Echoview Software
Solutions for Environmental Research and Monitoring

Active acoustics

Echoview Software is a global leader in active acoustic (also referred to as hydroacoustic) science and software. We provide tools, expertise, and services that help scientists, researchers, consultants, fishers, and environmental managers make sense of what lies beneath the water's surface, critical for managing aquatic environments.

Active acoustics is using echosounders to send sound pulses into the water column and capture the returning echoes, offering a powerful, non-invasive method to monitor organisms, habitats, and physical features, rapidly and across extensive areas. The time it takes for transmitted sound to return reveals the distance to an object, while the strength and shape of the echo can indicate characteristics such as size, composition, and movement. Sound travels rapidly in water, so echosounders can sample a large volume of water with high spatiotemporal resolution, and can also be deployed for long periods of time.

Compared to cameras and physical sampling methods like trawling, hook-and-line, or traps, echosounders operate without light, are less affected by turbidity, and capture much larger volumes of data with minimal disturbance.

Common applications of active acoustics across freshwater, estuarine, or marine environments include:

- **Research:** Collect data on water column organisms and habitat features, including vegetation and bottom type classification, to inform understanding of zooplankton, fish, and mammal behavior, spatiotemporal distribution, trophic level interactions, and more.
- **Fisheries stock assessment:** Monitor fish stocks from mobile or stationary platforms, using research or commercial vessels, in the ocean, rivers or lakes, to improve species detection and quantification and to reduce bycatch.
- **Aquaculture:** Provide data on organism size, health, and environmental responses in fish pens and farms; detect jellyfish, inspect nets, and assess environmental impact.
- **Ocean renewable energy:** Monitor fish and aquatic organisms at offshore wind, wave, and tidal energy sites, where traditional survey methods may be unsafe or insufficient.
- **Hydropower:** Assess fish abundance and distribution in rivers and/or related to dams; evaluate fishway effectiveness under varying light conditions.
- **Power plant intakes:** Detect jellyfish swarms.
- **Marine protected areas:** Map and monitor fish densities.
- **Habitat mapping:** Discover underwater vegetation, map canopy height, and monitor anthropogenic effects.
- **Underwater gas plumes:** Locate and map gas seeps.

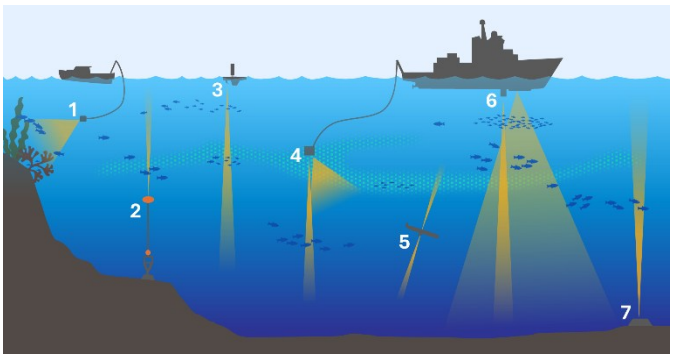
Types of echosounders

There are a variety of echosounders available, and choosing the right system depends on your survey objectives and the environment. Echosounders can be deployed on virtually any platform to fit any survey design or research question, including vessels, USVs, AUVs, ROVs, moorings, and gliders, or fixed infrastructure like dams and offshore turbines.

There are two main types of echosounder:

Single beam echosounders emit and receive sound in a roughly cone-shaped "beam". These devices are commonly used in environmental surveys to estimate biomass and monitor fish or zooplankton distribution. Split beam echosounders are a subset of these and offer enhanced tracking and more accurate backscatter estimates by detecting the 3D position of targets within the beam.

Multibeam echosounders emit sound in a wide swath split into multiple beams, offering broader coverage. Bathymetric multibeam systems that are used for mapping the seafloor can also be used to assess water column features such as fish schools. Imaging sonars (acoustic cameras) offer high-resolution, video-like views of organisms and structures at closer ranges.



