

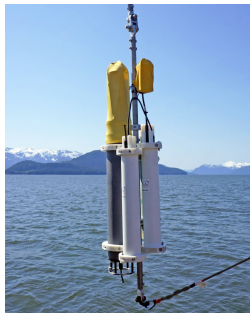
Mooring Designs and Components



Custom engineered and off-the-shelf solutions for surface, sub-surface, and bottom instrument mooring systems for demanding ocean environments. We have a warehouse of mooring designs and components to draw upon. We can quickly satisfy your specific mooring requirements.

A key attribute of our mooring designs is low self-noise. We continually strive to improve our mooring and sensor mounting techniques.

Our engineers use computational fluid dynamics software to analyze and predict mooring behaviour under a variety of ocean conditions. We calculate mooring line tension, descent rate, drag, and list angle, and predict mooring performance.



High Strength Strongbacks

Strong and versatile

A modular inline mooring system that mounts pressure housings around a central stainless steel backbone of high tensile strength. Noise-free universal joints connect multiple assemblies together for any combination of instruments and battery packs. Modules pass through or support various types of flotation.



Bottom Landers

Complete ecosystem observation platforms

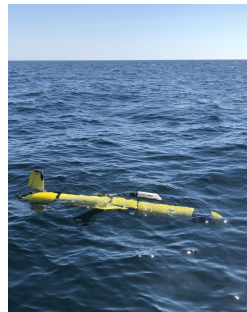
Self-contained ocean observatories with your choice of passive and active acoustic sensors, particle velocity sensors, fish tag loggers, oceanographic sensors, transponders, and tandem releases. Designed to minimize flow and movement noise for high quality measurements.



Bottom Plates

Quiet, compact, easy to deploy

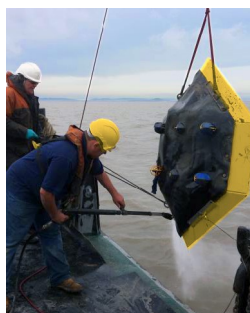
Combining an anchor weight with a quiet sensor mounting platform, this compact mooring can be deployed from any vessel by crane or by hand. The built-in hydrophone mount performs better than other mooring approaches. Grated plate option for soft or silty bottoms.



Gliders and Other Vehicles

Low-cost long-range solutions

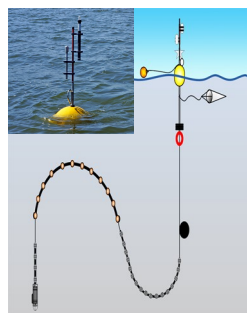
Low-logistic acoustic and oceanographic data collection with surface and underwater vehicles. The AMAR G4 and OceanObserver have been successfully integrated into Teledyne Slocum and Kongsberg Seaglider platforms. Other gliders, AUVs, profiling floats, remote surface and underwater vehicles, and towed surface vehicles upon request.



High-Flow Low-Noise Moorings

Reduce flow noise from tides and rivers

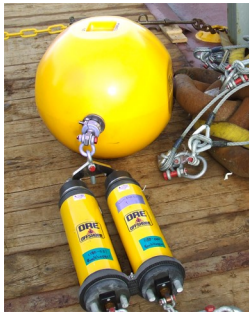
Hydrodynamically shaped bottom mooring that reduces flow-induced noise around hydrophones. Additional weight plates for increased stability. Low-noise performance field-proven in the Bay of Fundy, home of the world's highest tides.



Drifters, Catenary Suspensions, and Profiling Buoys

Field-tested, low-cost drifting setups

Free drifting surface floats, catenary suspension mountings, and vertical profiling buoys with acoustic payloads for short or long term measurements. Our designs have been field tested and refined for problem free deployments.



Acoustic Releases and Beacons

Successfully retrieve your data

Our designs incorporate acoustic releases and recovery beacons from industry leading manufacturers (such as EdgeTech, Benthos, XEOS Technologies, MetOcean, IOS). Tandem releases offer redundancy for retrieval success every time. Associated deck sets to locate and control acoustic releases.



Flotation and Buoys

Off-the-shelf and custom solutions

We can provide surface and sub-surface flotation components. Our mooring designers have access to a wide selection of technologies, from hydrodynamically shaped floats used in high current settings to glass spheres providing flotation at depths up to 12,000 m. We have large surface buoys often used with telemetry applications.



End Bales, Hydrophone Cages, and Flow Shields

Accessories for inline moorings and hydrophone mounts

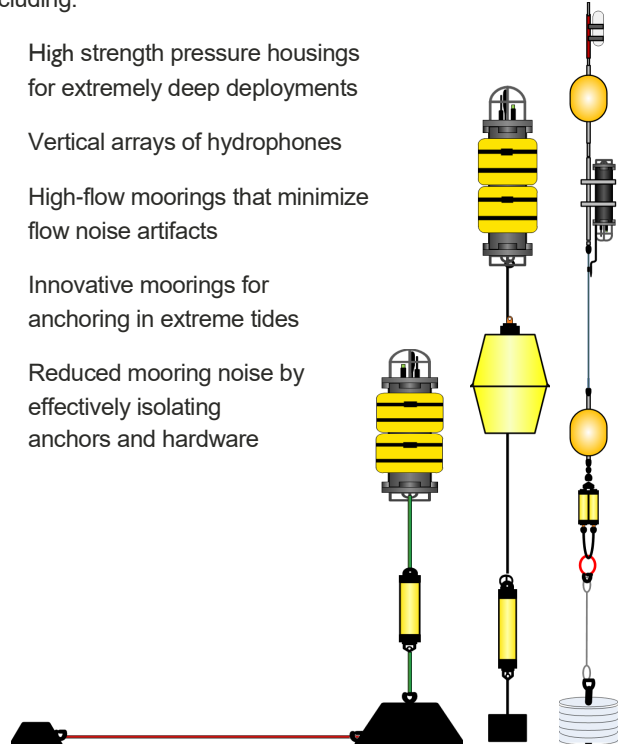
End bale cylindrical frames attach PVC and Deep AMARs directly to mooring lines and flotation. Extended end bales also act as protective hydrophone cages. Flow shields reduce flow-induced noise around the hydrophone for high quality acoustic data.

Innovative Solutions

We combine design, develop, and manufacture state-of-the-art data acquisition systems and rugged field equipment to meet project demands for quality, endurance, and performance.

Our standard or bespoke scientific equipment and moorings provide quality data in any environment, through solutions including:

- High strength pressure housings for extremely deep deployments
- Vertical arrays of hydrophones
- High-flow moorings that minimize flow noise artifacts
- Innovative moorings for anchoring in extreme tides
- Reduced mooring noise by effectively isolating anchors and hardware



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For more information, contact your nearest JASCO Applied Sciences office:

Halifax, NS, Canada
+1-902-405-3336
halifax@jasco.com

Victoria, BC, Canada
+1-250-483-3300
victoria@jasco.com

Silver Spring, MD, USA
+1-301-565-3500
maryland@jasco.com

United Kingdom
+44 (0) 1489 878439
europe@jasco.com

Australia
+61 7 3823 2620
australia@jasco.com

Sound Science and Technical Excellence

www.jasco.com