

The International Quiet Ocean Experiment 2015 science plan:

https://www.iqoe.org/sites/default/files/files/IQOE_Science_Plan-Final.pdf



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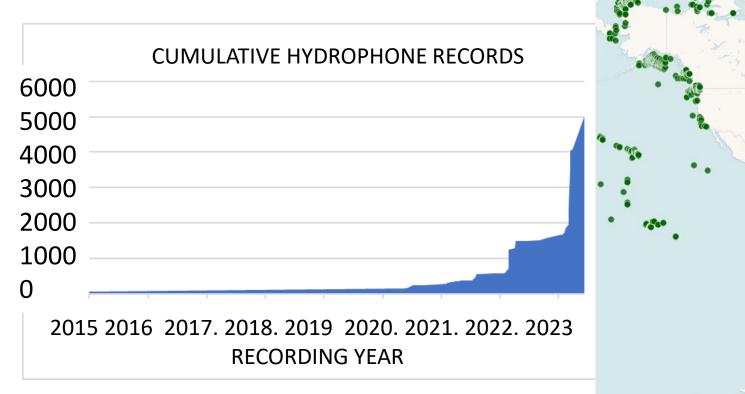
100E Fundamental Questions

- 1. How have human activities affected the global ocean soundscape compared with natural changes over geologic time?
- 2. What are the current levels and distribution of sound in the ocean?
- 3. What are the trends in sound levels across the global ocean?
- 4. How does ocean sound currently affect important marine animal populations?
- 5. What are the potential future effects of sound on marine life?

Ongoing IQOE activities

- 1. Metadatabase of sound observation from 1999 now exceeds 5,000 records
- 2. Implementation Plan for the Ocean Sound Essential Ocean Variable: published in September 2023
- 3. Global Library of Underwater Biological Sounds (GLUBS): hired a post-doc with funds from the Lounsbery Foundation and conducted a workshop in April 2023

IQOE Metadatabase of underwater sound observations





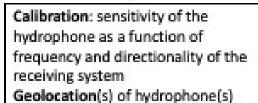
https://www.iqoe.org/systems

Locations of underwater recordings in database from 1999-present

Variables

Sound pressure (p,t)

Particle motion (x,y,z,t)



Supporting Variables

Propagation parameters:

temperature, salinity,
sound speed profiles, ocean currents
and other physical oceanographic
phenomena,
boundary conditions (e.g. sea
surface roughness, sea ice
characteristics (e.g. roughness and
thickness), sea floor (bathymetry,
geoacoustic properties)

Sound sources: non-acoustic information on distribution of sound sources (e.g. ship AIS data); acoustic characteristics of anthropogenic, abiotic and biotic sources.

Measuring the Ocean Sound EOV

Data Management

- Quality Control
- Standardized Analyses
- 3. Archive

Sound Propagation Modeling

Derived Data Products

Changes in Sound Levels Spectral Probability Density Mapping Sound Field

Soundscapes

- Assigning sound fields due to each source type
- Sound Budgets
- Acoustic measures of biodiversity
- Studies on effects of human sound on wildlife

