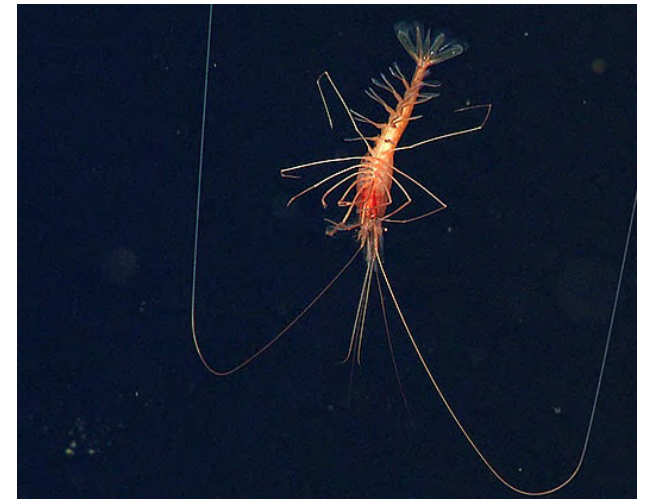
A photograph of two humpback whales breaching the ocean surface. The whale on the right is higher and has a large amount of white foam and water splashing around its head. The whale on the left is lower and more vertical. In the background, a large, multi-story building with a grey roof and many windows is visible. Several birds are flying in the sky above the building.

# Welcome to the Monterey Bay Aquarium Research Institute

Chris Scholin



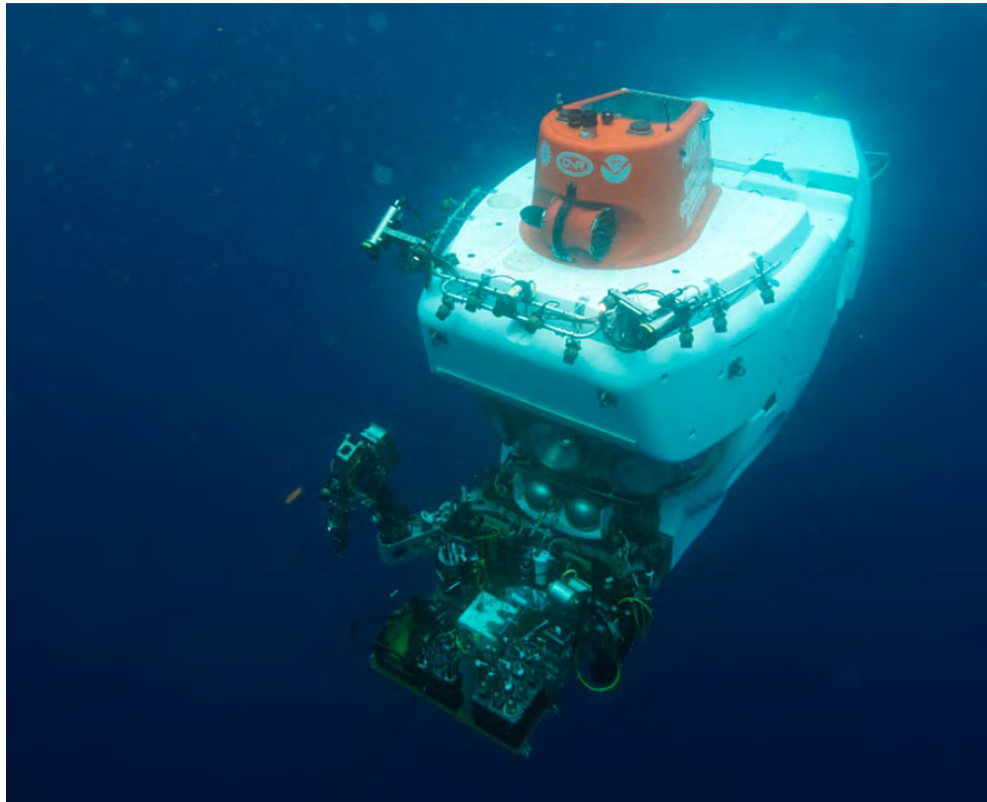
# Accessing the deep sea has been a challenge since the dawn of the ocean sciences.



David Packard had a clear vision for how MBARI would tackle that challenge.

That vision was different from other oceanographic institutions.

