPUE that uses specific ›control rules=. Don Kobayashi presented such an alternative based on a relationship between the ratio of Fishing Mortality (F) at the current level of fishing to that at the level of 50% CPUE ($F_{CPUE50\%}$) and the ratio of CPUE at the current level of fishing to the CPUE at the ›reference= level. That is, a level presumed to be concurrent with the early stages of a fishery. Generating the ›reference= level CPUE created discussion that centered around the statement by Don Kobayashi that the reference level be a obtained from a 20 year moving average. Various members of the Plan Team, led by Mr. Hamm, stated that this would not be possible for the insular island areas. It was then stated by Don Kobayashi that =20 years= was only a suggestion, and that each area would have to generate it own reference mean based on its unique circumstances. The Team agreed to accept the approach that reference CPUE be a multi-year average, but that the length in years used in generating this reference average be independently derived based on the unique attributes of each insular island area. Language in SFA should reflect such flexibility.

Fishing Communities: The primary concern with the Council=s designations of fishing communities was that the NMFS felt that the State of Hawaii as a whole fishing community was unwarranted. NMFS suggested the designation of fishing communities in Hawaii by port, whereas it was stated by members of the Plan Team that the designation be on a larger spatial scale. The Team recommended defining fishing communities in Hawaii by counties and if that was rejected, then by Islands.

6. Addition of Bottomfish Management Unit Species (BMUS)

Bob Moffitt presented the Plan Team with a proposal to add new species to the BMUS list. The addition of new species to the BMUS list was initially discussed at the previous Plan Team meeting based on the need to capture the full range of species being caught in the bottomfish fisheries throughout the region. Thirty new species were agreed to be added to the list (see Section 13 for full list).

7. Status of NWHI management system

Mark Mitsuyasu reported on the implementation of the Mau Zone limited entry program in the NWHI. The final rule was published in the Federal Register on 28 April 1999 with the program to take effect on May 28, 1999. Fishermen have a 45 day application period to apply with the NMFS PIAO. No comments were heard.

8. MHI bottomfish management

The NMFS- PIAO recently sent a letter requesting onaga and ehu to be removed from the overfished list, based on preliminary genetic evidence suggestive of single stock staus in the Hawaiian archipelago. Data are not yet available to make a similar claim for hapuupuu, listed as Aapproaching an overfished condition.@ The NMFS must submit any new information for the annual report to Congress by August.

Chris Kelley reported on their progress with onaga and ehu research. The genetic studies for ehu suggest a single stock in the Hawaiian archipelago. Genetic markers were found to be different than samples taken from other outlying Pacific island areas. A statistically significant separation of genetic structure between American Samoa onaga and MHI and NWHI onaga has not yet been determined. This may be due to insufficient sample size. More samples are needed for Onaga. The genetic analysis of hapuupuu will require additional resources. The Council is attempting to help partially fund the purchase of a DNA sequencing system to conduct similar genetic studies on hapuupuu.

Chris showed video footage of bottomfish habitat during a recent submersible dive. The video also included footage of the onaga and ehu rearing facilities at HIMB.

Walter Ikehara reported on the State=s bottomfish management plan. Nearly 1800 vessels have registered to fish bottomfish, with about 70% commercial. Mike Tossatto was not available at the Plan Team meeting to discuss enforcement issues but based on his recent report from the Bottomfish Advisory Panel, the Coast Guard has been assisting DOCARE through comparative patrols. The USCG can not take action alone against State violations without DOCARE.

Walter expressed the state=s general dissatisfaction with the Council not buying into the state plan and hesitating to implement federally closed areas (concurrent with state=s), especially where state closed areas overlap in part or wholly in federal waters. The Team discussed the Council=s options and suggested that the Council fully endorse state bottomfish management plan through establishing similar federal regulations.

The Team discussed using the state=s new data base from the BF licenses to develop some type of method to collect data on state recreational bottomfishing activity. The Team thought the Council could explore options on how to complete such a study and who would fund it.

9. Council=s Program Planning document

Mark Mitsuyasu summarized the new format for the Council=s program planning document. He asked the Plan Team to review the action items included under the bottomfish section of each of the plans objectives. Numerous specific comments were heard on several action items which will be incorporated into the planning document. Action Items that have been completed or are no longer relevant were removed, status on Action Items were updated or corrected and other general comments were heard. Regarding funding for action items, Sam Pooley suggested that the Council explore helping the State find matching funds to receive DJ money through the Fish and Wildlife Service. The group also discussed creating a program similar to PFRP to support fisheries work outside of pelagics. One possibility might be expanding PFRP to WPFRP AWestern Pacific Fisheries Research Program@ so those funds can be used for bottomfish or the Council=s other managed fisheries.

