

# Bering Sea Fishery Ecosystem Plan

North Pacific  
Fishery Management Council  
January 2019



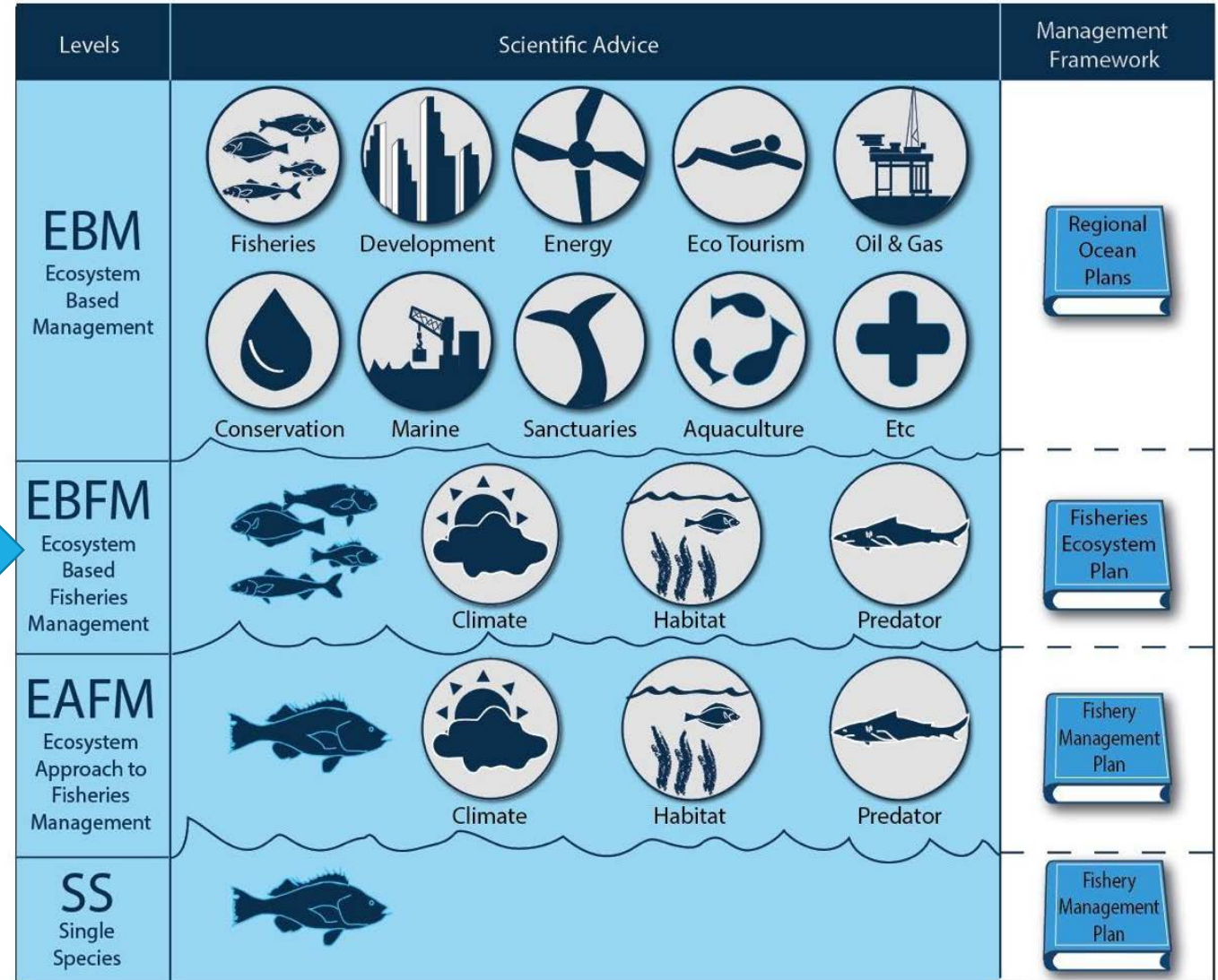
# Bering Sea Fishery Ecosystem Plan

Diana Evans , BS FEP Team Co-Chair

