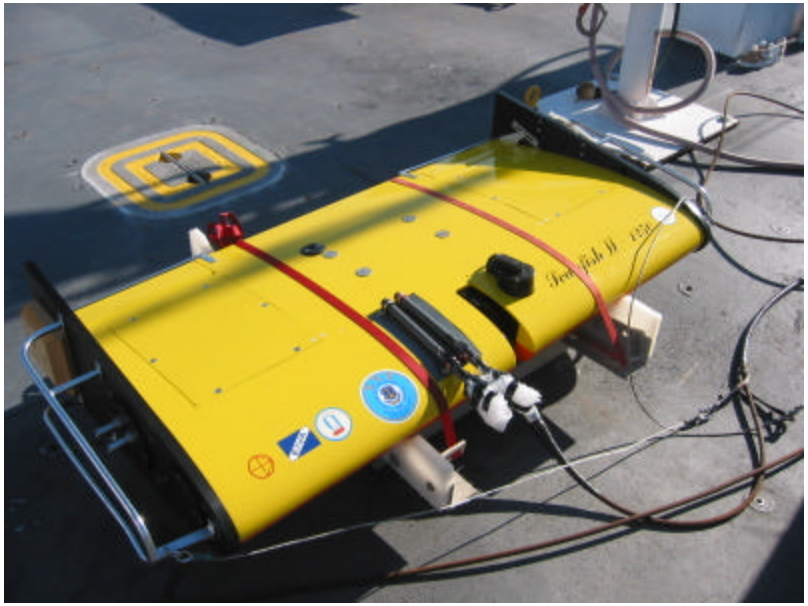
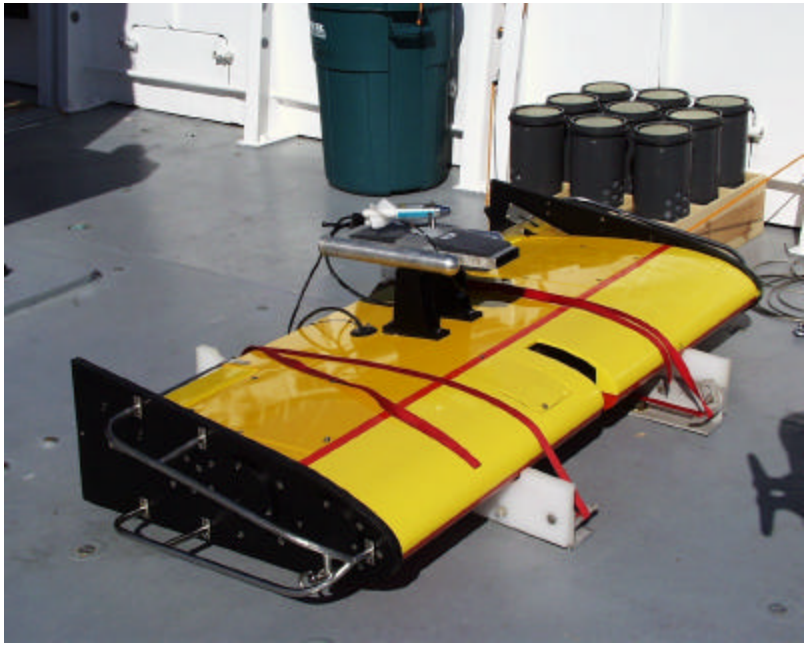
Scanfish MKII



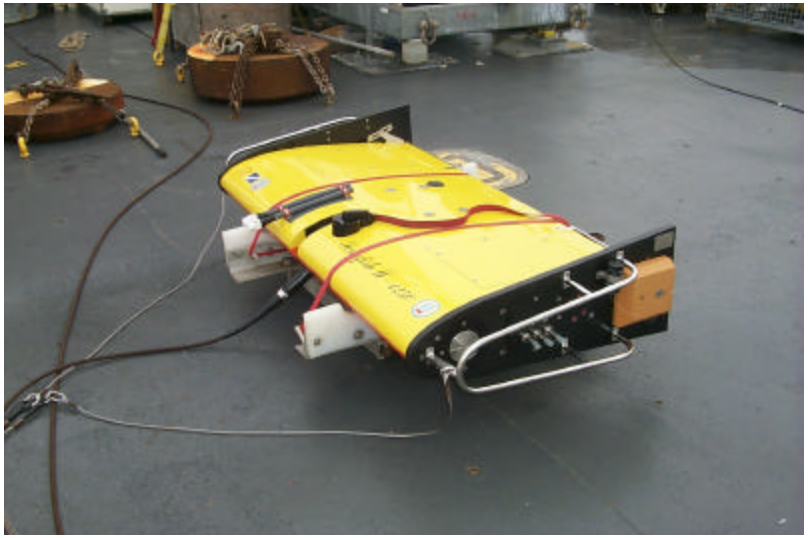
- URI's Scanfish MKII
- Sensors include CTD, Fluorometer, Dissolved Oxygen and Seabird Fast Temperature and Conductivity Sensors logging at 400 Hz and sending 50 Hz data via 9600 Baud uplink port

Original URI Scanfish MKII



- Original URI Scanfish MKII as delivered.
- OPC mounted
- Sensors CTD, Dissolved Oxygen, and Fluorometer
- Pumps and Depth not externally vented

Add-on Features



- External venting of pumps and CTD pressure port.
- RJE 37khz Beacon
- PRS275 Receiver on board vessel
- No Transmissometer in this configuration due to internal space limitations.

