

Development of a Research and Data Needs Database
for Use by the Pacific Fishery Management Council

A Research and Data Needs Database is being developed to aid the Pacific Fishery Management Council in identifying and prioritizing future research and data needs. Section 302(h)(7) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) states that Regional Fishery Management Councils shall:

“develop, in conjunction with the scientific and statistical committee, multi-year research priorities for fisheries, fisheries interactions, habitats, and other areas of research that are necessary for management purposes, that shall establish priorities for 5-year periods; be updated as necessary; and be submitted to the Secretary and the regional science centers of the National Marine Fisheries Service for their consideration in developing research priorities and budgets for the region of the Council.”

The Pacific Fishery Management Council (PFMC) has produced a prioritized research and data needs document by fishery management plan (i.e., Coastal Pelagic Species, Groundfish, Highly Migratory Species, and Salmon FMPs) every five years. The document also addresses Ecosystem, Marine Protected Areas, Social Science, and Economic needs. The most recent version is the [2018 Research and Data Needs document](#).

A database is being developed that will aid the Council in identifying and prioritizing research and data needs. The database structure is based on the database used by the North Pacific Fishery Management Council (NPFMC). The [Scientific and Statistical Committee \(SSC\) recommended this approach in 2018](#). A development team comprised of SSC members Dr. John Budrick, Mr. Alan Byrne, Dr. Marisol García-Reyes, Dr. Owen Hamel, Dr. André Punt, and Dr. Cameron Speir, and Mr. John DeVore, Council staff, are advising on the structure of the prototype database. Mr. Rick Busch and Mr. Josh Clemons, contractors for the Pacific States Marine Fisheries Commission with experience managing the NPFMC database, are working with the development team to design the Pacific Council Research and Data Needs database. Ms. Meisha Key is on contract to populate the database using the 2018 Research and Data Needs document and has been added to the development team.

The development team is working to develop a prototype database for the Council to consider when this item is considered at a future Council meeting (the current year-at-a-glance calendar indicates this item is a candidate for the March 2021 meeting). Beyond the basic structure of the database and how it best serves the Council, the Council needs to decide how future priorities for research and data needs are determined. The database is being designed to record Council priorities and those recommended by the SSC since that comports with the MSA mandate. However, there are options being considered by the development team to solicit advisory body recommendations directly through the database. The Council will be asked if they prefer that process or some other process for identifying priority research and data needs.

Structure of the Prototype Research and Data Needs Database

The prototype database is modeled after the Research and Data Needs database used by the NPFMC with many structural modifications that better suit the needs of the Pacific Council. The database currently maintains the basic structure of the 2018 Council Research and Data Needs document. However, structural modifications will be made as needed.

Each record in the database is a research project. The fields in the database include Title, FMP, Source Documentation, Area, Keywords, Related Council Action, Research Status, Council Priority, and SSC Priority (Table 1). The title field contains a descriptive title of the research project. The FMP field presents a dropdown menu for each of the four FMPs managed by the Council, as well as the Fishery Ecosystem Plan. A research project can inform multiple FMPs so this field allows for multiple choices. The Source Documentation field contains hyperlinks to archived documents that provide the context for the research project. For instance, the terms of reference for groundfish and CPS assessments require a listing of research and data needs to improve future assessments of the stock being assessed. The Source Documentation field would, in this case, provide a link to the assessment to allow a better understanding of the importance of that project given the need to assign a priority ranking. The Area field identifies the specific geographic focus area, which may only apply to some projects. Menu options for the Area field are being customized to correspond to management areas used in Council management (e.g., S of 40°10' N lat., waters off Oregon, Eastern Pacific Ocean, N of Cape Falcon, etc.). The Keyword field contains terms that would aid in searching for projects in the database. For instance, projects that would inform assessments or management considerations for Pacific sardine could be found in the database by querying for "Pacific sardine". Users will also be able to search using attributes from multiple fields allowing a more refined search. For example, typing in the species name and selecting an attribute from the Area field could return projects relating to Pacific sardine in waters off Oregon. Related Council Action attributes indicate the type of action/decision potentially informed by the research project. For instance, a project designed to improve a stock assessment might list a Council action/decision such as Harvest Specifications since assessments are a fundamental information source for deciding harvest specifications. Multiple Council Actions could be chosen for a particular research project. The Research Status field maintains the same attributes used in the NPFMC database: Pending, No action, Listed on RFPs, Partially underway, Underway, and Completed. These attributes can be modified to better suit Pacific Council needs and preferences. Council Priorities list the priority rankings for research projects determined by the Council. The current attributes are High, Medium, and Low, and the Council could assign a different priority ranking scheme if desired. For instance, the Council could distinguish priorities in a binary scheme of high priority or no ranking at all. As in all the fields and attributes developed in the prototype database, the structure can be modified to best suit Council needs. The SSC Priority field is advisory to the Council and has the same High, Medium, and Low attributes.