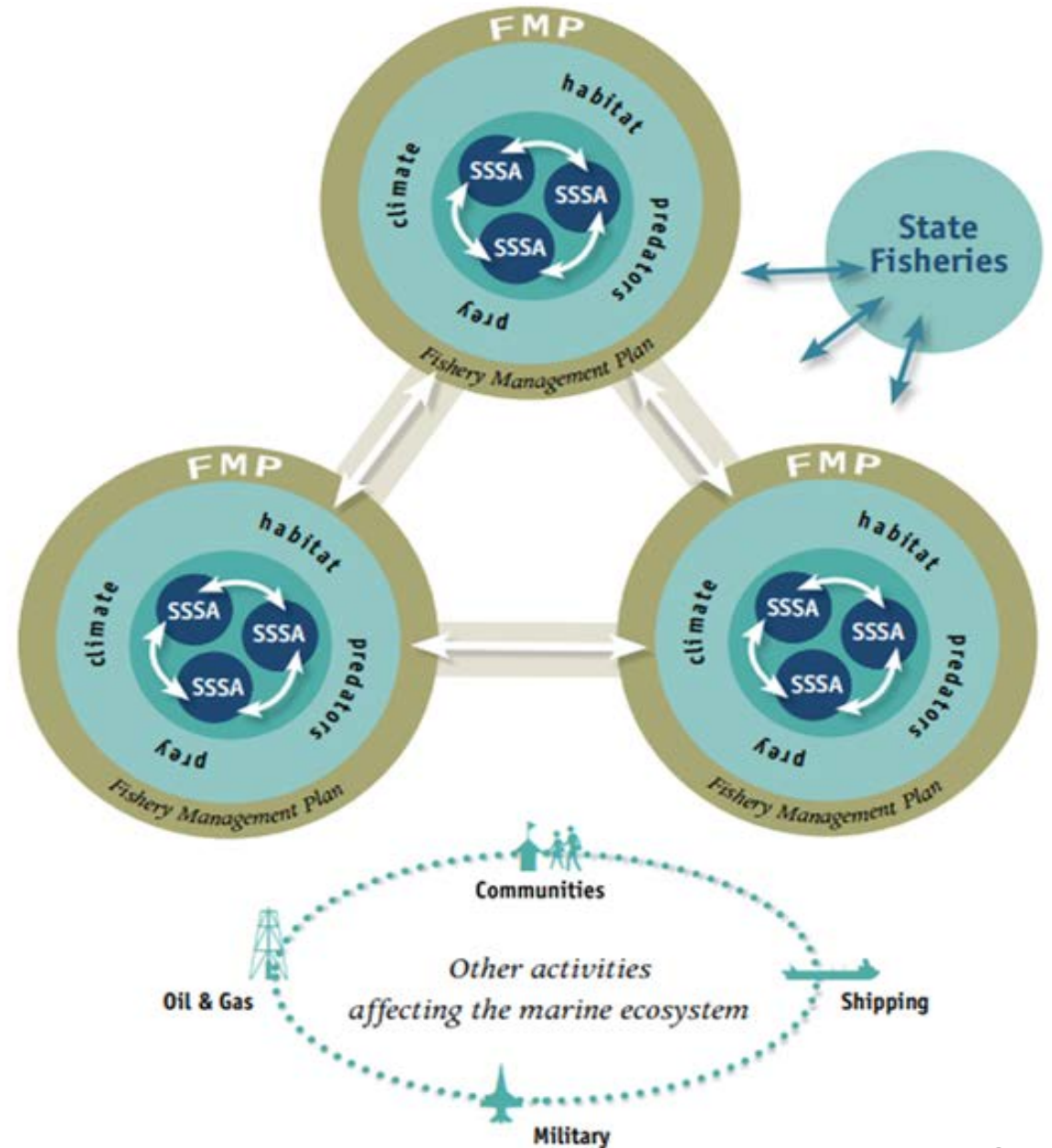
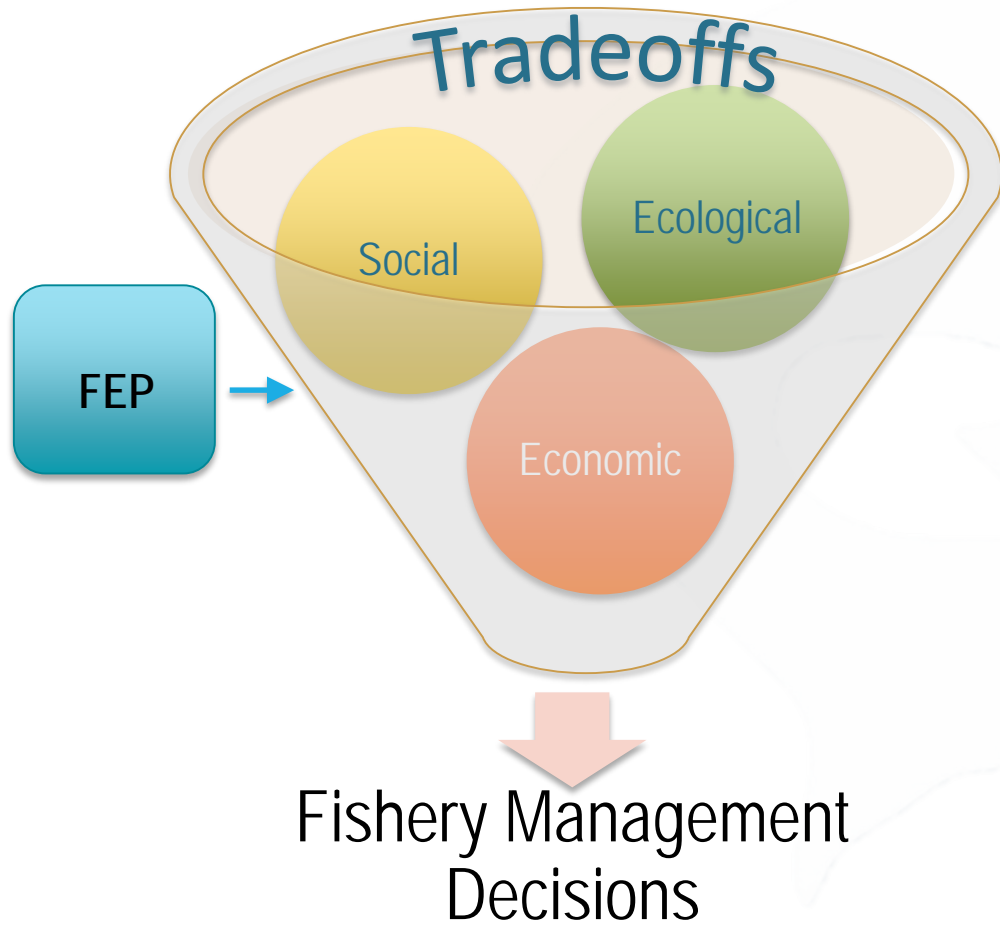
Presentation to the BS FEP Climate Change Action module Taskforce, January 2020

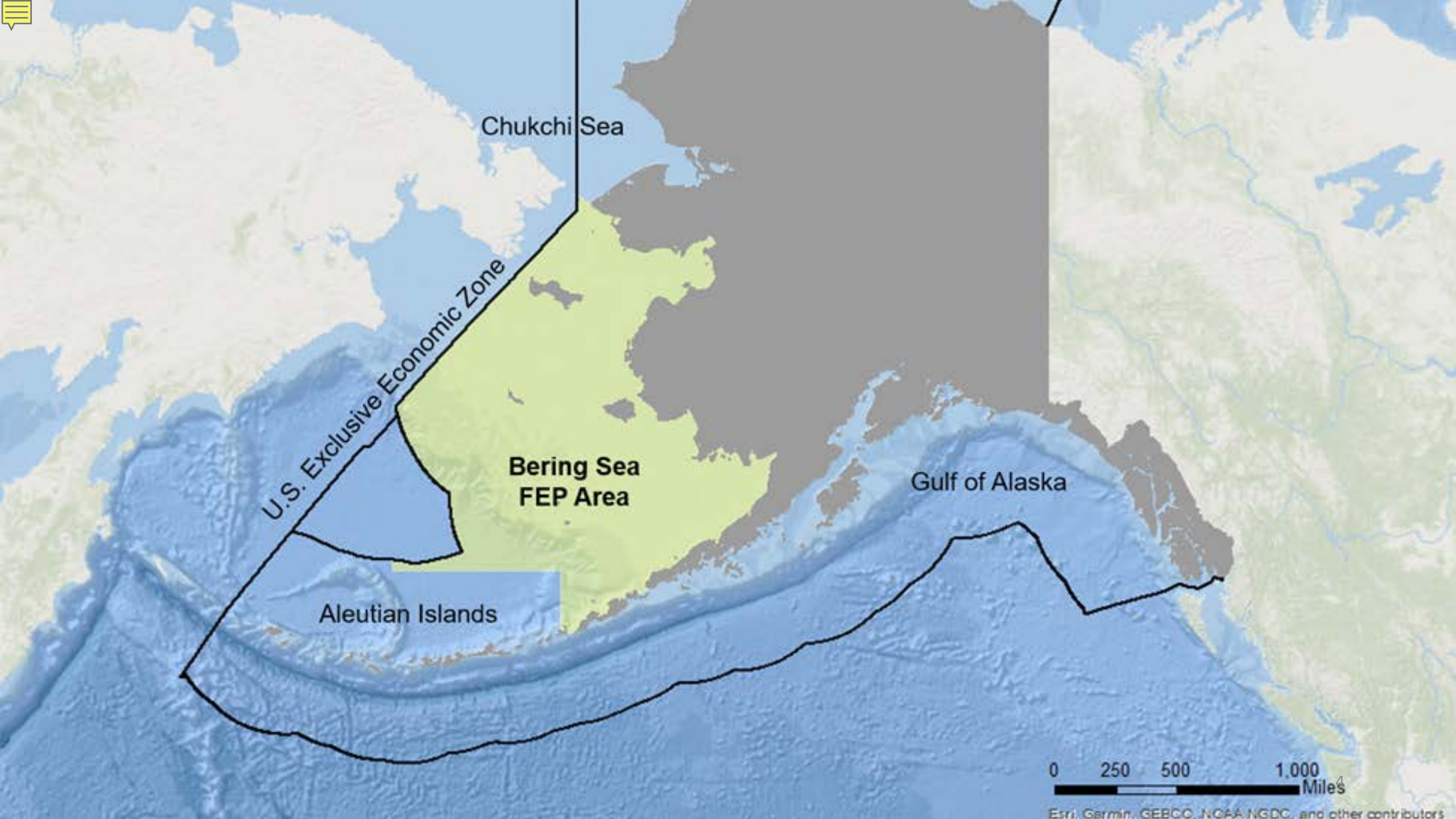
# What is a FEP?

