NEW DIVING SLED

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A new tool for close-up views of fishing gear in operation has been added to the diving accessories used at the U. S. Fish and Wildlife Service gear research and development station at Coral Gables, Fla. This device, a controllable two-man

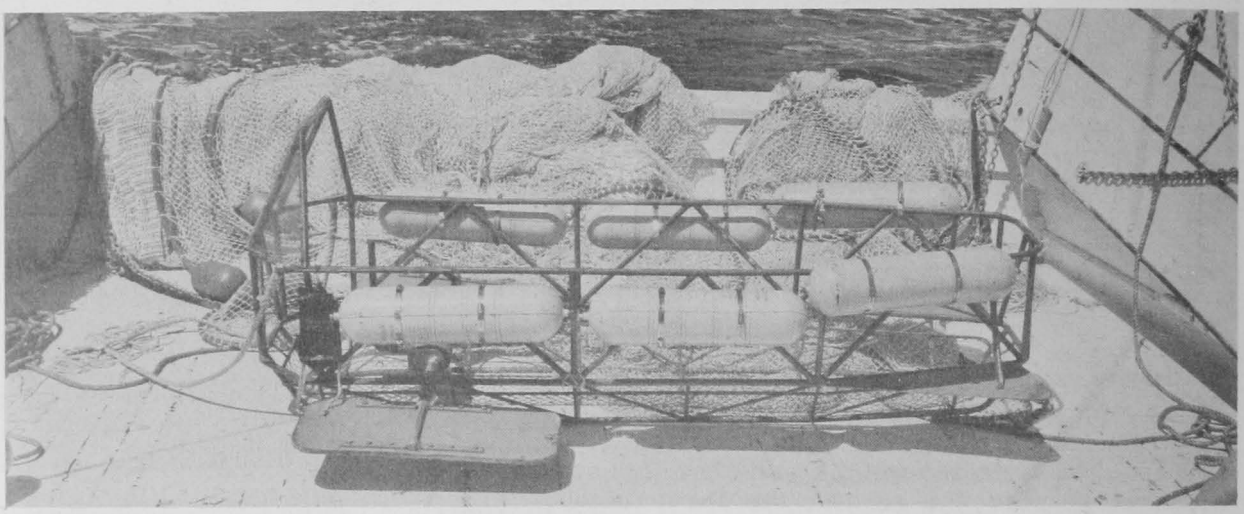

Fig. 1 - Two-man diving sled on the deck of the Service's M/V George M. Bowers is controlled by an operator in front. The second man in rear is free to make observations and photographs.

submersible sea sled, allows the Service diving team to make on-the-spot observations of trawls, nets, and other gears while under tow from the research vessel.

The diving sled was fashioned by modification to an Air Force-type tubular steel ambulance litter. The litter frame forms the bottom of the sled and extensions of tubular steel to shoulder height of the sled occupant in sitting position form a guard rail affording a greater degree of comfort and protection than possible in free diving operations. Two 18" x 24" marine plywood control surfaces are located low and forward to effect the best control. These control surfaces are actuated by a single-stick aircraft-type control column using three 45° bevel gears allowing both vertical and lateral control. Steel fins added at the rear of the sled give additional stability to the vehicle.

A "windshield" of $\frac{3}{8}$" lucite is installed forward to relieve sled occupants of some of the impact of water slipstream. Six Air Force-type 400 P.S.I. oxygen bottles are strapped to the upper sled rail giving the vehicle a slightly positive buoyance. The original steel-mesh webbing on the bottom of the litter provides a nonskid cockpit for the craft.

While under tow at either of two towing points forward, the sled has demonstrated a high degree of maneuverability and is capable of descending and ascending easily, and of performing complete rolls.

Both occupants of the sled wear SCUBA (self-contained underwater breathing apparatus) allowing full freedom of motion for piloting the craft and for observations. Other protective diving gear includes CO_2 inflated life preservers, diving knives, quick-release life belts, shark repellent, and depth meters.

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Fig. 2 - An exposure meter for underwater use is examined by divers of the Coral Gables gear research and development staff. For safety in operations a three-man diving team is used, consisting of a sled operator, underwater photographer and safety man, who remains on "standby" in the skiff.

This handy research tool has allowed researchers to observe and inspect trawls and other gears from all angles and distances, and come into actual contact with the gear

Fig. 3 - Divers put on equipment in the skiff and then transfer to the sled. The fully equipped safety man stays in the skiff.

Fig. 4 - In position above trawl net, divers descend to make underwater pictures.

while under tow at speeds to $3\frac{1}{2}$ knots. Still and motion picture photography have been accomplished safely to depths of 60 feet. When observations with the underwater television gear or remote camera device are not feasible, the diving sled has been found to be quite useful and a valuable aid to fishing-gear research.