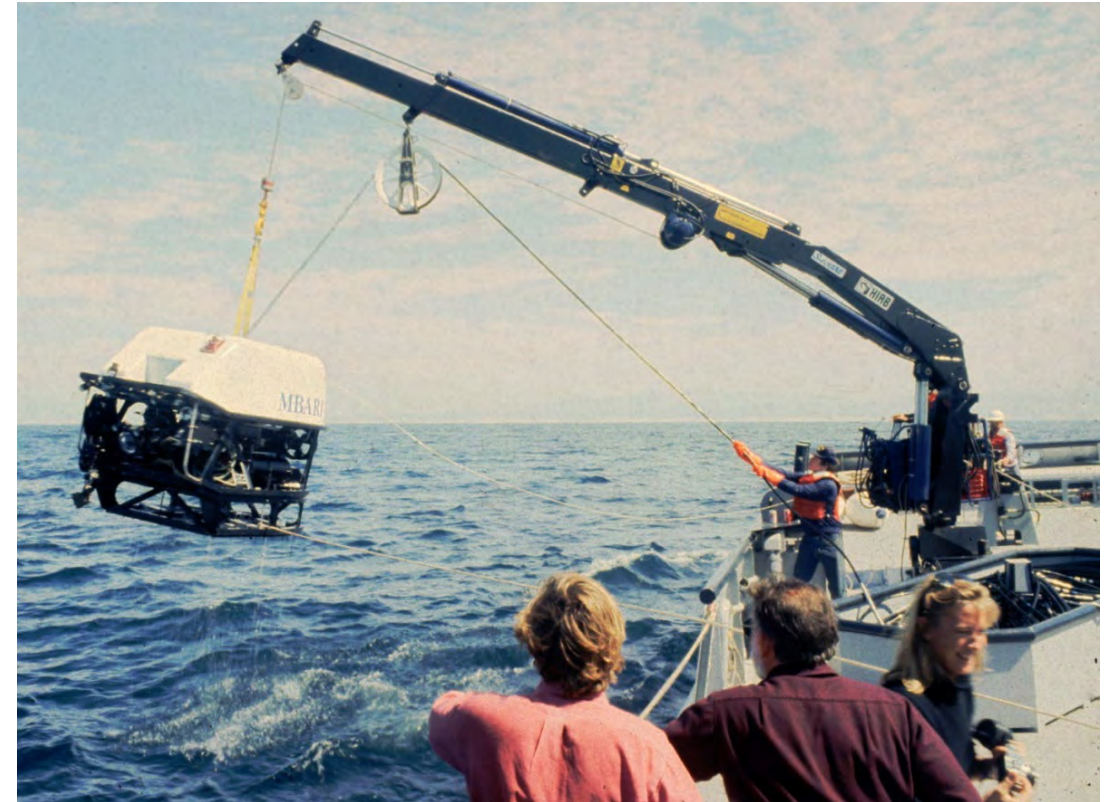
**Human Occupied Vehicle (HOV)**



**WHOI's HOV: *Alvin* (1964 first launch)**

vs.