- FEPs are a method for putting ecosystem-based fishery management (EBFM) into action
- EBFM considers interactions among ecological, economic, social and cultural components of a system



# What is a FEP?





Chukchi Sea

U.S. Exclusive Economic Zone

**Bering Sea  
FEP Area**

Gulf of Alaska

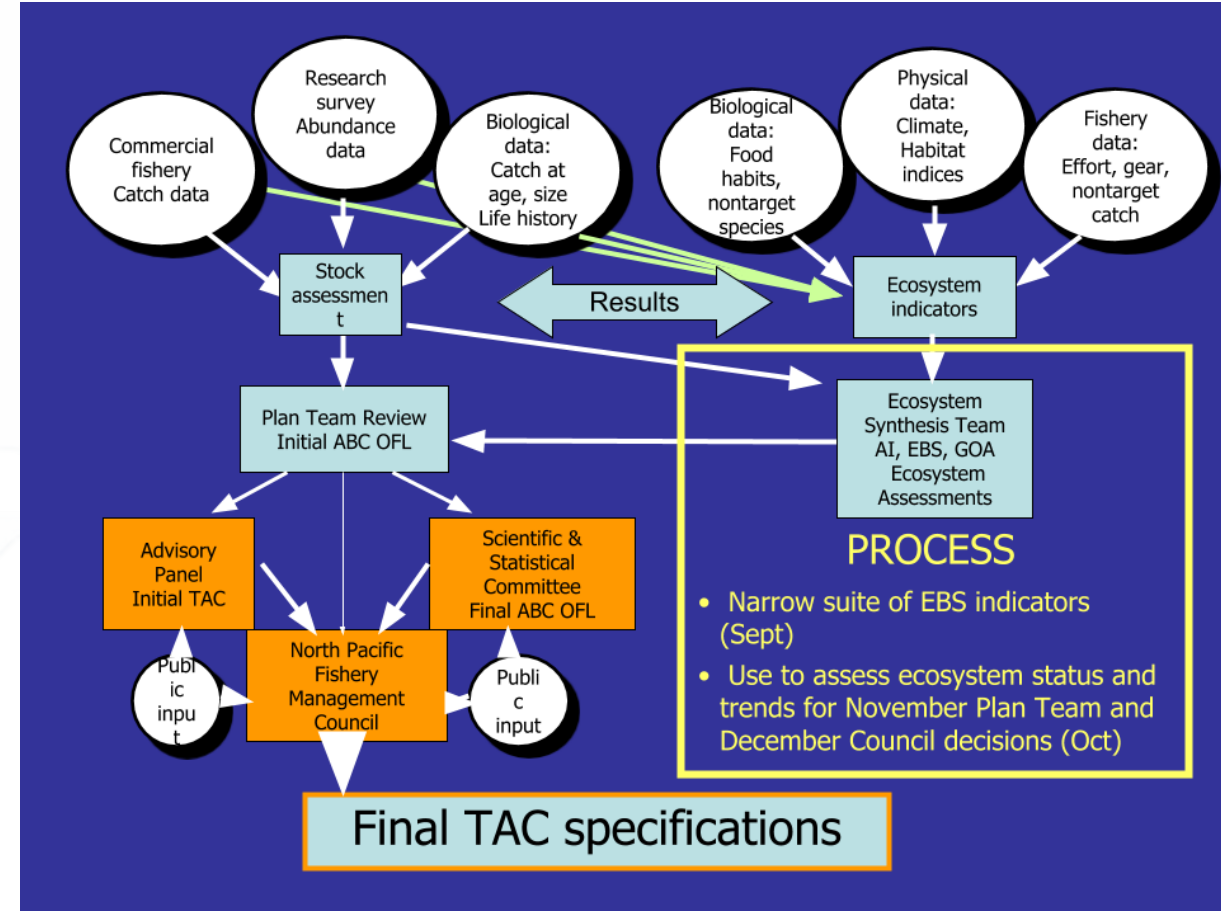
Aleutian Islands

0 250 500 1,000  
Miles

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

# Why did the Council develop a FEP for the Bering Sea?

- NPFMC has a 30+ year history of EBFM implementation and EBFM management measures
  - Ecosystem OY, forage fish ban, Ecosystem Committee, Ecosystem Status Reports, Ecosystem Considerations for individual stocks
- “Organically-developed” best practices and procedures that evolve over time
  - e.g. the request for an October briefing from the ESR team when unusual environmental signals are evident).
- What would an FEP add?