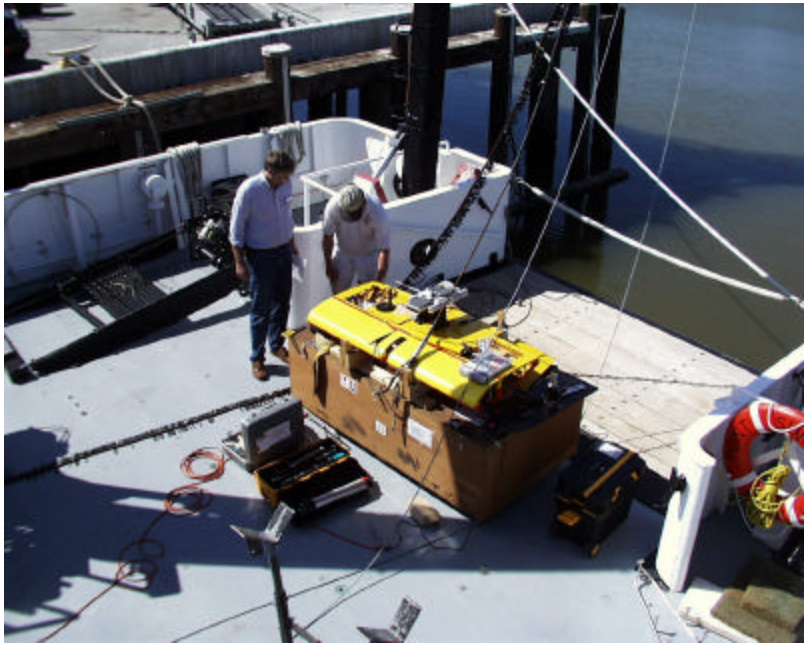
The brains exposed

- The Scanfish Electronics unit has independent depth, pitch / roll sensors,and altimeter interface.
- Controlling the flaps independently allows compensation for varying configurations

The Learning Curve

- First URI Scanfish shown in pieces to allow mounting of the OPC platform and cable access.
- A surprise awaits our unsuspecting hero just around the next assembly step.

What the hey!!!

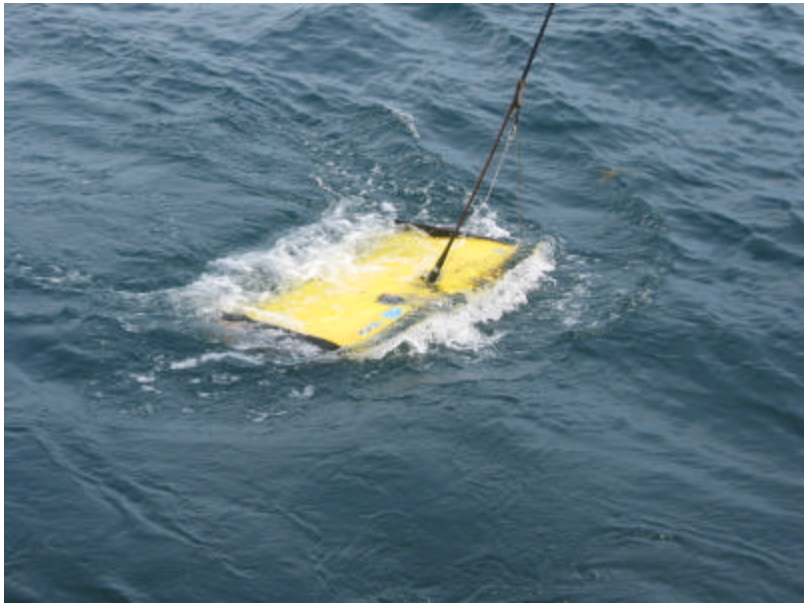


- After jumping through hoops to get newly re-designed parts sent to the ship it was a shock to find them 4mm longer than the old parts. The drive shafts won’t fit.

We are all in this together.

