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R/V Western Flyer



MBARI's SWATH vessel

The R/V *Western Flyer* is a small water-plane area twin hull (SWATH) oceanographic research vessel measuring 35.66 meters long and 16.15 meters wide. It was designed and constructed for the Monterey Bay Aquarium Research Institute (MBARI) to serve the oceanographic community as a stable platform for deploying, operating, and recovering a tethered remotely operated vehicle (ROV) to a depth of 4,000 meters, conducting hydro-casts (CTD), and other oceanographic activities with state-of-the-art equipment. General ROV operations will, however, be the vessel's primary mission.

Voyage profiles

Vessel operations will typically consist of one-day voyages having a duration of 12 hours or less and near-coastal voyages of an average duration of four days. Extended voyages of two to three weeks' duration will be infrequent, with three extended voyages being planned over an operational year. The R/V *Western Flyer* will on occasion be temporarily redeployed to a new home port which, for example, could result in an open-ocean transit to a port in Hawaii.

The first year after delivery of the R/V *Western Flyer*, MBARI finished



outfitting lab spaces, integrating of the ROV *Tiburon*, which was designed and built by MBARI, and performing operational sea trials in the waters of Monterey Bay. Science missions commenced in March 1997.

Crew continuity, training and role flexibility

The *R/V Western Flyer* has a permanent crew and a shore-based support staff. The crew is trained as a team and all crew members are thoroughly familiar with the arrangement of the vessel, safety systems, operations, and equipment.



Crew pictured from left to right:

Darrell Palmer (Chief Mate/Relief Captain)

Dan Camp (Second Assistant Engineer)

Erik Thunstrom (Relief Deckhand)

Dan Chamberlain (Network & Computer Support Technician)

Tim McLaughlin (First Assistant Engineer)

Ian Young (Master)

Doug Alexander (AB)

Steven Sandstrom-Phillips (Second Mate/Bosun)

Peter Zerr (Chief Engineer)

[More information about the R/V Western Flyer](#)

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More on the R/V Western Flyer



Photo courtesy of Hilary Brewer

The *R/V Western Flyer* is a 117-foot small waterplane-area twin hull (SWATH) oceanographic research vessel designed and constructed for the Monterey Bay Aquarium Research Institute (MBARI). The *R/V Western Flyer* serves the oceanographic community as a stable platform for deploying, operating, and recovering a tethered remotely operated vehicle (ROV) to a depth of 4,000 meters, conducting hydrocasts (CTD) and other oceanographic activities with state-of-the-art equipment. General ROV operations will, however, be the vessel's primary mission.

Voyage profiles

Vessel operations will typically consist of 3 to 5-day voyages having a maximum duration of 18 hours or less. Extended voyages of two to



three months' duration will be planned once a year. Extended voyages are made up of several legs which vary in length up to a maximum of 12 days per leg. The *R/V Western Flyer* is, on occasion, temporarily redeployed to a new home port for extended voyages.



Photo courtesy of Hilary Brewer

Successful operations have been staged out of Honolulu, Hawaii, Newport, Oregon, and La Paz, Mexico.

The first year after delivery of the *R/V Western Flyer* MBARI finished outfitting lab spaces, integrating of the MBARI-designed and built ROV [*Tiburon*](#), and performing operational sea trials in the waters of Monterey Bay.

Vessel description

Design Characteristics	
Displacement at DWL	419 LT
Gross Tonnage	499 US, 847 ITC
Net Tonnage	230 US, 254 ITC
Length (LOA)	117'-3 5/8"
Beam Moulded	53'-0"
Draft DWL	12'-0"
Horsepower	2,500 HP
Max. Speed	14.5 knots
Endurance, 8 knots	4000 n.m.
Complement (including Science)	26
Fuel Capacity	22,000 gallons

Potable Water	2400 gallons
Clean L.O. Capacity	700 gallons
Dirty L.O. Capacity	700 gallons
Ballast Capacity	19,530 gallons
Gray Water	300 gallons
Black Water	50 gallons

General arrangement

Accommodations are provided for a combination of 26 crew members and scientists in 14 staterooms located on the upper deck. The crew complement is ten for all voyages and the combination of ROV staff and scientists (16) brings the total vessel complement to 26.