**Remotely Operated Vehicle (ROV)**



**MBARI's *Ventana* (1989 first launch)**

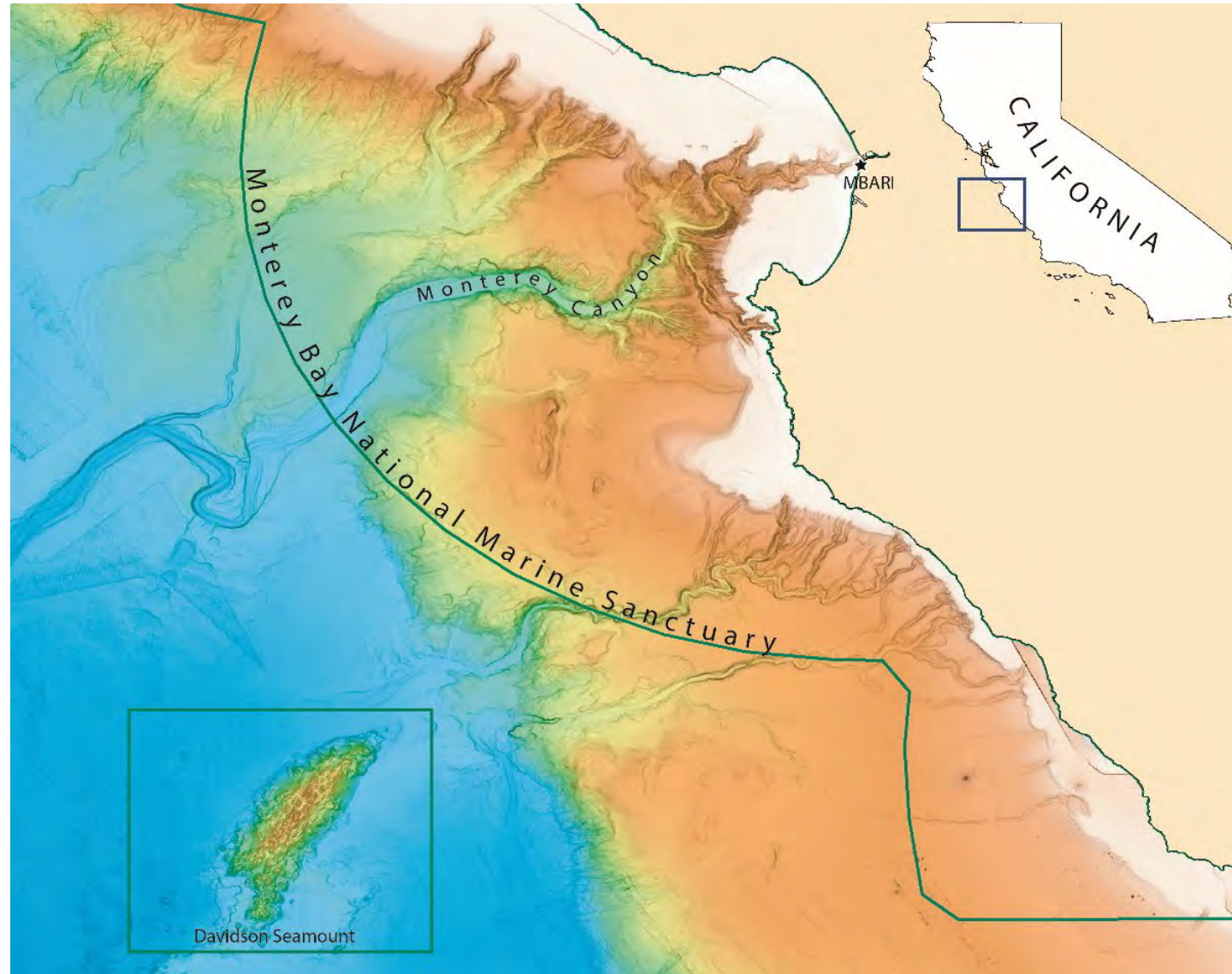


**Moss Landing offers immediate access to the deep sea...**

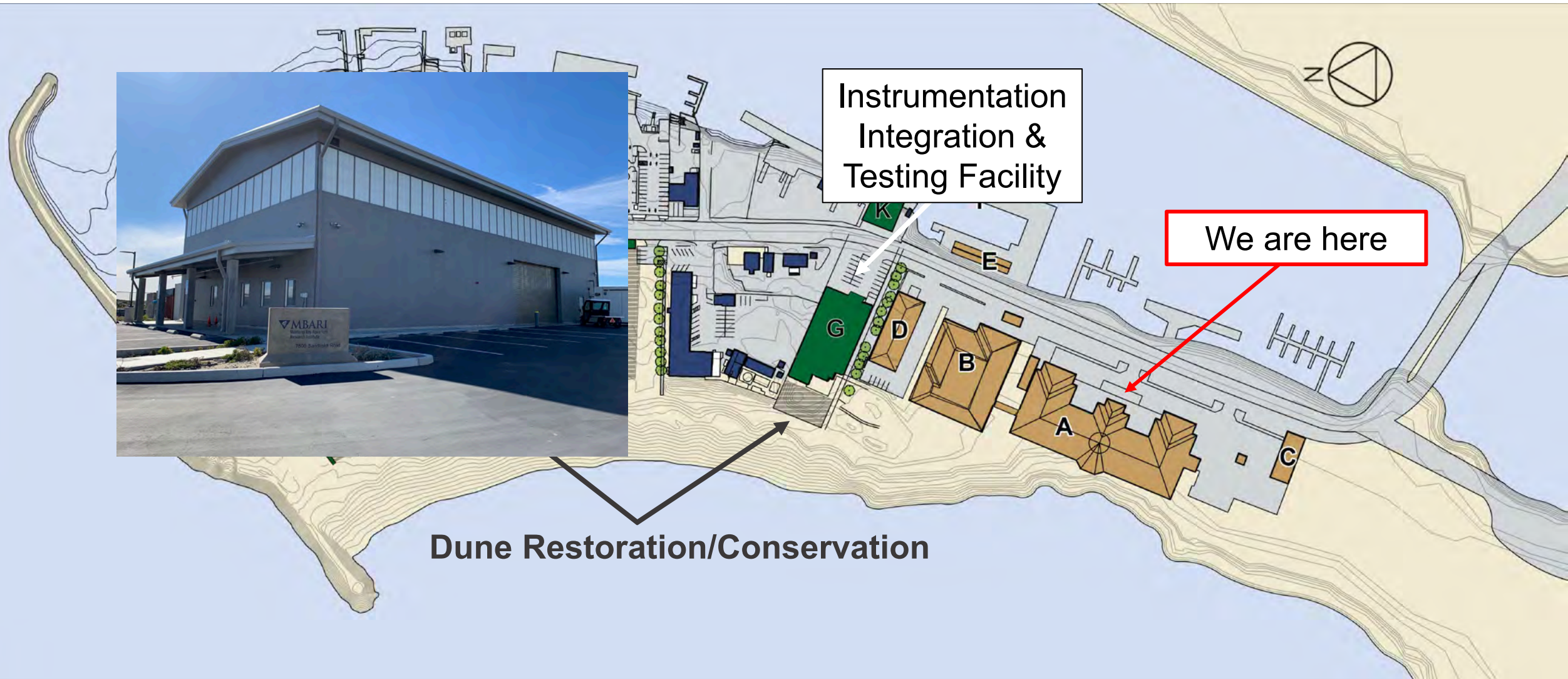




...and sits in the center of a National Marine Sanctuary



# MBARI's existing and new shoreside facilities





# Instrumentation Integration and Test Facility



Construction completion  
expected September 2024

# Introducing the R/V *David Packard*





# MBARI's 2023-2033 Strategic Roadmap

## Current R&D Themes



**INNOVATE & BUILD**



**EXPLORE & PROTECT**



**INSPIRE & ENGAGE**



The problems we work on are global in scale and apparent locally

Measuring ocean change is a unifying theme

Practice 'technology push, science pull'

Develop local, export global

<https://www.mbari.org/about/strategic-roadmap/>



# INNOVATE & BUILD

- Build scalable technologies to improve ocean health assessments
- Efficiently map the deep ocean seafloor at high resolution
- Advance ocean-based artificial intelligence





# **The MBARI LRAUV**

Open API for development  
Docking: power and data x-fer  
Configurable mission payloads  
User interface  
Mission planning simulation