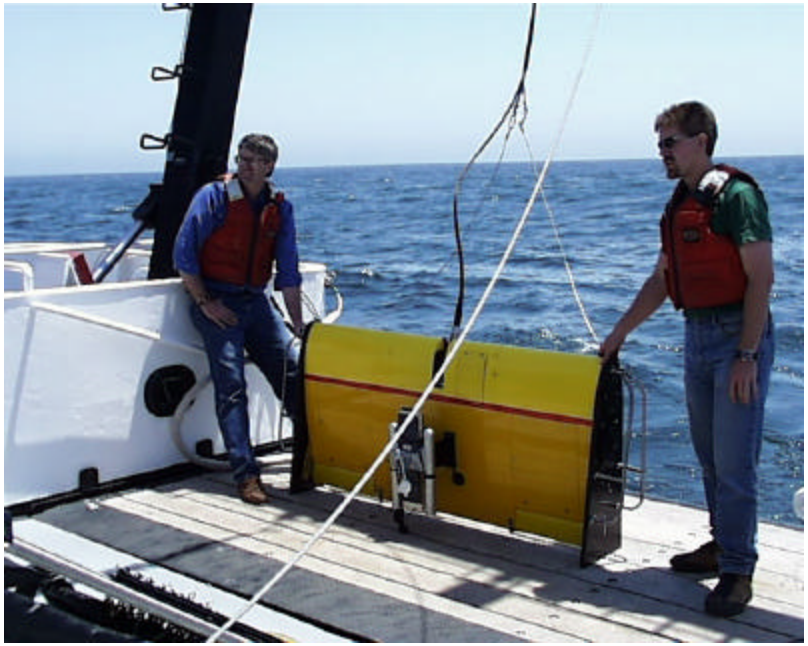
- Thanks to the MBARI ROV shop for the shaft stock and a few quick cuts on their wetsaw.
- A little fitting with the Dremel Tool cutoff wheel and life is good.

Scanfish Specs



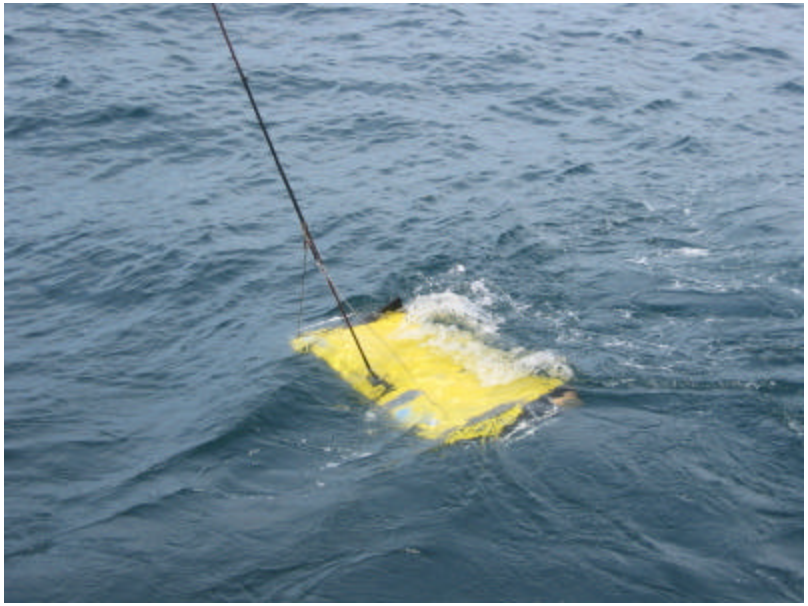
- Max tow speed 10 kts
- Min tow speed 3-5kts
- Depending on wireout
- Max vertical rate 1m/s
- Typical .5 to .7 m/s
- Automatic bottom avoidance via on board altimeter
- Max depth 200 meters

Deployment



- Start the software in the lab
- Ship speed to 3 kts
- AB on the winch
- Get permission
- Put package over the stern
- Lower into water

Deployment



- Bring speed to 5 kts
- Activate roll control
- Payout cable to required scope

(3 to 5 times the max desired depth).

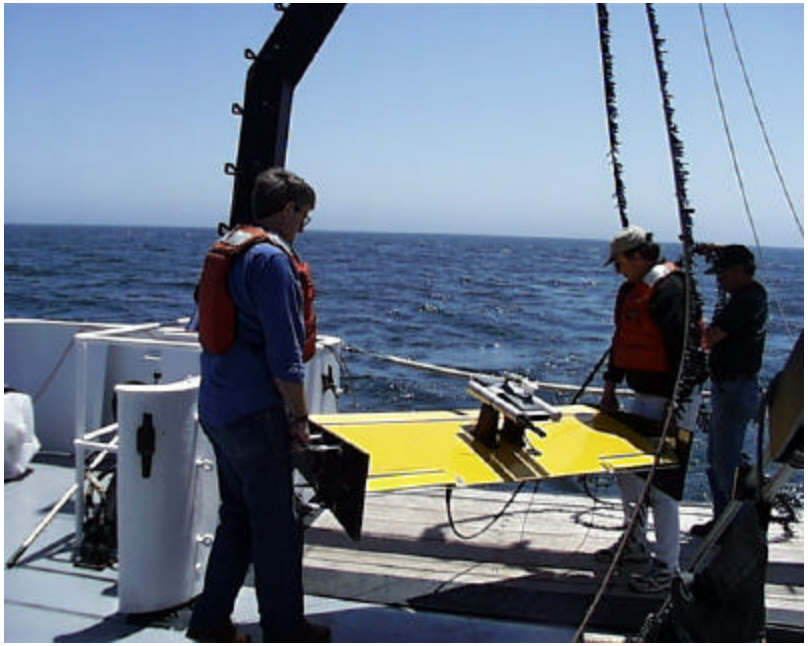
Start CTD program

Begin Undulations

Oops!

