



Research and Data Needs

Top Science and Management Challenges

Agenda Item D.3 November 2024

Research and Data Needs

Required by Magnuson-Stevens Act to develop

“multi-year research priorities for fisheries, fisheries interactions, habitats, and other areas of research that are necessary for management purposes.”

Council Operating Procedure 12

Update and Communication of Research and Data Needs

Standard Guide for ~ 5-year review cycle

PFMC website: Resources – Research and Data Needs

<https://www.pcouncil.org/resources-archives/research-and-data-needs/>

Last completed in 2018, Final Document (240 pgs)

Transition to Research Priorities Database (~350 RDNs)

Research and Data Needs

Feedback: 2018 Review Cycle

NMFS request to be “better prioritized and streamlined”, and to “highlight the very highest priorities that the Council and Advisory bodies consider as needing progress over the next ~5 years.”

SSC noted “its length and complexity makes identifying high priority research and data needs challenging.” and “should be commensurate with its usefulness”.

The SSC recommended “A much shorter 2023 document with fewer priorities could be updated more frequently to remain current with evolving Council research and data needs.”

The SSC commented on potentially reviewing other Councils’ research and data needs processes and prepare recommendations for a revised process.

(Agenda Item C.4, June 2018)

Research and Data Needs

Other Regional Fishery Management Councils

North Pacific

<https://www.npfmc.org/how-we-work/research-priorities/>

Western Pacific

<https://www.wpcouncil.org/wp-content/uploads/2022/01/2021-09-27-MSRA-Research-Priority-2020-2024.pdf>

Gulf of Mexico

<https://gulfcouncil.org/wp-content/uploads/I-5-GMFMC-Updated-List-of-Fishery-Research-and-Monitoring-Priorities-2015-2019.pdf>

South Atlantic

https://safmc.net/documents/a04_sgap_draftcitsciresearchneeds_03-22-2018-pdf/

Mid-Atlantic

https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/61d45ad56093c611d2ec796e/1641306837901/Updated_2020-2024+Research+Priorities+Document_01_2022.pdf

New England

https://d23h0vhsm26o6d.cloudfront.net/10_NEFMC-Research-Priorities-and-Data-Needs_2017-to-2021-DRAFT.pdf

Research and Data Needs

Tiered Approaches Used

North Pacific

Top Twelve Research Priorities for 2024-2028

Research topics in four priority categories; one noted as highest priority

Full RDN organized in online public database

Western Pacific

Research priorities aligned with four of their five programs

Under each program are thematic research areas

with information gaps and associated research topics

Gulf of Mexico

Research priorities under four main sections/categories

Mid-Atlantic

Research themes that cross Council-managed species

List of research priorities identified by theme/species

New England

Organized by research theme

Some sub-tier by FMP or species



Research and Data Needs

Three General Tiers

1.) Challenges

High-level research need;
across Fishery Management Plans

2.) Associated Key Topics

Actual science/management examples
within each Challenge

3.) Research and Data Needs

Specific projects or data which could
best address the topic/challenge, as
potential solutions to support
the Council's objectives.

- 1. Challenge
 - a. Topic
 - i. RDN
 - ii. RDN
 - iii. RDN, etc.
 - b. Topic
 - i. RDN
 - ii. RDN, etc.
- 2. Challenge
 - a. Topic
 - i. RDN
 - ii. RDN, etc.
 - b. Topic
 - i. RDN, etc..

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Situation Summary:

Identify top science/management challenges

Weigh in on key topics associated with those challenges

Attachment 1: Staff perspectives on challenges

Attachment 2: Framework for RDN review cycle

April 2025 – Preliminary Preferred Alternative (PPA)

SSC recommendations on RDNs

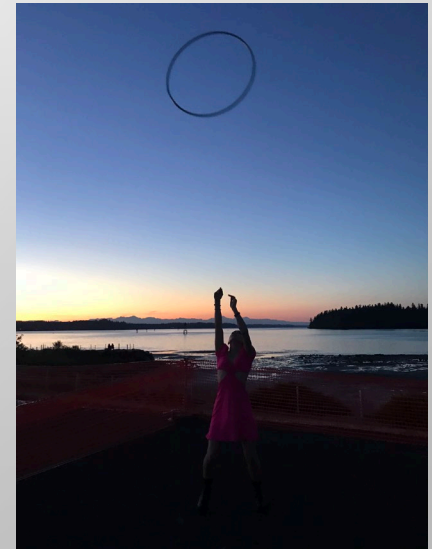
June 2025 – Final Preferred Alternative (FPA)

