

BASIN-SCALE EVENTS & COASTAL IMPACTS PROJECT (BECI): NORTH PACIFIC OCEAN KNOWLEDGE NETWORK

Connecting Knowledge to Support Climate-Informed Decisions

THE CHALLENGE

The North Pacific Ocean is changing rapidly due to climate change. Extreme events such as marine heatwaves are becoming more frequent and intense, fish populations are shifting across borders, and coastal communities face unprecedented challenges. The information decision makers need to respond often exists but is scattered across hundreds of sources, databases, and research papers.

THE BECI SOLUTION

BECI is developing a **North Pacific Ocean Knowledge Network**. This is an interactive platform that will collate and synthesize existing information about changing North Pacific Ocean conditions and their impacts on marine ecosystems and transboundary fish populations. We will integrate diverse information types to support climate-informed decision making across the North Pacific.

OUR GOAL

To build a comprehensive Knowledge Network that synthesizes existing research, knowledge, and management experience across the North Pacific - supporting climate-informed fisheries decisions at the pace ocean change demands.

OUR FIVE INFORMATION THEMES

Ocean State Data

Environmental conditions including extreme events (e.g., marine heatwaves, hypoxia events, and productivity changes)

Fish Species Information

Abundance, distribution, condition, food sources, recruitment, and life history data for commercially and ecologically important species

Climate-Responsive

Management Approaches
Strategies and tools applied across regions to maintain productive fisheries under changing ocean conditions

Management Tools

Dynamic models and adaptive strategies that consider changing ocean conditions and predict impacts to marine life

Human Dimensions & Socioeconomic Information

Community impacts, economic effects, and social responses to ocean change





PAST, PRESENT, & FUTURE UNDERSTANDING

BECI takes a comprehensive temporal approach by linking historical context with current observations and future predictions. We build understanding from past events, synthesize what's happening now, and organize existing predictions to support better planning for the future.

This unified approach and connection of local / regional scale information will enable the North Pacific Ocean community to identify emerging patterns more rapidly at different scales, develop deeper understanding, and respond more effectively to environmental challenges across the entire North Pacific region.

HOW THE KNOWLEDGE NETWORK IS DESIGNED

The Knowledge Network is designed to combine two complementary strategies:

1

Federated Discovery

BECI will map and connect existing databases and research across the Pacific, creating a comprehensive directory that shows you where relevant information lives. Data stays with original providers - we point you to the sources while respecting data ownership.

2

Strategic Repositories

For the most critical information needed for urgent decisions, BECI will build centralized, organized collections that support synthesis of key information across our five focus areas.

Supported by Machine Learning Tools

Machine learning will support both strategies by automating content discovery, identifying patterns across regions, and keeping information current while maintaining scientific oversight.

This hybrid approach gives you comprehensive discovery of existing resources PLUS immediate access to information that is essential to support decision-making.

KNOWLEDGE NETWORK OUTPUTS

Practical knowledge products will be available through:



Interactive Dashboards → User-friendly platforms for exploring information across regions and topics

Synthesis Reports → Comprehensive summaries of existing knowledge organized by management need

Visualization Tools → Interactive maps and graphics that reveal patterns across the North Pacific

Discovery Platforms → Search tools and Knowledge Library that help you find relevant information

Management Guidance → Evidence-based approaches synthesized from experience across regions

VALUE FOR PARTNERS

What the Knowledge Network's Organized Information Enables:

Ecosystem-based approaches informed by environmental variability

Cross-regional coordination through shared information infrastructure

Forward-looking decision-making that accounts for projected environmental shifts

Supporting science-based advice under changing environmental conditions

Adaptive management based on comprehensive understanding across regions

The North Pacific Ocean Knowledge Network Proof-of-Concept will be demonstrated at the NPFC SC meeting.

We want to know: Does this meet your needs? What's missing? How would you use this?

**JOIN US
& SUPPORT
THE
NETWORK**

Rapid ocean change requires coordinated access to the best available science. Your participation strengthens our collective ability to understand and respond to ocean change across the North Pacific.

BECI will make existing knowledge accessible, actionable, and organized for the decisions that matter most.