## Why did the Council develop a FEP for the Bering Sea?

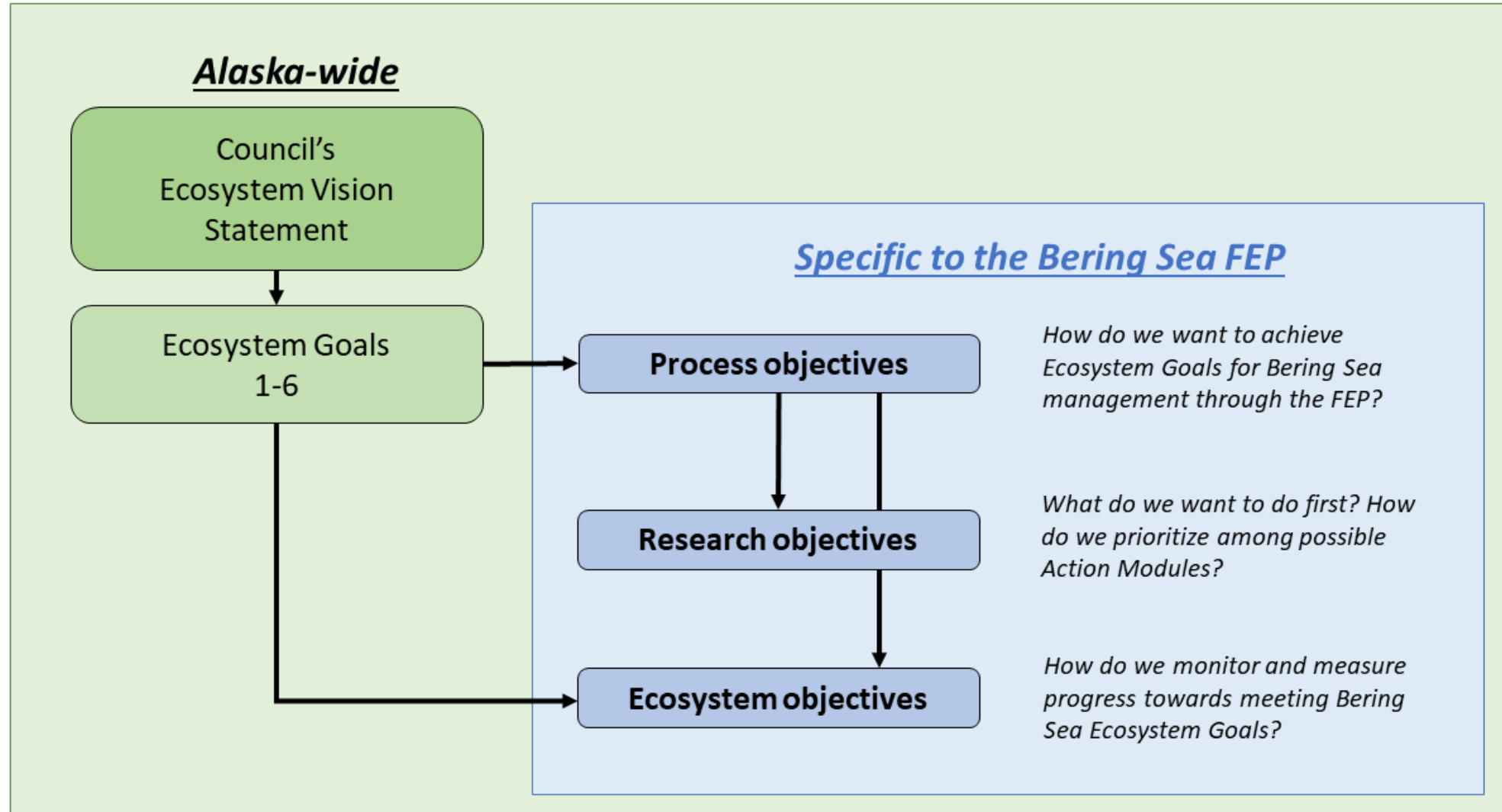
- Serve as a **communication tool** for ecosystem science and Council policy
- Create a **transparent public process** for the Council to identify ecosystem values and management responses
- Provide a **framework for strategic planning** that would guide and prioritize research, modeling, and survey needs
- **Identify connected Bering Sea ecosystem components**, and their importance for specific management questions
- Assess Council management with respect to ecosystem-based fishery management best practices, and **identify areas of success and gaps** indicating areas for improvement on a regular basis
- Provide a **framework for considering policy options** and associated opportunities, **risks, and tradeoffs** affecting FMP species and the broader Bering Sea ecosystem
- **Build resiliency of Council management strategies**, and options for responding to **changing circumstances**

# FEP explicitly includes the human dimension

- Core FEP defines LK and TK distinctly, with the intent to work towards formalizing their use and review alongside natural and social science

Local Knowledge	Traditional Knowledge
<ul style="list-style-type: none"><li>• Close environmental observations</li><li>• Place-based</li><li>• Empirical</li><li>• Pragmatic</li><li>• Often inter-generational</li></ul>	<ul style="list-style-type: none"><li>• A living body of knowledge</li><li>• Acquired through long-term sociocultural, spiritual, and environmental engagement</li><li>• Defines human – animal reciprocal relationships</li><li>• Defines human – human kinship and reciprocity</li><li>• Embodies rules about right conduct that intertwine the pragmatic and spiritual</li><li>• Transmitted inter-generationally through oral history and ritual</li><li>• Rooted in time and place, while having wide applicability</li><li>• Rooted in tradition, while adaptable and dynamic</li></ul>