Equipment and control/monitoring systems

The main machinery plant is diesel electric with a common power bus connecting five generators. Any combination of generator operation will provide power for both propulsion and other vessel operations. This design arrangement provides a high level of machinery plant redundancy and operational flexibility. Propulsion power is transmitted through two duplicate drive trains, each consisting of a DC electric motor and fixed pitch propeller. Silicon controlled rectifiers (SCR) are used to convert generated AC power to DC propulsive power. Two electric motor-driven bow thrusters are installed to enhance maneuvering and station-keeping.

Primary equipment and control/monitoring systems

Five generators	Two Caterpillar, Model 3512, 850 kW
	Two Caterpillar, Model 3408, 350 kW
	One Caterpillar, Model 3306, 195 kW

Two propulsion motors	GE, 1250HP ea, 400 RPM
Two bow thrusters	Omnithruster, HCT 600, 300 HPea
Four SCR drives	GE, Model DC2000
Fuel centrifuge	Alfa Laval, Model MAB 103
Marine sanitation device	Orca, Model 11A-36
Air compressor	Quincy, Model QR 25
One water-maker	Sea Recovery model SCR5M3-SW-H
Cathodic protection/monitor	Swath Ocean Systems, Inc.
Uninterruptible power supply	Exide Pwr Wave +18, J1842AU131EE00A
Monitoring system	Intl. Integrated Systems, 300+ inputs
Generator control	Point 8
Propulsion control	Nautronix/GE/Omnithruster
Bow thruster control	Omnithruster B2000
Ballast system control	Swath Ocean Systems, Inc.

Primary navigation and communication equipment	
GPS	Trimble, Model 4000DS, Leica MX420, Furuno GP80
LORAN C	Northstar, Model 9000
Radar	Furuno, Models FR2110 & FR1941
Gyro compass	Anschutz Std. 20 w/one repeater
Dynamic positioning	Nautronix, Model ASK 4001
Autopilot	Maritime Dynamics Inc, Nautronix ASK 4001.
Motion Control	Maritime Dynamics Inc.
Steering system	Swath Ocean Systems, Inc.
GMDSS station	Furuno model RC5000 3T, areas A1-A3
Depth sounder	Knudsen 3208/R
PBX system	Meridian: Phone/intercom/cellular/watch

Weather station	Barometer, wind indicator, Furuno FW-200
Computing station	Chart and Navigation
Dopler	Furuno CI-80 current indicator

Primary fire fighting and safety equipment

Fire detection and alarm system	Cerebus Pyrotronics MXL
SOLAS Rescue Boat	Willard 540
Life rafts	Two 25-Man Viking
Extinguishing systems	Portable & fixed - (7) Fire Hose Stations
EPIRB	Two 9Ghz SARTs, One 406Mhz w/121.5 Mhz beacon

Primary deck machinery

Cranes	One - Model HIAB 290 One - Modified Effer
CTD winch system	Dynacon 12030 Capacity: 6500 m of .322 in. cable Max. continuous line pull: Bare drum - 7000 lbs.@100 fpm Full drum - 4300 lbs.@140 fpm Max. continuous line speed: Bare drum - 240 fpm @ 2500 lbs. Full drum - 415 fpm @ 1450 lbs.
Anchor windlass	Kolstrand Akphaw 223324
Mooring winches	Four - Marco WG023
ROV umbilical handling system	Dynacon TV3615K/SW3616K
Stern "A-Frame"	13,000 lbs. SWL; 14 ft wide, 13 ft clearance through entire range of motion.