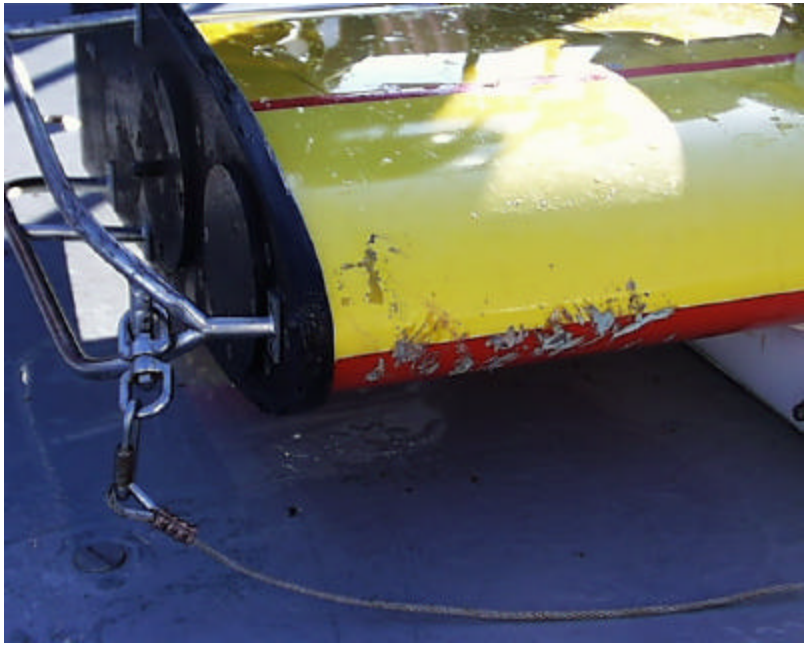
- The Scanfish has the ability to right itself if it winds up in an inverted position.
- When enough scope is achieved the operator activates the roll control and the fish will right itself.

Some features



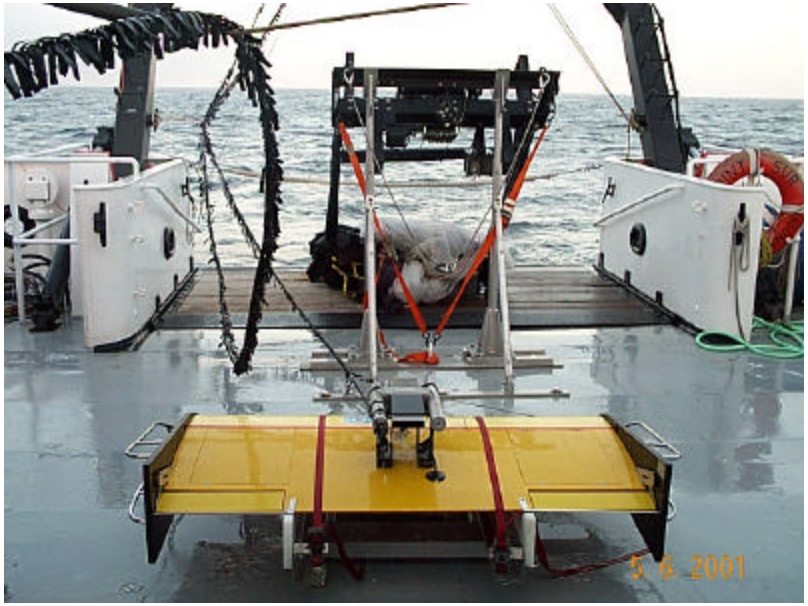
- Lightweight and compact
- Adapts to various deck layouts easily
- Good for shallow work-have undulated
- 3-11 meters
- Rugged

Takes a licking



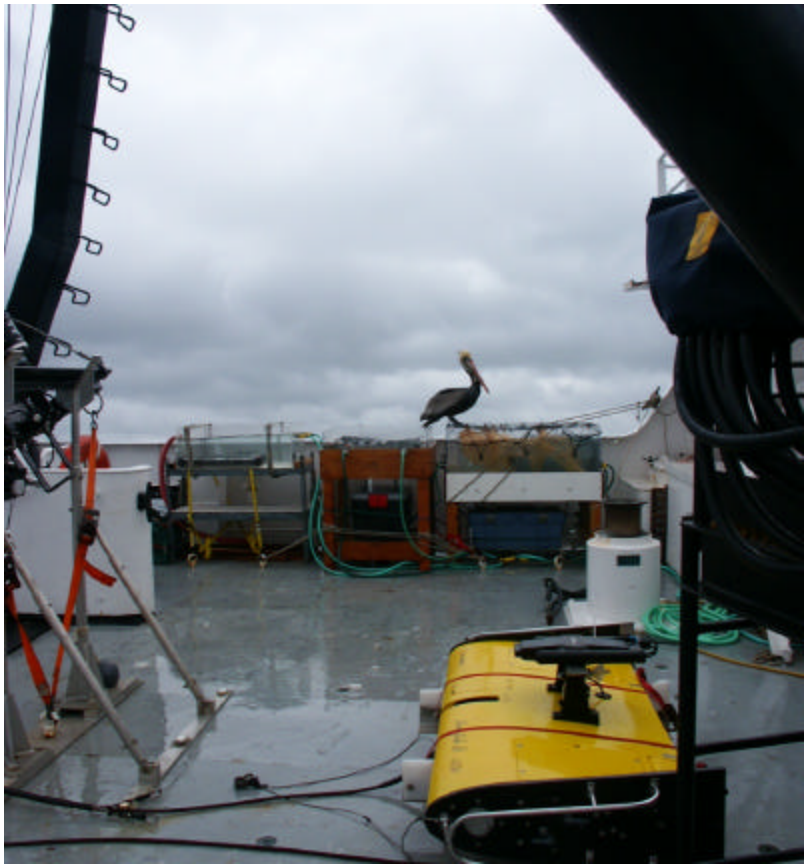
- Bottom avoidance assumes the fish can climb faster the the bottom is rising.
- The altimeter said we missed Cordell rock, the paintjob said different.