# BS FEP Goals and Objectives







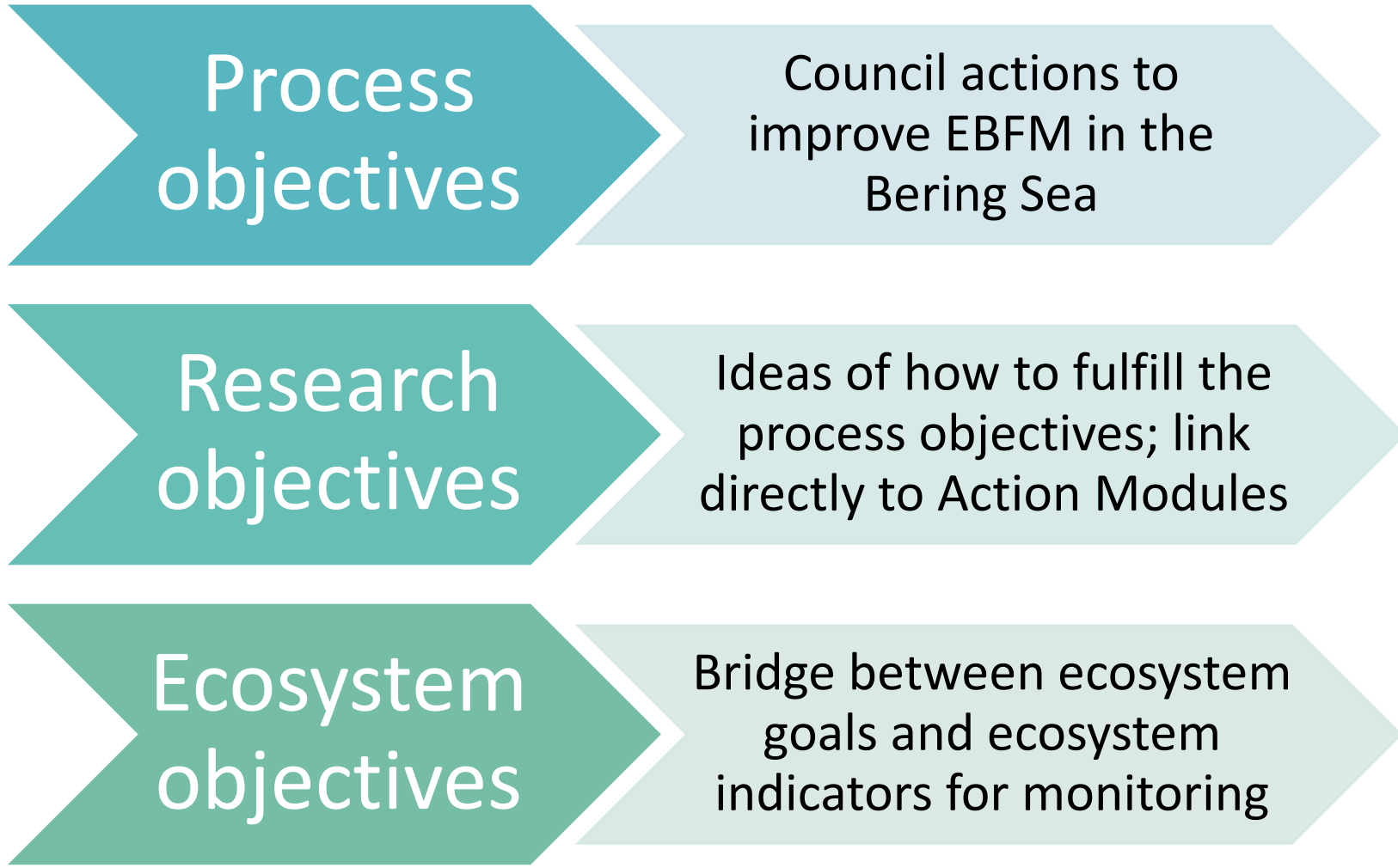
# Ecosystem Goals

*FEP also identifies ecosystem objectives under each of these ecosystem goals*

1	Maintain, rebuild, and restore fish stocks at levels sufficient to protect, maintain, and restore food web structure and function;
2	Protect, restore, and maintain the ecological processes, trophic levels, diversity, and overall productive capacity of the system;
3	Conserve habitats for fish and other wildlife;
4	Provide for subsistence, commercial, recreational, and non-consumptive uses of the marine environment;
5	Avoid irreversible or long-term adverse effects on fishery resources and the marine environment;
6	Provide a legacy of healthy ecosystems for future generations.



# Three types of objectives in BS FEP

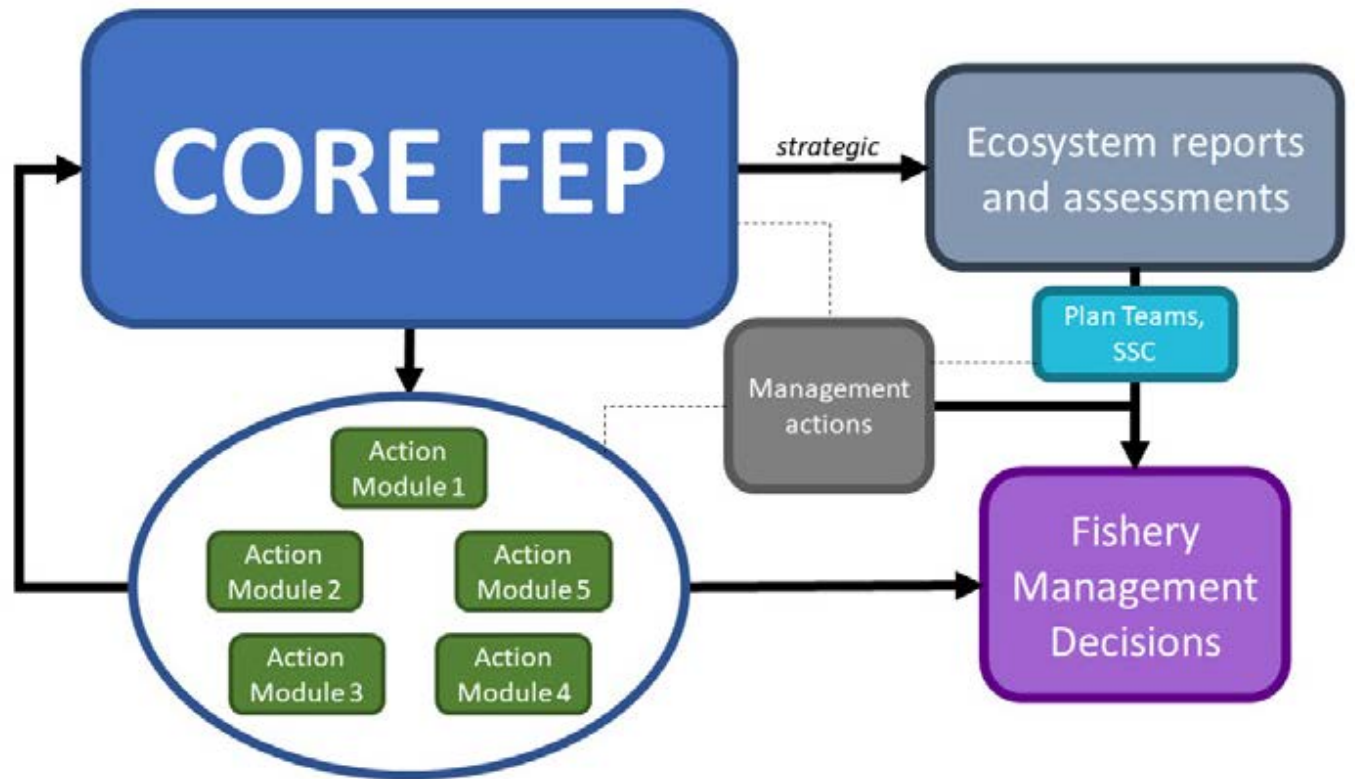


BS FEP  
Process  
Objectives  
relevant to  
current Action  
Modules

5. Improve incorporation of local knowledge (LK) and traditional knowledge (TK) in Council management for the Bering Sea ecosystem
6. Facilitate and organize communication of ecosystem science, LK, TK, and relevant Council policy between scientists, communities, and decision makers
12. Establish a process to use ecosystem information to inform decisions for adaptive management, including to address changing circumstances under novel or intensified stressors.
13. Provide a framework for considering management strategies and associated opportunities, risks, tradeoffs, and cumulative effects affecting Council-managed species and the broader Bering Sea ecosystem, with consideration for ecological, economic, social, and cultural factors of fishery harvest.

