BATFISH

The *Batfish* is a sophisticated underwater probe that carries a variety of advanced scientific instruments. Its full complement of sensors and technical equipment includes a variosens fluorometer (to detect chlorophyl concentrations), a continuous plankton recorder and a digital conductivity-temperature-depth unit.

Towed behind a ship, the research craft continuously dives and rises, cycling in a sawtooth pattern between two pre-set depths, gathering and relaying data to scientists aboard the mother vessel.

Designed and built in Canada, the *Batfish* system has proved to be an important scientific tool in several biological research programs in the coastal waters of Nova Scotia, in the frontal regions along the Scotian break and in studies of the coastal upwelling system of Peru.

PISCES IV

Based at the Institute of Ocean Sciences on Canada's west coast, the *Pisces IV* is a deep-sea research submarine that carries three people. With over 1 000 dives on the log, some to depths of more than 1 500 metres, it is one of Canada's most valuable and most used research tools.

Six metres in length and weighing 12 tonnes, the submersible is berthed in a private hangar aboard its mother ship, *Pandora 2*. *Pisces* is piggy-backed to a dive site, and then set gently down into the water by *Pandora's* powerful crane. After the dive the submarine is hoisted back on deck and returned to the hangar.

This underwater craft has been used for many different tasks and in many locations. It was brought in to check the telephone lines that run across the floor of the Strait of Georgia linking Vancouver Island with the mainland of British Columbia. Canadian oceans scientists have studied the ocean floor with *Pisces* for private firms planning to run natural gas pipelines across the bottom. The submersible has been used to search for crashed aircraft and sunken ships. In one emergency, it dived to investigate the extent of damage to a capsized barge that had been transporting tanks of chlorine.

Pisces' most important feature is its versatility. Equipped with television cameras, remote-controlled steel arms with detachable claws or grabbers, and a full spectrum of modern sensors, it has done extensive work in the Arctic for the Canadian military, on the east coast for Hydro Quebec and local universities, and on the west coast for the federal government. The craft is designed to accept new, more specialized sensors as they become available, and meanwhile may be fitted with anything that can be bolted on or somehow attached to the frame. Modifications for each dive depend on who is using *Pisces* and the immediate objectives.