10. Comprehensive Data Amendment

Mark Minton reported on the Council=s effort to establish a federal permit and reporting system for all unregulated fisheries occurring in the US remote island territories in the Council=s region. The Team agreed that all vessels should obtain a permit and submit a logbook as a prerequisite to fish in the RIAs. The Team also suggested that vessels use the NWHI bottomfish daily logbook to meet this requirement.

11. Recommendations of the Bottomfish Advisory Panel

Robert Schroeder read the recommendations from the Bottomfish Advisory Panel Meeting held in late April. The Plan Team commented on AP recommendation 9, Arequest NMFS to take the lead, in collaboration with DFW and Guam-DAWR, in assessing the virgin northern island deepwater bottomfish stocks in the CNMI.@ The Team said that work on this issue has progressed sufficiently that it should no longer be a priority. Regarding recommendation 10 on shark utilization, team members noted that sharks are not BMUS but bottomfish vessels are landing fins from the NWHI and to a smaller extent MHI. No other comments were heard on the AP recommendations.

12. Other Business

EIS for Bottomfish FMP: Robert Schroeder reported that NMFS and NOAA General Counsel suggested that the Plan Team consider recommending that an EIS be done for the bottomfish FMP because to date only environmental assessments have been done with each amendment. The Team suggested that an EIS not be done by itself but undertaken when another amendment is needed for the FMP.

Addition of CNMI and RITs to FMP: Robert Schroeder asked the Plan Team if CNMI or other areas need to be included under the Bottomfish FMP management area. After brief discussion, the Team felt that including the US remote island territories under the Bottomfish FMP would be beneficial especially since the increased fishing activity is occurring around Palmyra and Kingman Reef. The Team chose not to comment on adding CNMI to the FMP.

HDAR catch report revision: Reggie Kokubun and Alan Rabacal, HDAR, presented the new draft log reports for all Hawaii fisheries. The new forms will separate landing and economic information by requiring separate forms. The Team noted that the forms will still not collect enough information on bycatch- lost, discarded, or stolen. Discussion concerning the possible need to change the format of the Hawaii C3 form to allow for recording of Aarea fished@ data. This might help capture information from Hawaii-based boats fishing off Palmyra and Kingman Reef.

Addition of shark gear to NMFS list: Don Schug reported that a fisherman targeting sharks with bottom longline gear has been fishing around the MHI since December 1998. The fisherman applied with NMFS to have his gear type added to the NMFS approved gear list. The Council has 90 days to review and provide comments on his application. Don reported the Bottomfish Advisory Panel recommendation and points of concern. The Team considered the Advisory Panel recommendations and comments and felt that there was no justification to prohibit the addition of that gear type to the NMFS approved gear list.

13. Summary of Plan Team recommendations

Annual Report Recommendations

American Samoa

1. Encourage DMWR to proceed with the intended collection of SPR-related data.
2. Recommend that DMWR provide additional samples of ***E. coruscans*** for the current Council ***Onaga-Ehu*** bottomfish project.

Guam

1) Given the yellow light condition that Guam has gone into based on the CPUE indicator of fishery stress, immediate efforts should be made to confirm and analyze the results of the offshore creel survey expansion in greater detail; especially since the indicator used is an aggregate CPUE and therefore may be more reflective of a localized depletion of shallow-water complex bottomfish in state waters requiring state, rather than federal, management action.

2) Efforts should continue to develop and fine-tune the database computer program that will provide DAWR with the capability of integrating the offshore survey expansion data with the inshore expansion data, and additionally produce statistics of confidence, a compilation of biological data, and a complete species composition analysis according to Plan Team requirements. Upon completion of the computer program, designated DAWR staff should be trained to use the new software to reprocess creel survey data from 1980 to present. Training should also be provided to teach staff how to interface with NMFS/WPacFIN software. Such training would facilitate additional support from NMFS/WPacFIN in the processing and analysis of fisheries data if necessary.
3) The need to complete a baseline biological survey of the red-gill emperor, *Lethrinus rubrioperculatus*, remains as the single most important data deficiency for the Marianas shallow-water bottomfish resource. With the remaining funds provided by the WPacFIN program and technical assistance from NMFS, DAWR should continue with proposed plans to complete the red-gill emperor research project as soon as possible.
4) With additional funding from the WPacFIN program and technical assistance from the NMFS, DAWR should establish mean fish size, percent immature and SPR indicators for Guam's deep- and shallow-water bottomfish complexes.