## Structure of the Bering Sea Fishery Ecosystem Plan

- Strategic planning document
- Action informing but not action forcing
  - Management action continues to occur through the FMPs



# Core FEP and Action modules

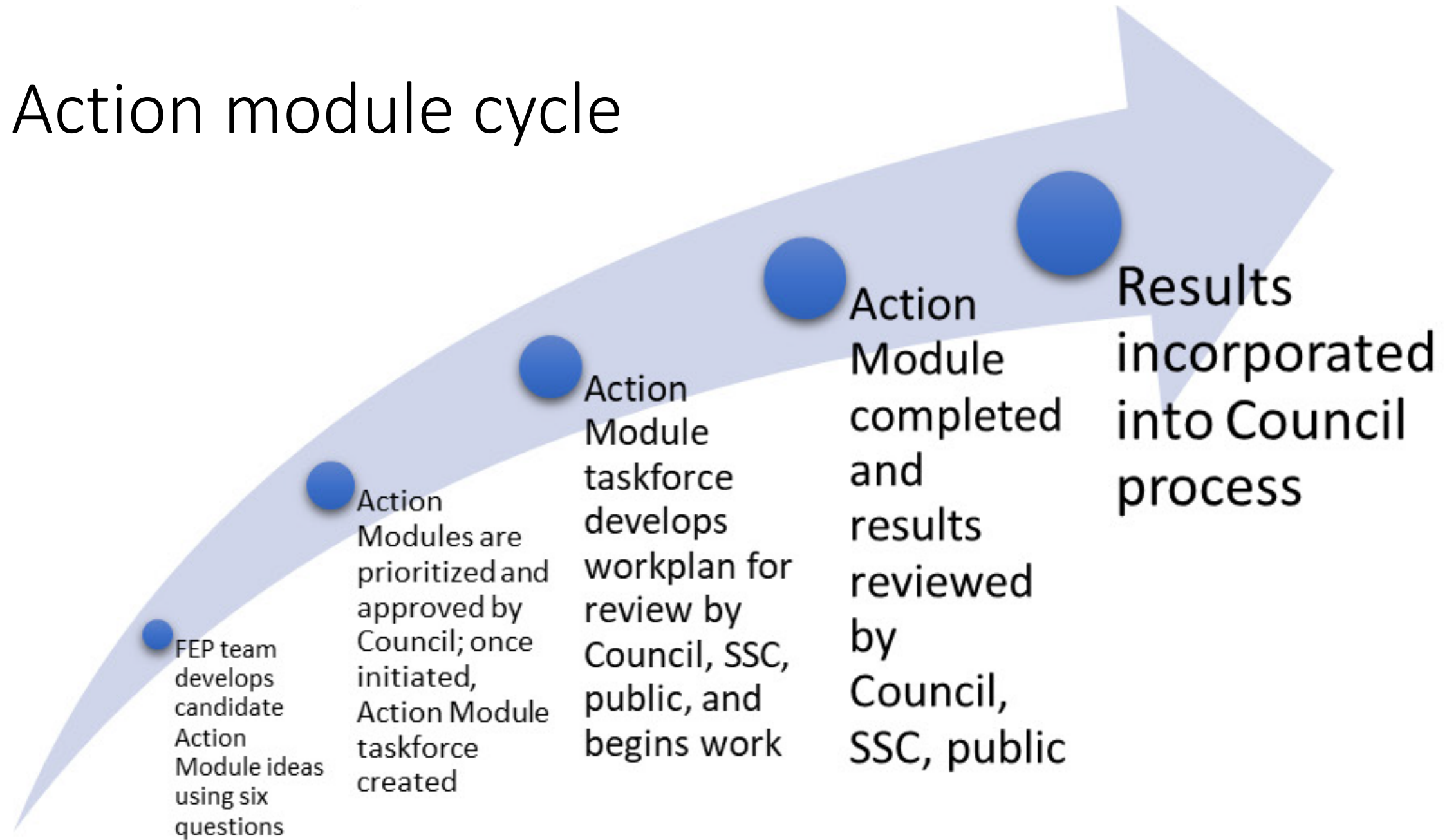
## Core FEP

- Contains strategic components of FEP
- Identifies goals and objectives
- Describes how FEP works as a framework process