Plays well with others



- BESS 1 meter MOCNESS. The model T of towed profilers. 2kts typical
- The GMI Scanfish MKII can be carried around the MOCNESS for deployment

What’s in a name?

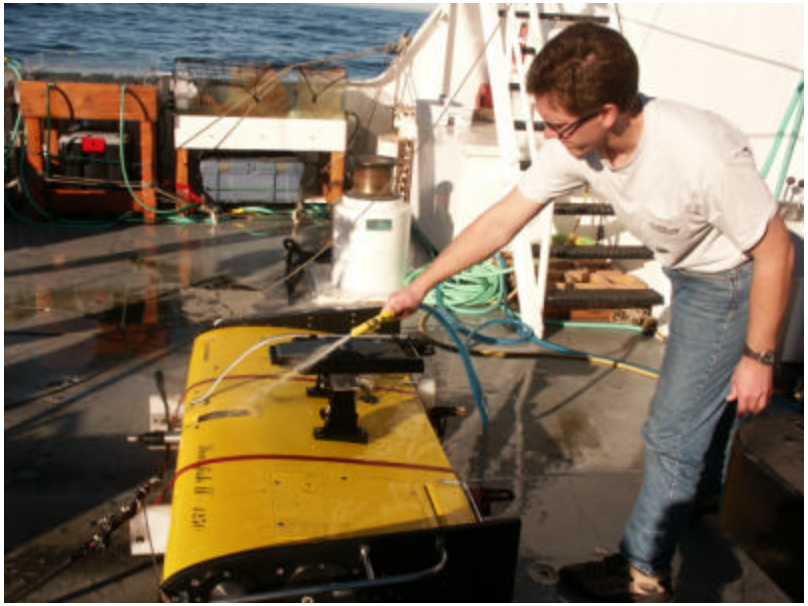


- The GMI Scanfish MKII would then have to be considered the Jaguar of the towed system fleet.
- Typical towing speed is 8 kts.

Life moments

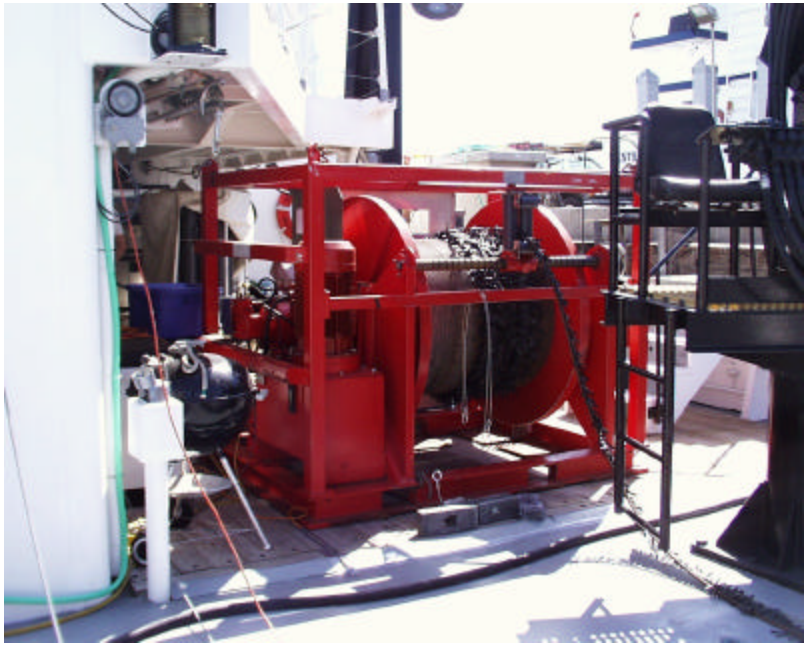
- Did he say Jaguar?

See spot , see spot run.



- Darn Pelicans
- The current flight software is DOS based
- The new software is for windows and is in the proposal for next year. (1 or 4 users)
- Separate Playback Software for PI’s

Sometimes you get what you order. Sometimes you don’t.



- Cormac RR1000
- Capacity 2500 meters of ½” cable
- Rochester A301301
- 3 Coax, 3 Copper plus shield armor
- 440v,50amp 3phase
- Now with remote.