The development team recommended the database also capture the Research and Data Needs priorities of each Council management/technical team (Table 2). Council staff who serve each management team would have administrative rights to set the priorities for those advisory bodies they staff. The management/technical teams with priority fields developed in the prototype

database include the Coastal Pelagic Species Management Team (CPSMT), Ecosystem Working Group (EWG), Groundfish Management Team (GMT), Habitat Committee (HC), Highly Migratory Species Management Team (HMSMT), and the Salmon Technical Team (STT). These priorities would be advisory to the Council. The Council will be asked if they want to solicit the advisory body priorities through the database or using a separate Council process when the decision and guidance on structuring the database is directly solicited in a future Council action. For example, if this is not considered a useful adjunct to the database, advisory bodies could recommend projects and priorities for recommended projects to the SSC and the Council in a Council process outside the database and the Council and SSC priorities could be informed by this input and captured in the database. Alternatively, if the Council wants to expand this concept to include capturing the advisory bodies priorities, such as the Coastal Pelagic Species Advisory Subpanel or the Groundfish Advisory Subpanel, these priority fields could be added to the database as well.

The development team recommends there be a limited number of people with administrative rights to make changes to the database to maintain order and consistency in the database. The SSC would be the custodians of the database with administrative rights to add projects and specify SSC priorities. Specifically, the development team recommends the SSC Subcommittee chairs and Council staff would have administrative rights to add projects and assign priorities on behalf of the SSC. Council staff would also have the administrative rights to capture Council priorities on behalf of the Council. If the Council desires to capture the priorities of advisory bodies in the database, Council staff who serve those advisory bodies would have administrative rights to add the priorities for research projects that are relevant to the FMPs for which they provide advice. Every advisory body in this case would also have the ability to prioritize Ecosystem projects.

The development team is hopeful the Research and Data Needs database will be a useful tool for the Council. Research projects could be added and prioritized more frequently than the current process of once every five years. Conceptually, the future process for establishing Council priorities for research and data needs can be much less burdensome using a database and projects can be much more readily tracked. This database would also be conceptually useful to outside research and academic institutions that could conduct the research with more real time information to focus their research efforts to better inform future Council actions.

Table 1. Proposed structure of the PFMC Research and Data Needs database. Each record is a research project.

Title	FMP	Source Documentation	Area	Keywords	Related Council Action	Research Status	Council Priorities	SSC Priorities
Descriptive title of the research project	Coastal Pelagic Species Ecosystem Groundfish Highly Migratory Species Salmon	Rich text field to enable hyperlinks to archived documents with context for the research or data need	Designation where an area-specific research project will occur defined by current management boundaries	Customized to aid in searches (e.g., species name, stock assessment, trawl survey)	How results from a research project are anticipated to be used by the Council (e.g., a new survey designed to inform future <u>harvest specifications</u>)	Pending No action Listed on RFPs Partially underway Underway Completed	High Medium Low	Admin rights to add research projects; Admin rights to prioritize all projects

Table 2. Proposed addition to the database to solicit advisory body priority recommendations.

PFMC Advisors					
CPSMT Priorities	EWG Priorities	GMT Priorities	HC Priorities	HMSMT Priorities	STT Priorities
Admin rights to prioritize CPS and Ecosystem projects	Admin rights to prioritize Ecosystem projects	Admin rights to prioritize Groundfish and Ecosystem projects	Admin rights to prioritize Habitat and Ecosystem projects	Admin rights to prioritize HMS and Ecosystem projects	Admin rights to prioritize Salmon and Ecosystem projects