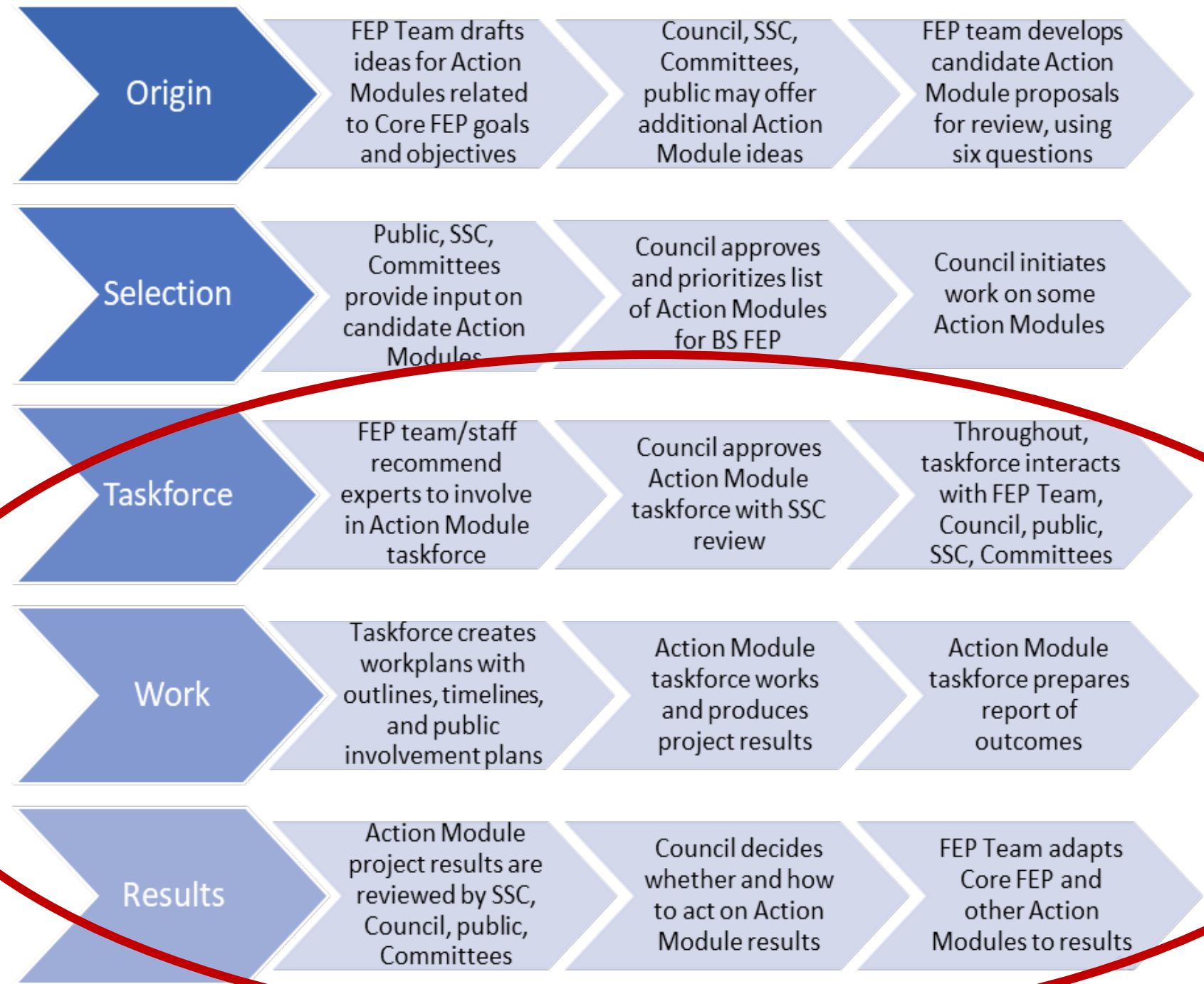
## Action modules

- Specific analyses or research efforts approved by the Council as valuable
- Council initiates individual modules when resources allow
- Each has its own scope, tasking, timeline
- Directly linked to FEP objectives
- Designed so that outcomes will be useful to the Council decision process

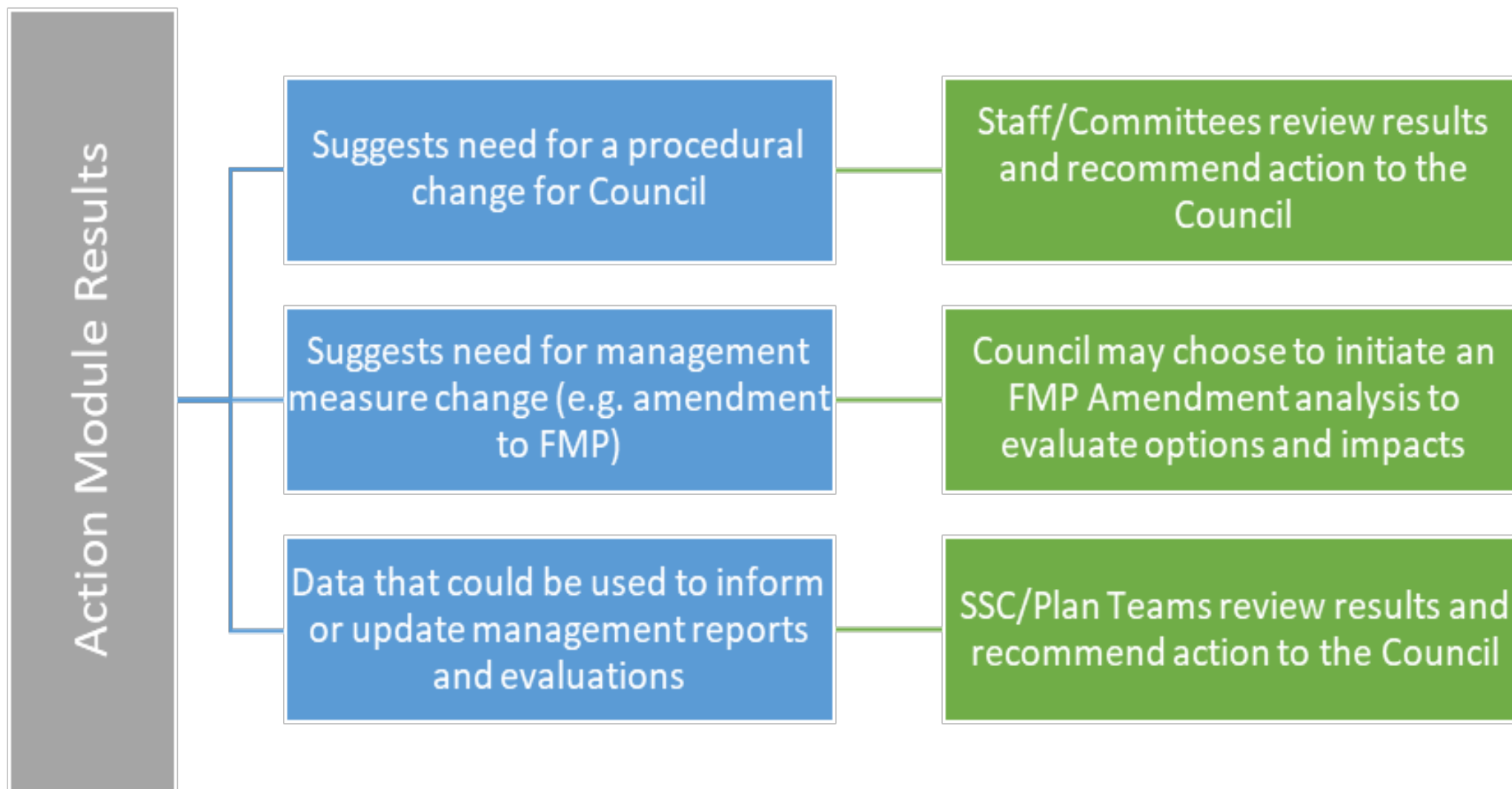
# Action module cycle




# Action Module Cycle



# Elements of Action modules, and how used







# Five Action Modules approved in the FEP

*first two initiated by the Council in December 2018*

Climate change

Local, Traditional Knowledge / Subsistence

EBFM gap analysis

Interdisciplinary conceptual models

Research

**Action Module Workplan:**  
Evaluate effects of climate  
change and develop  
management  
considerations

# GOAL:

“support climate change adaptation pathways and long-term **resilience** for the coupled social-ecological system of the Eastern Bering Sea.”