A little Overkill

- Only need 1200 meters of cable.
- Weight 7200 lbs
- Not air shippable
- Too much deck space
- Not computer controlled.

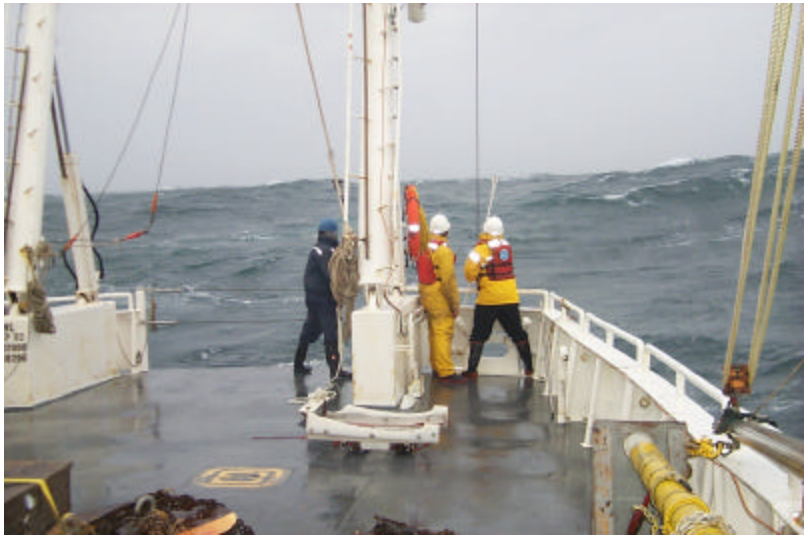
Mother is unpredictable

- Can be towed for long periods for surveys.
- Recovered daily for inspection.
- The weather does not always cooperate.
- The compactness of the Scanfish helps out here.

Mother is unpredictable

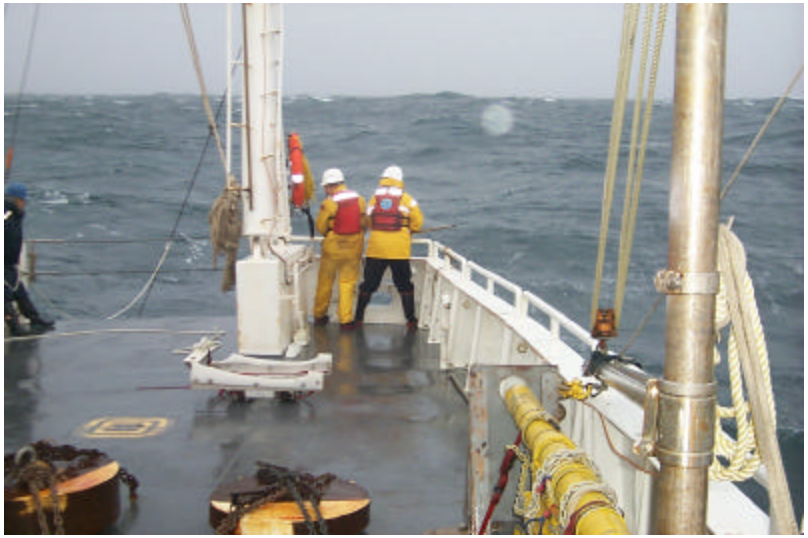
- The relatively lightweight and rugged design allows rough weather recovery with minimal risk to personnel or equipment.

Mother is unpredictable



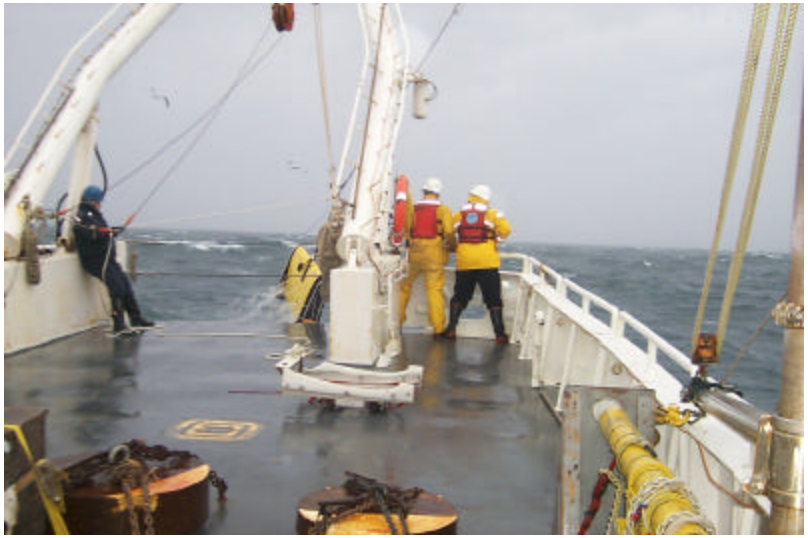
- A mooring hook and line is clipped onto the wire while the fish is still safely away from the hull and under the waves.