Final list of RDNs

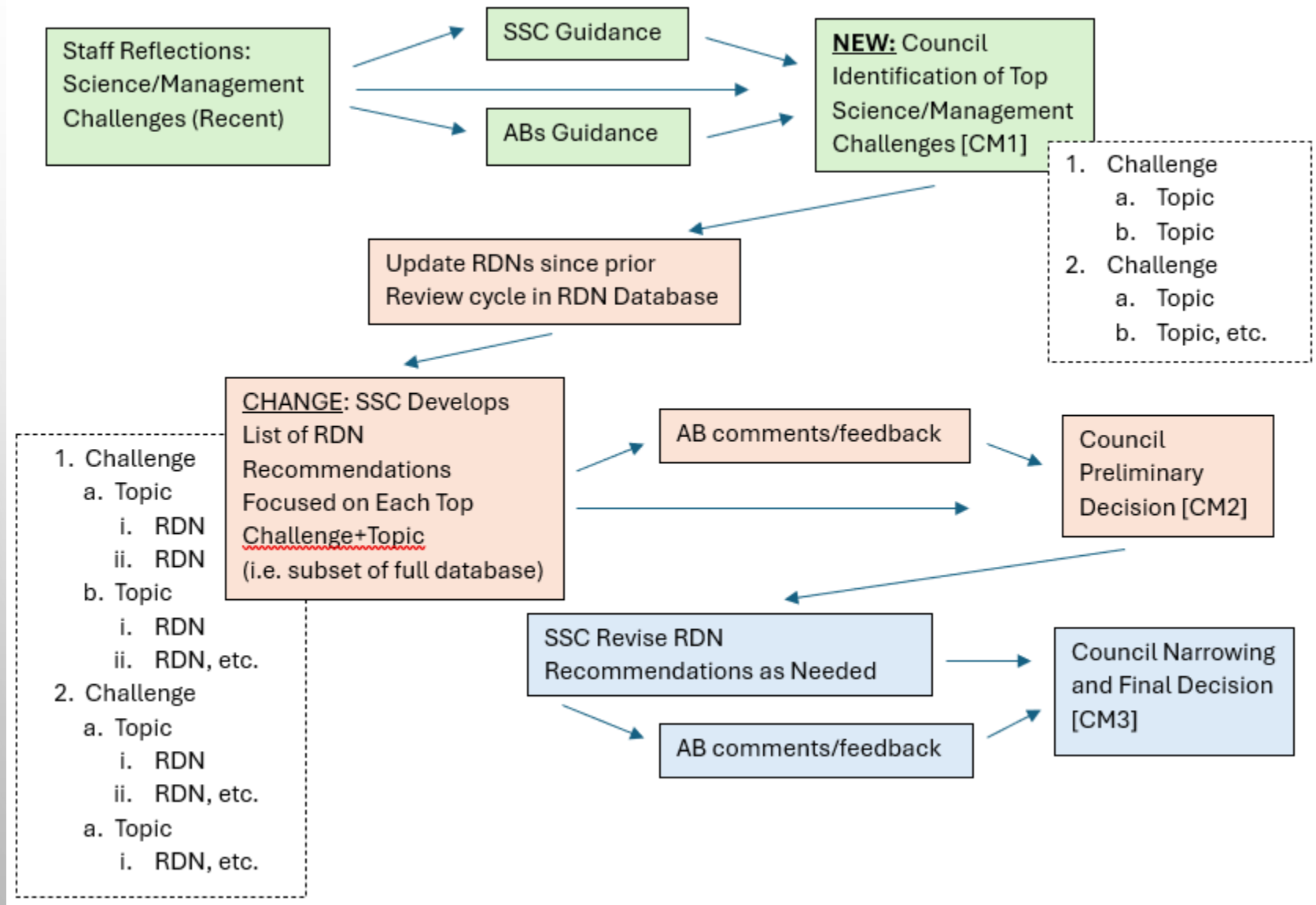
Letter of Transmittal to NMFS

Broader Outreach Distribution:

Universities, Research Boards, Agencies, etc.



Framework of Review Cycle



Research and Data Needs

Attachment 1

PFMC Staff compilation of perspectives from Council in recent years

1.) Draft Challenges

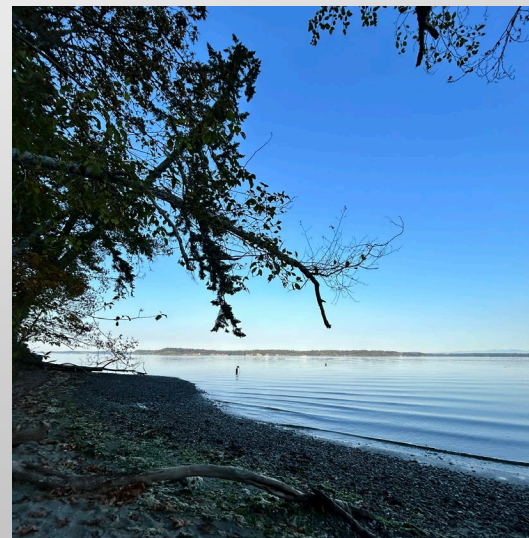
Data Limited Stocks

Fishery Impact Projections

Socioeconomic Resilience

Intersection of Ecosystem Dynamics and Fishery Science/Management

2.) Associated Key Topics



Draft Challenge 1.

Data limited stocks: The Council manages well over one hundred species along the U.S. west coast, many of which can be considered data limited for a variety of reasons. This presents management challenges in the form of stock status and setting of acceptable fishing levels.