- ✓ **synthesize current knowledge** regarding climate change effects on the EBS system,
- ✓ **identify potential climate-resilient management measures** that can improve adaptive capacity and avoid maladaptation
- ✓ **evaluate the risk, timescale, and probability of success of various climate-resilient management policies** under future scenarios of change.

**Policy relevant not policy prescriptive**

*(climate-resilient management would go through the existing Council process)*

**Action Module Workplan:**  
Develop protocols for  
Local Knowledge,  
Traditional Knowledge, and  
Subsistence



# Action Module Goal

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- To develop protocols for using local knowledge (LK), traditional knowledge (TK) in management and understanding impacts of Council decisions on subsistence resources, users, and practices.
- Positively inform the overall Council process and decision-making structure.
- Provide a **roadmap for operationalizing LK and TK** as well formulating methods for **assessing the likelihood a given Council action may affect subsistence.**

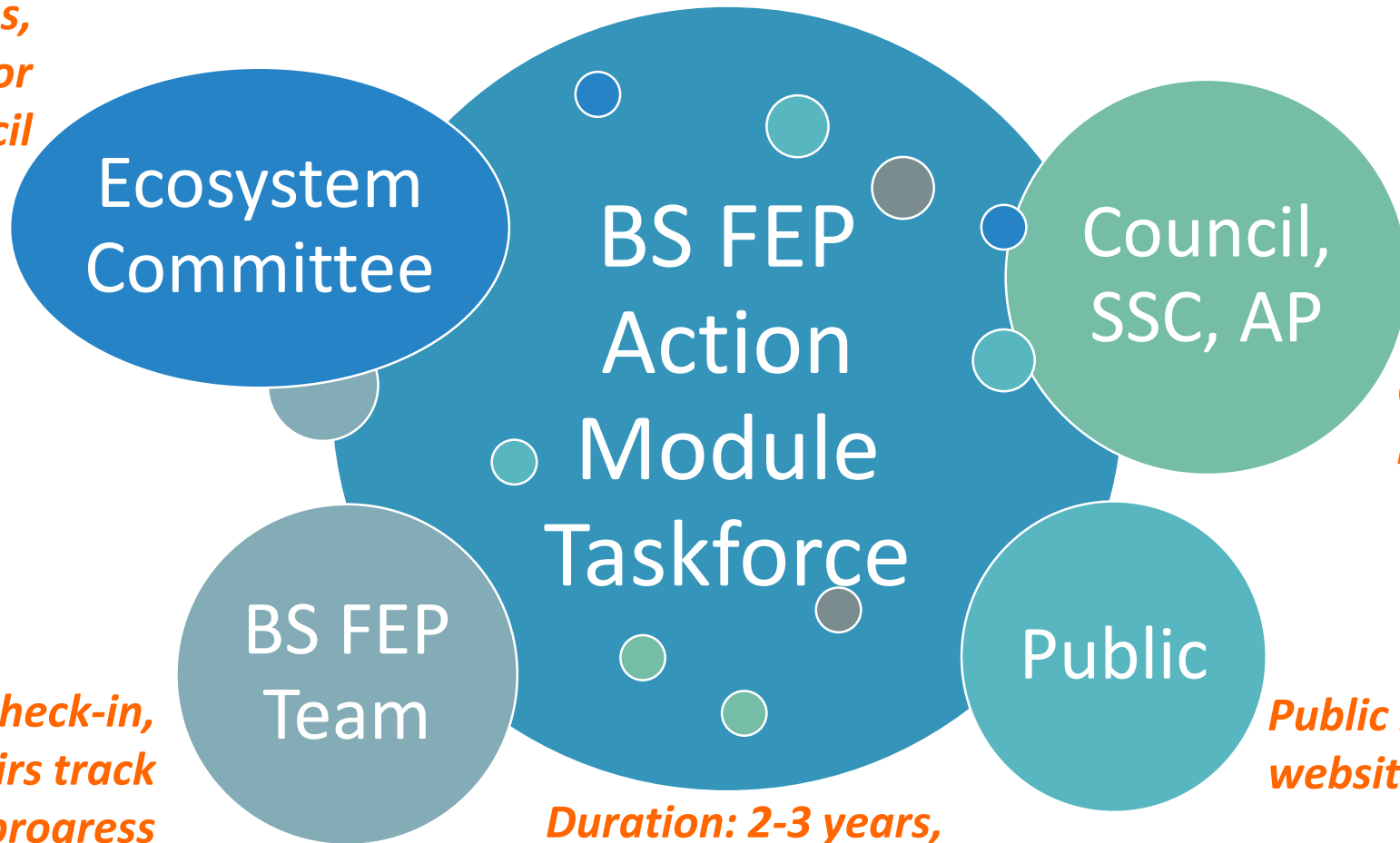


# Public involvement, outreach and communication key component of FEP

- Initial development of core FEP
  - Scoping meetings, Council testimony, ad hoc engagement opportunities, Council Ecosystem Workshop, iterative Ecosystem Committee review and public input
- FEP Action Modules
  - Public involvement plan for each Action Module
  - Include explicit steps for strengthening 2-way communication
  - Project teams include external expertise as appropriate
- Ongoing Bering Sea FEP EBFM process
  - Evolving discussion, to include two-way communication, periodic reporting from FEP team to Council, development of FEP website

# Action Module Taskforce Reporting Structure

*Periodic check-ins,  
review results prior  
to Council*



*Check in on workplan,  
report results*

*Annual check-in,  
Team co-chairs track  
progress*

*Public meetings,  
website updates*

*Duration: 2-3 years,  
~ 6 meetings*

# Next steps

## Finalize Action Module Workplan

- Review with Council, SSC, AP, and Ecosystem Committee in February
- Report to BS FEP Team in March

## Proceed with project work

- Plan to complete action module report by 2021 or early 2022
- Periodic check-ins over that time period with BS FEP team/chairs, Ecosystem Committee