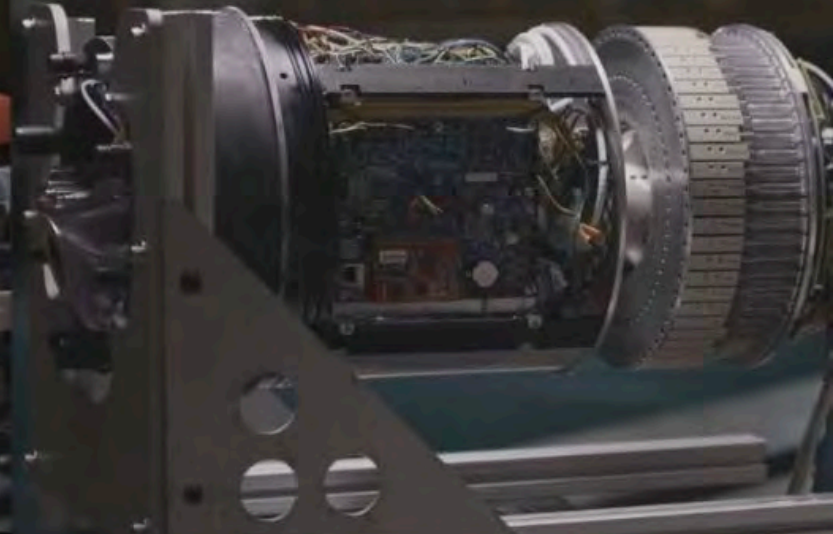
**Core science**



**Bioluminescence**



**ESP**



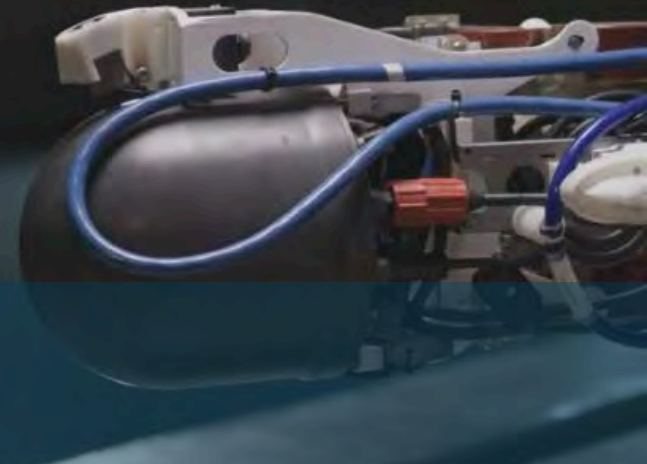
**Water sampler**



**Imaging**



**Acoustics**



**Operational LRAUV Payloads**

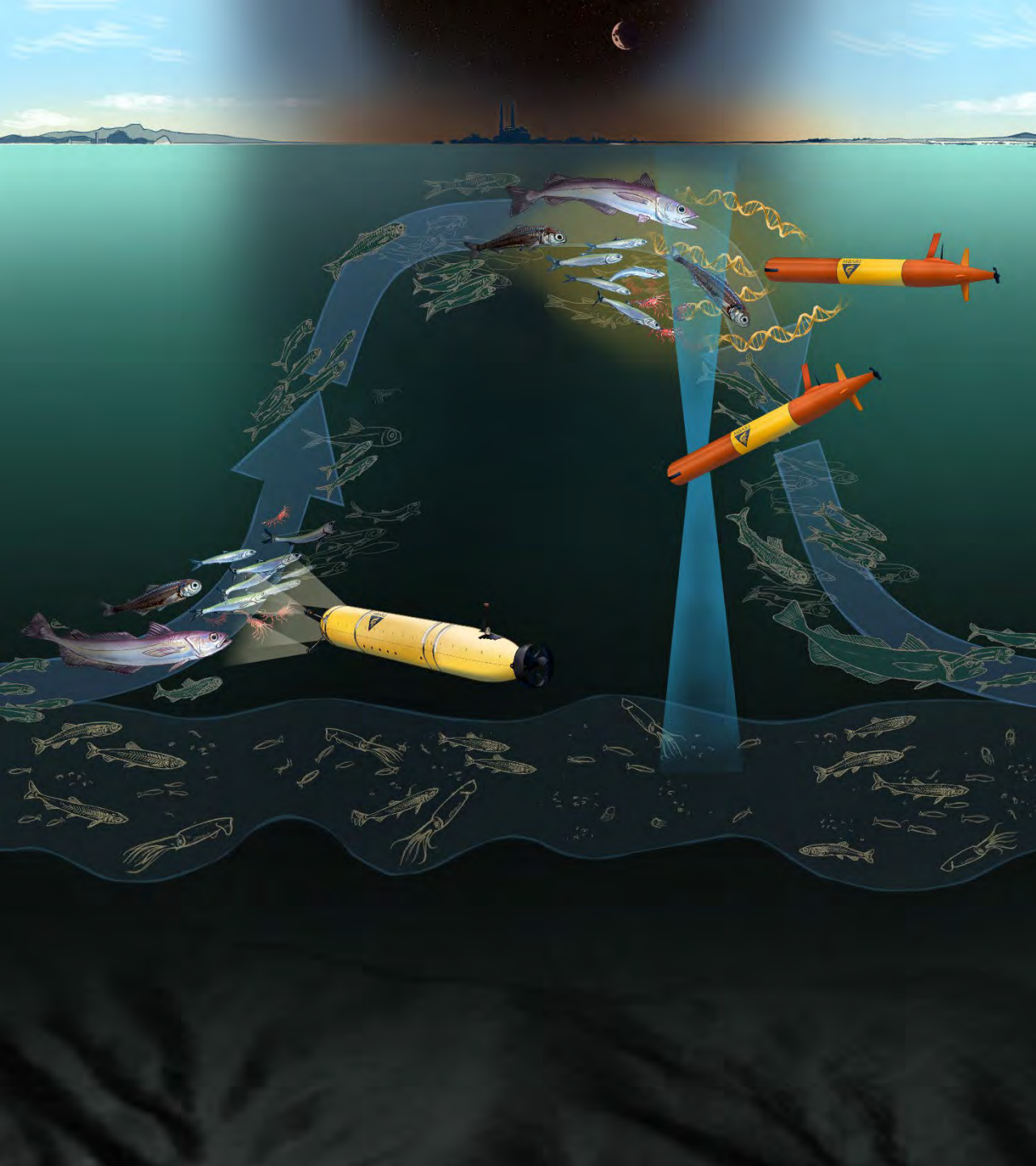




# **EXPLORE & PROTECT**

- Explore and observe life in a dynamic ocean
- Study the impacts of climate change and other ocean threats.





# An integrated observational approach is needed to provide a fuller picture of ecosystem function

- Time vs. space
  - Multiple mobile + stationary platforms
- Animal distribution, behavior, identity, & size
  - Acoustics + eDNA + video imaging + environmental measurements





# **INSPIRE & ENGAGE**

- **Share what we learn to inspire and inform ocean conservation**
- **Invest in our people and foster a diverse and inclusive workforce**
- **Make ocean research accessible to all**

# Information Technology and Dissemination







# QUESTIONS?