Mother is unpredictable



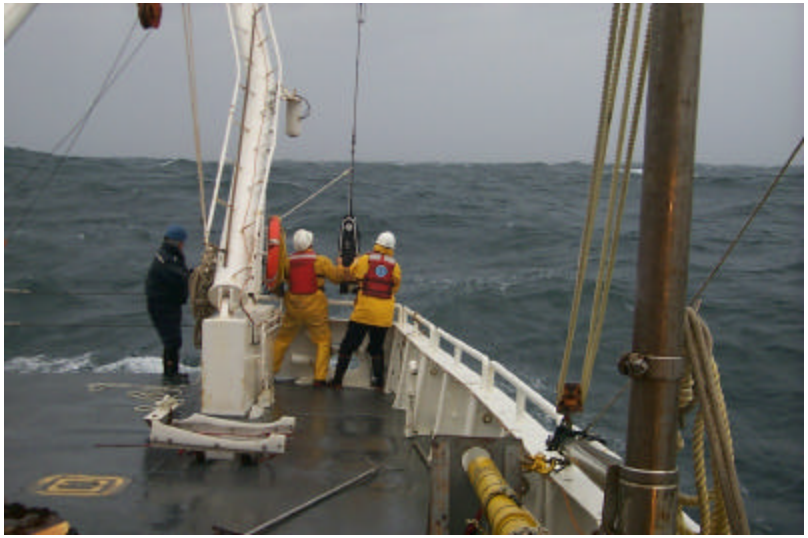
- The hook is allowed to slide down the wire as the fish nears the ship

Mother is unpredictable



- The hook stops its slide when it reaches the gear deflector cables and allows for control of side to side swinging.
- The recovery pole controls fore and aft swinging.

Mother is unpredictable

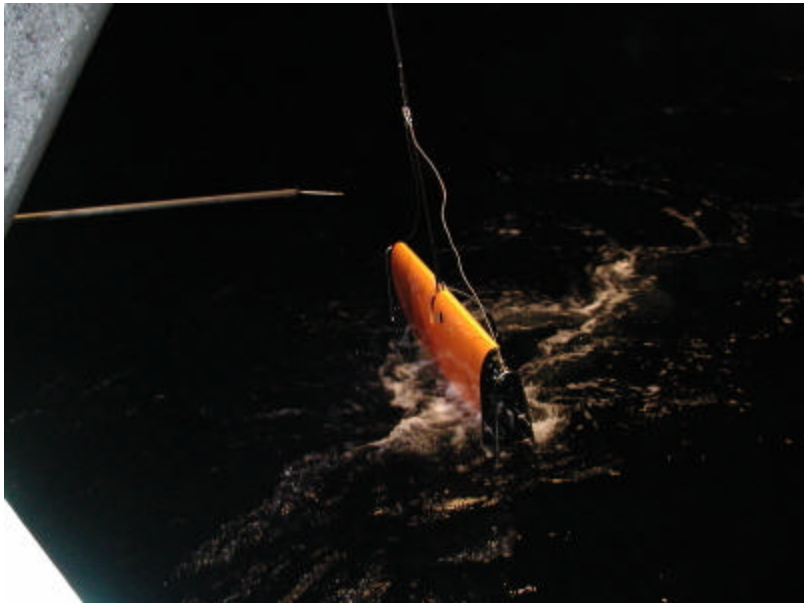


- The relatively light mass of the package and a large dose of luck mean the Scanfish is back on board to fish another day.

The right tool…

- The recovery pole is equipped with a V shaped 3/8” SS attachment with a hook on one side.
- The hook allows capture of the gear deflector cables to stabilize the package

For every job.

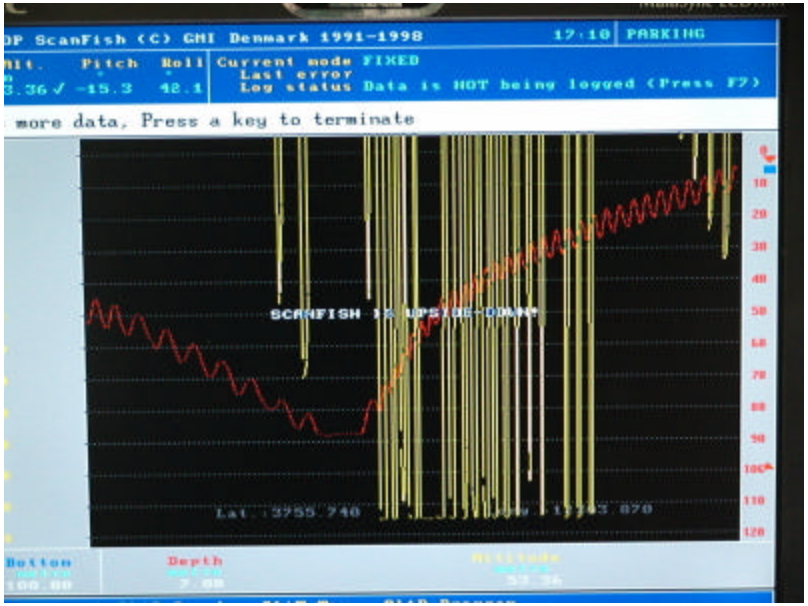


- Here the hook is used to fend off the Scanfish during recovery.
- Also note the custom deflector from the bow to the top of the OPC