Examples of active acoustic deployments: (1) a multibeam echosounder on an ROV; (2) a single beam echosounder on a mooring; (3) a single beam echosounder on a USV; (4) an ROV with a single beam and multibeam echosounder; (5) two echosounders, up- and down-facing, on a glider; (6) a research vessel with single and multibeam echosounders; (7) a stationary bottom platform with a single beam echosounder.

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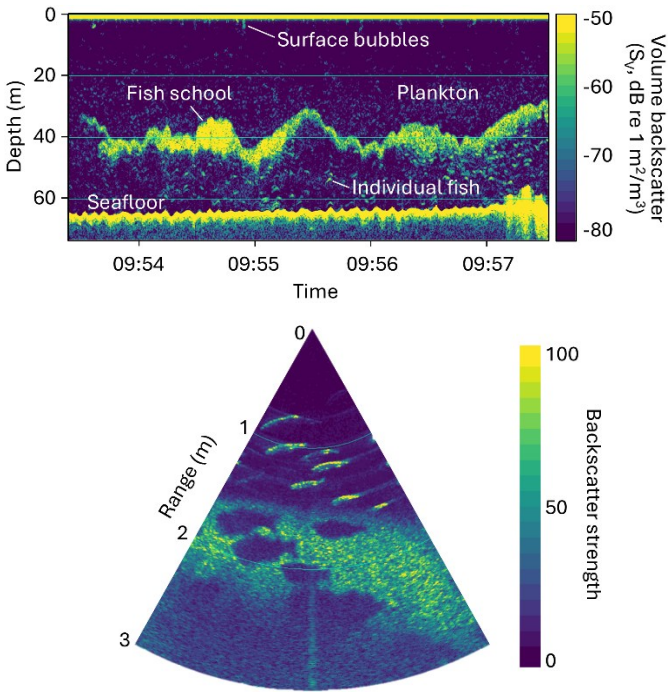


Data from two types of echosounders. Top: an echogram from a single beam echosounder showing backscatter from the surface to the seafloor over time. Bottom: one ping from an imaging sonar (a type of multibeam echosounder) showing a school of fish and their "shadows" cast on the seafloor.

Processing active acoustic data

Selecting the right hardware for any given research or monitoring task is essential, but it's equally important to consider how the resulting data will be converted into meaningful information and insights to achieve your objectives.

While many echosounders come with basic data replay software, advanced applications or large datasets often demand more powerful and flexible software solutions. Specialized software is necessary when processing goals require greater accuracy, more comprehensive features, or flexibility to cover a broad range of technologies, deployment types, and data quality.

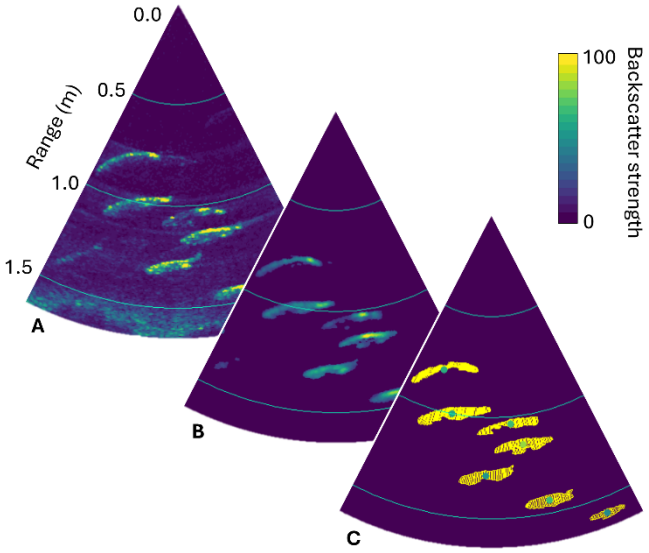
Echoview

Our flagship product, Echoview®, is the global industry standard for visualizing and processing echosounder data for water column and bottom analyses. It supports more than 75 echosounder file formats from 18 manufacturers. Echoview is used in over 70 countries and is cited in a vast body of peer-reviewed research, reports, and studies. With decades of development, it is a mature, reliable platform—fully documented and rigorously tested.