Topics	FMP Examples	Science and/or Management
Need for life history data to improve stock assessments	HMS, Groundfish	Science
Need improved abundance indices including fishery independent methods such as close-kin-mark-recapture (CKMR)	HMS	Science
Improve and evaluate existing abundance forecast models	Salmon	Science
Develop models to account for natural and hatchery distinction	Salmon	Science/ Management
Cohort reconstructions for Council-managed salmon stock complexes	Salmon	Science
Tagging and marking: maintaining and improving current coded-wire-tag-based strategies	Salmon	Science
Improvements to identification of stock structure and boundaries (e.g. stock definition, Pacific sardine, etc.)	Groundfish, CPS	Science/ Management
How to best utilize data moderate and data-poor stock assessment methodologies in fishery management	Groundfish	Science/ Management
Survey limitations to assess groundfish populations (e.g. coastwide fixed gear survey)	Groundfish	Science
Use of AT survey estimates for setting harvest specifications for other CPS species (e.g. northern subpopulation of northern anchovy)	CPS	Science/ Management
Assessment of nearshore biomass for CPS stocks	CPS	Science

Draft Challenge 2.

Fishery impact projections: Many Council-managed fisheries rely upon the projection of fishery impacts associated with trip limits, bag limits, season, areas, and other factors. These require research and data to inform a number of assumptions utilized in estimation.

Topics	FMP Examples	Science and/or Management
Better understand movement and changes in distribution, especially in relation to climate forcing	HMS, Salmon	Science
Conduct management strategy evaluations to support harvest strategy development	HMS, Groundfish	Management
Improve and evaluate existing harvest/impact models	Salmon, Groundfish	Management
Develop models to account for natural and hatchery distinction	Salmon	Science/Management
Improvements to discard mortality estimations (e.g. surface release, release at depth, etc.)	Groundfish	Science/Management
Understanding closed area impacts on stocks	Groundfish	Management
Evaluate methods for apportionment of biomass within U.S. waters (e.g. values used in DISTRIBUTION factor)	CPS	Management
Use of E_{MSY} and underlying assumptions in Pacific sardine harvest control rule	CPS	Science/Management
Develop ways to use ecosystem indicators to guide management decisions	FEP	Management
Better understand how climate variability and climate change affect the distribution and availability of target stocks and bycatch species	FEP	Science/Management
Floating offshore wind impacts to habitat and fisheries		Science
Offshore wind: cumulative impacts analysis and data gaps		Science

Draft Challenge 3.

Socioeconomic resilience: The social and economic effects of Council actions extend beyond the measurement of economic impacts. The resilience of communities and fishing sectors to the effects of change is taking on increasing importance.

Topics	FMP Examples	Science and/or Management
Develop management strategies that are robust to forecast errors	Salmon	Science/ Management
Improvements to assessing management risk (P*) assumptions	Groundfish	Management
Understanding economic impacts of recreational fisheries at fine scale (e.g. CPFV fishery, for ports, etc.)	Groundfish	Management
Integration of citizen science data collection into stock assessments (e.g. CCFRP, etc.)	Groundfish	Science
Improve understanding of socio-economic dynamics of CPS fleets	CPS	Management
Develop gear/fishing methods to exploit underutilized stocks while avoiding protected species bycatch	HMS	Science
Develop system-level methods to understand fishing community vulnerability and resilience	FEP	Science/ Management

Draft Challenge 4.

Intersection of ecosystem dynamics and fishery science/management: The effects of a more dynamic or changing ecosystem raise challenges for both fishery science and management to be responsive. Many challenges cross multiple FMPs.

Topics	<i>FMP Examples</i>	<i>Science and/or Management</i>
Systematic evaluation of conservation objectives for salmon stocks managed under the FMP	Salmon	Science/ Management
A better understanding of marine and freshwater conditions and their impacts on salmon populations. Use indicators of these conditions to inform stock distributions and thus vulnerability to fisheries.	Salmon	Science/ Management
Ability to react faster to new information (e.g. fishery changes, science, etc.)	Groundfish	Management
Time-varying sigma review/revisions	Groundfish	Science/ Management
Integration of ecosystem indicators and climate change impacts into stock assessments; Develop more robust methods to integrate ecosystem information into stock assessments	Groundfish, Salmon	Science
Better understand how ecosystem conditions affect fishery dynamics	FEP	Management
Develop alternative stock assessment methods that account for ecosystem dynamics	FEP	Science
Offshore wind ecosystem indicators (e.g. Appendix Q of the most recent IEA report)		Science

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Solicited Advisory Body Guidance

Top Challenges

- Do these cover high priority, broad challenges experienced by the Council in recent years?
- Are they relevant to the next five years?
- Additional perspective to consider?

Associated Key Topics

- Would you add or subtract any key topics?
- Would you organize them differently than we have?
(i.e. topic should be listed
under a different Challenge “category”)



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Council Action:

Adopt top science/management challenges

Provide input on key topics associated with each challenge

April 2025 – Preliminary Preferred Alternative (PPA)

June 2025 – Final Preferred Alternative (FPA)