Hawaii

1) The BPT recommends that the Council amend the FMP to become fully consistent with the State of Hawaii Administrative Rule 13-94 on MHI bottomfish. This would include closure of areas within the federal jurisdiction as specified in the administrative rule.
2) The BPT that the council encourage and assist the State of Hawaii DLNR in the implementation of a postcard survey of non-commercial bottomfish fishermen as determined from the State=s BF vessel identification permit list. This survey would be used to estimate recreational catch of bottomfish in the MHI.

NMI

1) To request NMFS and the Council to assist DFW in adequately assessing the status of shallow and deep water bottomfish stocks in the southern islands of the CNMI.
2) Establish baseline (virgin stock) estimate for CPUE and percent immature for the Guam/Northern Marianas deep-water bottomfish complex (e.g., survey on grouper, snapper) utilizing data collected from the current fishing in the Northern Islands.
3) Establish baseline (virgin stock) estimate of CPUE and percent immature for the Guam/Northern Marianas shallow-water bottomfish complex (e.g. redgilled emperor) by sampling program aboard DFW research vessel, with assistance from NMFS.
4) With assistance from NMFS/WPacFIN, software should be developed and implemented to separate fishery statistics for the main islands fishery and from the Northern Islands fishery with separate descriptions and statistics reported in the annual report module. (Repeat from 1997)

Region-wide Recommendations

1) The BPT recommends that the Council locate a funding source for bottomfish research

similar to the PFRP funding. This could be either as a separate fund or by an expansion of the PFRP funding to include bottomfish research.
2) In anticipation of the new SFA requirements, the BPT recommends that the Council staff and NMFS continue to assist local agencies in the establishment and/or improvement of appropriate data collection systems. This should include data in such areas as fishing sectors (recreational, charter, and commercial), by catch, and socio-economical information.

Regarding SFA amendment:

Bycatch: To reduce mortality of bycatch the Team suggested that fish be returned to the sea quickly and in the best condition possible as to enhance its survival. Such a requirement would affect fishermen who currently kill unwanted species (ie ciguatoxic kahala) so that they do not re-hook the same fish.

Overfishing: The Team agreed to accept the new overfishing approach that uses a multi-year average to establish a reference CPUE, but that the number of years used in generating this reference average be independently derived based on the unique attributes of each insular island area. Language must be included in the SFA changes to provide this flexibility.

Fishing Communities: The Team recommends that fishing communities in Hawaii be defined by counties. If the county-based definition is appropriate, the Team suggests defining communities by individual main Islands.

Regarding the Data Amendment:

The Plan Team recommends that all vessels fishing in the US remote islands territories in the Council-s area obtain a permit and submit a logbook as a prerequisite to fish in those areas. The Team also recommends that the NWHI bottomfish daily logbook, or similar, be used to meet this requirement.

Regarding adding new species to the BMUS list:

The Team agreed to add the following species to the list:

Carangidae

Carangoides orthogrammus	Yellow-spotted Trevally
Caranx melampygus	Bluefin Trevally
Caranx sexfasciatus	Bigeye Trevally
Carangid (misc. and unidentified)	

Serranidae

Cephalopholis sonnerati	Tomato Grouper
Cephalopholis urodeta	Flagtail Grouper

Epinephelus hexagonatus	Starspotted grouper, Hexagon Grouper
Epinephelus howlandi	Blacksaddle Grouper
Epinephelus macrospilos	Snubnose Grouper, Black-spotted Grouper
Epinephelus merra	Honeycomb Grouper
Epinephelus octofasciatus	Eightbar Grouper
Epinephelus polyphekadion	Camouflage Grouper
Grouper (misc. and unidentified)	

Lethrinidae

Gnathodentex aurolineatus	Yellowspot Emperor, Striped Large-eye Bream
Gymnocranius microdon	Blue-spotted Large-eye Bream
Lethrinus atkinsoni	Pacific Yellowtail Emperor
Lethrinus erythacanthus	Orange-spotted Emperor
Lethrinus harak	Thumbprint Emperor, Blackspot Emperor
Lethrinus obsoletus	Orange-striped Emperor
Lethrinus olivaceus	Longnose Emperor
Lethrinus xanthochilus	Yellowlip Emperor
Monotaxis grandoculus	Humpnose Big-eye Bream, Bigeye Emperor
Lethrinid (misc. and unidentified)	

Lutjanidae

Aphareus furca	Blue Smalltooth Jobfish
Lutjanus bohar	Twinspot Snapper, Red Snapper
Lutjanus fulvus	Flametail Snapper
Lutjanus gibbus	Humpback Snapper
Lutjanus monostigmus	Onespot Snapper
Pristipomoides argyrogrammic	Blue Gindai
Lutjanid (misc. and unidentified)	