Echoview is used across the full spectrum of active acoustic applications, such as monitoring fish stocks, assessing aquaculture sites, linking trophic levels of the ecosystem, or tracking animal movement at renewable energy installations.

Echoview transforms complex datasets into reliable, actionable insights. It includes a comprehensive suite of tools for advanced active acoustic data processing, including:

- **Exploration**: Visualizing and organizing data to identify features or challenges.
- **Calibration**: Ensuring accuracy with environmental parameters and data from known targets.
- **Cleaning**: Removing noise and non-target echoes.
- **Detection & tracking**: Identifying and following individual organisms or aggregations.
- **Classification**: Grouping targets by type, size, and/or behavior.
- **Characterization**: Quantifying key metrics like biomass, movement, or spatial distribution.



Imaging sonar data processing in Echoview includes (A) assessing the raw data, (B) cleaning and smoothing the data, and (C) detecting fish targets. Detected fish are then tracked over time, providing fish size and movement metrics for analysis.

About Echoview Software

With over 30 years of experience, Echoview Software is globally recognized for advancing active acoustic data processing. Built on a foundation of scientific integrity, technical precision, and responsive support, we're committed to supporting greater understanding of aquatic environments and sustainable management of underwater resources.

Our continued evolution is powered by a skilled, multidisciplinary team, spanning quality assurance, development, programming, science, and sales and marketing. Based in Australia and the UK, we support customers and partners around the world. We're known for our collaborative approach and deep engagement with the global active acoustics community.

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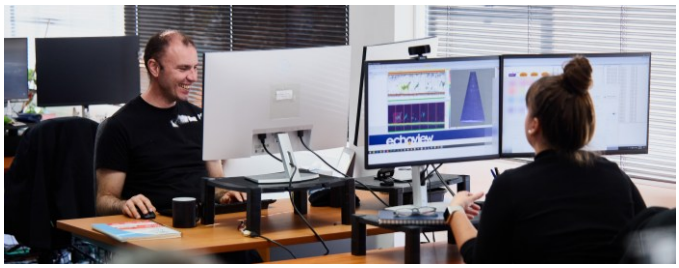

What we offer

Echoview Software provides flexible, science-driven solutions for collecting, processing, and interpreting active acoustic data, including training, consulting and client services, software development, and Echoview licensing. Whether you're new to echosounders or running long-term monitoring programs, our products and services can support you at every stage.

From single-step support to complete active acoustic solutions, we've got you covered. We can assist with every aspect of your workflow—from helping you select an echosounder and design a survey, to processing data, training your team, and building internal capability.

We work with governments, researchers, consultants, commercial fishers, and environmental managers across marine, estuarine, and freshwater environments.

Echoview licensing

Echoview licensing is flexible and designed to suit a range of needs—from short-term projects to large-scale programs. It also offers access to a wide range of functionality via different modules, giving you flexibility to license what you need and add more capability later. Prior to any license purchase, our team will discuss your requirements and analysis goals to help you determine the modules you require.

Our outstanding Maintenance and Technical Support (MATS) is an integral part of the Echoview product, providing the latest Echoview version with regular updates, new features, and improvements in performance and ease-of-use. MATS also gives access to our technical support team, a priceless resource that adds our experience and knowledge to yours.

Echoview licenses are available as:

- **Perpetual**: Grants you perpetual access to an Echoview license. 12 months of MATS is included with new perpetual licenses.
- **Annual subscription**: Provides access to the latest version of Echoview for 12 months. Includes MATS for the subscription term.
- **Short-term lease**: Designed for time-limited projects or other temporary license requirements. Includes MATS for the lease duration.