Detecting Transient Events caused by particular sources

- Natural
 - Biotic
 - Abiotic
- Human-made

GOOS Primary Goals

Climate Change

Wind, Waves, Rain, Sea Ice

Ocean Health

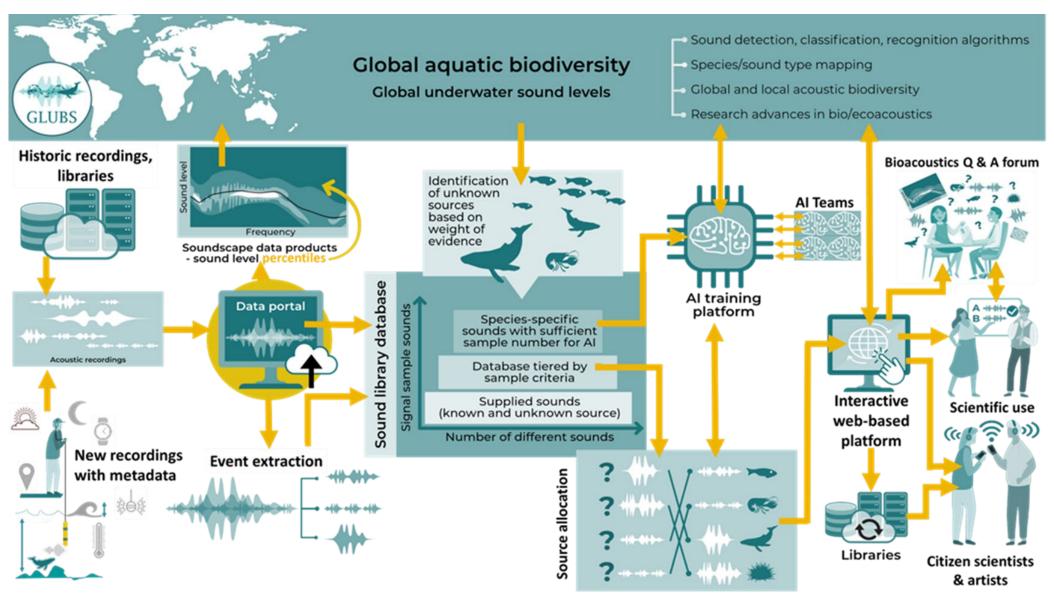
Marine Ecosystems Loss of Biodiversity Impacts on Wildlife Distribution of Species

Monitoring Threats

Earthquake/Tsunami Vessels Other Anthropogenic Sounds

Capacity Building & Technology Transfer

STRUCTURE OF GLOBAL LIBRARY OF UNDERWATER BIOLOGICAL SOUNDS



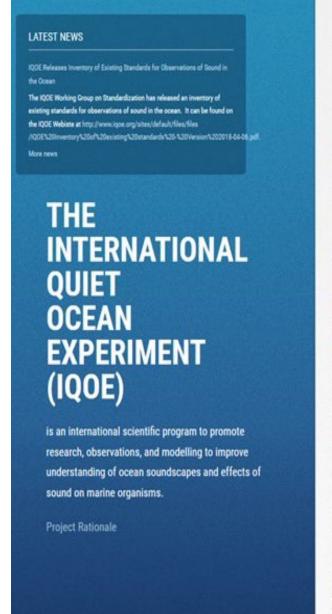
Ongoing IQOE activities (cont.)

- 4. Activity to synthesize observations of the impacts of the COVID-19 pandemic on ocean sound: seeking funds for a post-doc to help with the analysis
- 5. Task team formed to create specifications for low-cost hydrophones for education and citizen science
- 6. World Ocean Passive Acoustic Monitoring (WOPAM) Day: proposal to support a post-doc with funding from the Lounsbery Foundation, to analyze results of 2023 WOPAM Day
- 7. Acoustics fellow to work with the Comprehensive Test Ban Treaty Organization on ocean acoustic data: supported by Lounsbery Foundation

IQOE Website (www.iqoe.org)

The IQOE Website is a valuable resource for the international scientific community in ocean acoustics and bioacoustics. The Website provides

- a search capability for articles relevant to IQOE, through the Aquatic Acoustic Archive (http://iqoe.org/library).
- a database of ocean acoustic observing systems: cabled and autonomous (http://iqoe.org/systems).
- a portal to acoustic data and data management plans (http://iqoe.org/acoustic-data-portal).
- links to IQOE-endorsed projects and instructions for seeking endorsement. (http://iqoe.org/projects).
- descriptions, terms of reference, and member lists for all IQOE working groups (http://iqoe.org/groups).
- news relevant to the international ocean acoustics and bioacoustics communities
- a link to sign up for the IQOE email list



RINDAMENTAL QUESTION

THEMES

WORKSHOPS

WORKING GROUPS ENDORSED PROJECTS

NATIONAL ACTIVITIES

Science Committee Individuals & Departmenton

COST Spensors

12-14 March 2016.

International project efficie

LITERATURE LIBRARY

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The IQOE Science Plan has been reviewed and approved by the Scientific Committee on Docario Research (SCOH) and

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activities. An IQDE Science Committee has been formed and mat for the third time in Bramamaran, Cormany on

SOOR and POGO stuff members will assist project assentiate with incrementation.

Additional funding is being sought, including for an