Attractive nuisance

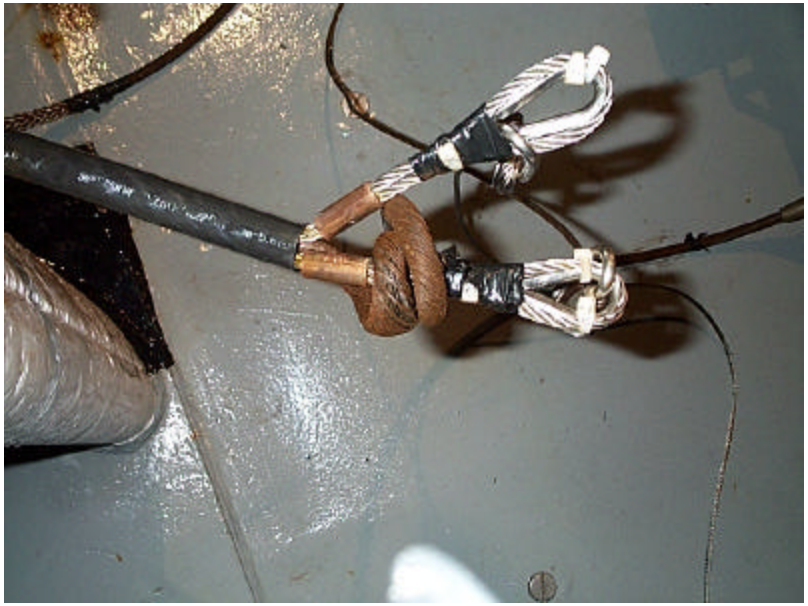
- The gear deflector cables “sometimes” keep pot lines out of the termination slot.
- There are other hazards lurking below

The screen says it all



- These very small undulations and the upside down warning mean the the Scanfish is rotating out of control due to the seaweed on one side of the package.

Torqued off



- The uncontrolled rotation imparts unnatural stress on the cable. A following sea threw the fish forward on recovery and the results are shown. Retermination is a 6 hour ordeal.

Hanging by a thread

- The Scanfish was recovered hanging by one of the gear deflector cables.
- The termination is a wedged cone type that screws together and is equipped with a locknut.

Work it baby!

- Fixed anchoring of gear deflector cables leads to early failure.
- Cables attached by screw links, even without swivels allow cables to last for years barring fishing gear involvement.

California is for Surfing

- The Scanfish with an OPC can pick up a Jellyfish which acts as a drag chute, preventing the ability to dive.
- Setting the min scan depth to 0 meters lets the fish break the surface and collapse the jellyfish

Watch Station

- The left hand screen displays the CTD data
- The middle screen shows wire out.(now on CTD screen)
- The right screen displays the flight software.

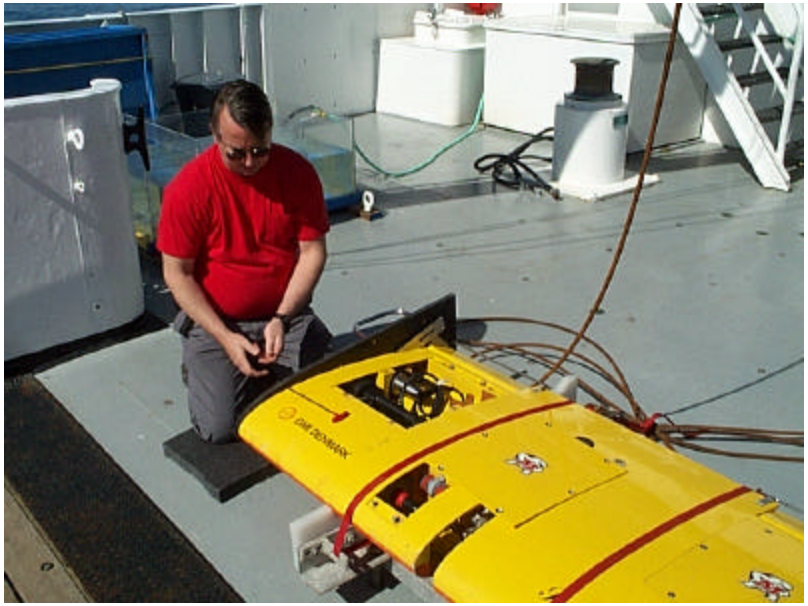
Change is good?

- URI,UDEL,and Maryland have all supplied Scanfish to support science aboard the Pt Sur. All three units were fitted with ¼ meter pathlength transmissometers in the field.

Obligatory Sunset Picture

- Usage varies from zero to four months
- Set up and teardown usually two days each.
- Support time is the same for a two day cruise or a two week cruise.
- Spares vary with ship.

Dedicated Technician



- Use two techs on Endeavor
- Train resident tech on other vessels as needed .
- Possible to train some scientists to stand watch, but takes time to teach all aspects.

Contact Information

- URI Graduate School of Oceanography.
- South Ferry Rd.
- Narragansett RI
- O2882
- Dave Nelson
- Marine Technician IV
- 401-874-6840