

GROUND FISH MANAGEMENT TEAM REPORT ON FISHERY ECOSYSTEM PLAN COORDINATED ECOSYSTEM INDICATOR REVIEW INITIATIVE

The Groundfish Management Team (GMT) received an overview of this agenda item from Dr. Kit Dahl, Pacific Fishery Management Council (PFMC) staff, reviewed the information in the briefing book, and offers the following thoughts.

Important Indicators for Groundfish Management

Indicators that have the greatest potential to inform better understanding of groundfish productivity would have the most relevance toward improved assessment and management of West Coast groundfish stocks. Given the abundance of available indicators, **the GMT recommends that focus be given to improving and/or expanding those indicators that have shown promise in regards to correlations with fisheries productivity.** For example, recruitment deviations are driven by environmental factors, and the Copepod Index (Peterson) might provide information relevant to recruitment of groundfish, as it has been shown to do for salmon. Copepod data is currently collected only off Newport, but effort could be expanded to other sites along the coast.

The GMT notes that seabird abundance indicators can be heavily influenced by terrestrial processes (e.g., predation at island nest sites) and may not necessarily reflect changes in marine conditions.

The GMT supports several suggestions made by the Salmon Advisory Subpanel (SAS) in their report ([Agenda Item D.1.a, SAS Report](#)). The SAS suggest that **river discharges of pharmaceuticals and chemical contaminants should be monitored** as indicators of near-shore water quality. The SAS points out that **an index reflecting the quality of upwelled water (nutrient concentration and dissolved oxygen content)** could be important in understanding system productivity. Finally, the GMT agrees with SAS that sea-surface temperature is not a substitute for **vertical temperature profiles, and that depth-profile sampling stations** should be established at locations of interest.

Additionally, having some information on the strength of other non-groundfish fisheries would be useful for the management of groundfish due to interactions in these fisheries. Interactions among fisheries often result in a spillover of effort from one to another; for example, poor salmon returns could result in increased effort in the open access sablefish fishery and the recreational groundfish fishery.

Coastal Community Vulnerability Indices

The GMT believes that the commercial component of the Coastal Community Vulnerability Indices has been well addressed, and recommends that indices for recreational fisheries be added. Considering indices for the recreational component is important because some coastal communities have higher reliance on recreational fisheries than on commercial fisheries (e.g., Westport, WA; Depoe Bay, OR; Berkeley, CA).

Recreational indices might include things such as the number of angler trips, or number of fishing licenses sold – these records exist, and may represent decades-long time-series. However, the GMT acknowledges that the economic contribution of recreational fisheries to communities is complex, in part because effort in the recreational fishery is affected by a combination of external factors (weather, fuel prices, etc.) and regulatory actions. There is a great deal of uncertainty in how these factors interact, however it is the GMT’s understanding that work is being conducted by the National Marine Fisheries Service (NMFS) Northwest Fisheries Science Center’s (NWFSC) Economic and Social Science Research group that may help shed some light on these issues.

Trans-boundary Stocks

The GMT notes that there are many assessed stocks for which only a portion of the stock is within PFMC’s jurisdiction. Understanding trans-boundary effects (i.e., stocks extending into Alaska, Canada, and/or Mexico) is a continual research recommendation by stock assessment review (STAR) panels. The GMT understands that efforts are underway to develop an Eastern North Pacific Ocean coast-wide stock structure for sablefish. This work involves collaboration with the Alaska Fisheries Science Center and Canadian scientists. The GMT encourages this collaborative effort, and expansion of this research to all appropriate stocks.

Sablefish Recruitment Indicators

The GMT supports the exploration by the NWFSC on modeling the relationship of environmental variables to sablefish recruitment. We note that the SSC has recommended technical refinements to the modeling team, and will be reviewing a revised model at the March 2017 Council meeting. The GMT encourages this effort and looks forward to hearing updates and providing comments as this work progresses.

Data Collection and Consistency in Reporting

An ongoing issue that the GMT has previously commented on is the continuity of data collection along the coast. Effort should be directed at filling spatial gaps, and towards consistency of data reporting among the states.

PFMC
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