Consulting and client services

Our consulting and client services are designed to support diverse project needs, from short-term advice to full-service data processing and survey support. We work with:

- **Clients** who need tailored advice.
- **Organizations** outsourcing data analysis, calibration, or workflow development.
- **Teams** building in-house capability through training and technical mentorship.

With more than 80 years of combined experience, our team of hydroacoustic scientists brings deep expertise across active acoustics, aquatic science, data processing, and software development. We're here to support your success through practical solutions, scientific rigor, and collaboration.

Data processing

Engage us to provide data processing, analysis, and methodologies, including:

- **In-house echosounder data processing and analysis**, including single beam, multibeam, omnidirectional, and ADCP systems.
- **Customized workflow designs**, for you to achieve specific project objectives and produce actionable insights.
- **Workflow and Echoview file review,** to assess your data processing decisions and give you confidence that you are generating defensible results.
- **Knowledge transfer and tool development**, enabling you to independently manage future data processing and create self-sufficient data solutions.
- **Success in your immediate project goals**, along with the cultivation of long-term capabilities within your organization.

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Echosounder calibration

Correct echosounder calibration is essential to ensure accuracy in your acoustic data. We offer expert services to guide and support this critical process, including:

- **Onsite calibration**, to ensure your echosounder is performing accurately and according to industry best practices.
- **Onsite training**, to empower you to manage your current and future calibration operations in the field.
- **Remote calibration consulting**, providing support for your echosounder calibration efforts including preparation, equipment, hardware configuration, data review, interpretation of results, and reporting.
- **Detailed documentation**, where we can generate operating procedures containing best-practice instructions for your echosounder calibrations.

Tailored software development

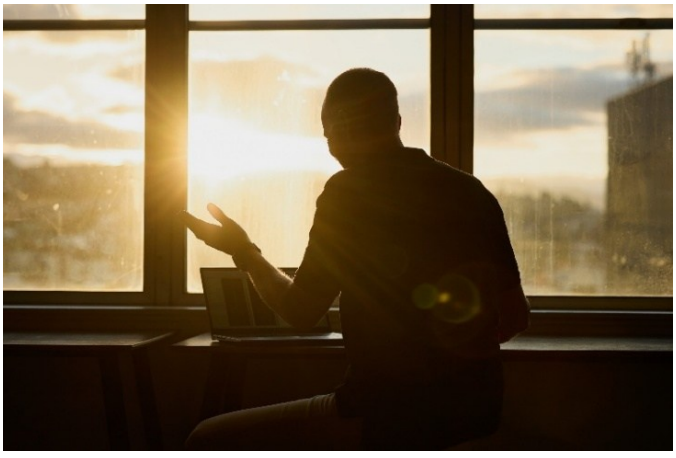
Our development services are built on sound science and practical application. We work closely with you to scope requirements, prototype features, ensure integrity, and deliver reliable, high-performing solutions. Whether you need custom tools, automation, or advanced analytics, we can design and implement solutions beyond standard capabilities, such as:

- **New algorithms** or features within Echoview.
- **Automated** analysis scripts for data processing efficiency.
- **Machine learning** model development.
- **Standalone tools or custom applications** built to your specifications.

Training and education

We're dedicated to delivering flexible, tailored training that equips your team with the knowledge and skills to succeed. We offer specialized courses covering a range of topics from active acoustic theory to practical use of our software. Training includes:

- **Online and in-person courses** covering active acoustic principles and Echoview workflows.
- **Education**, delivering courses specifically designed for higher education institutions such as universities.
- **Custom workshops** aligned to your team's goals, instruments, or datasets.
- **Support** for building internal capability in active acoustic survey design and analysis.



Let's work together

To find out how we can support your active acoustic project or research, contact us at info@echoview.com.

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