BEFORE THE RETRIEVER THERE WAS THE ETHEL H.

Milton Windler, September 2012

Before the MV Retriever there was the Ethel H. Built in the late 19th century as a Chesapeake Bay Log Canoe sailing vessel and used to dredge oysters & crabs under sail. The Ethel H. was converted to diesel power after WW II and made her way into the space age! She was "an able vessel" as the watermen say.

The Ethel H. came from crabs to space by chance. In 1959 the Space Task Group (STG) was established at NASA Langley Laboratory and a Mercury Recovery Operations group was set up. The photo shows virtually the entire group "in the field" observing a floatation test at the Langley AFB Crash Boat dock.

Recovery Operations Team at Langley AFB

From left to right they are: John Graham, Enoch Jones, Charlie Tynan (back to camera), Milton Windler, Leon Hodge. If the person hidden by the piling is Pete Armitage, the group is complete, except for Easy Harrin. As you can see they are deep into recovery planning!

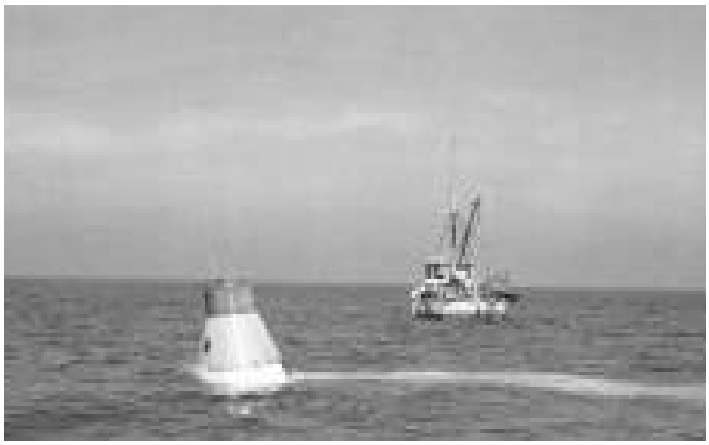
One of the Recovery Ops tasks was to see how the Mercury would fare post landing in the open ocean. Being rocket scientists we realized immediately that a boat capable of handling the 2000# Mercury was required. By chance one of the recovery guys was John Graham, a local from Poquoson (Bull Island as it was known to the mainlanders from Hampton). His family were long time watermen and ran a crab operation on Hampton Creek (still do today, in fact). John's daddy owned the Ethel H and was willing to contract it out as needed on a daily basis. Since the Ethel H was docked in Poquoson across the Back River from Langley AFB the logistics were good. When we asked Capt Graham if he thought the Ethel H. could handle the Mercury pickup loads, he replied, "She can pick up anything I can hook into!" Fortunately we never had to test that optimism to the ultimate!

We used the Ethel H. all through the period when the Space Task Group was at Langley, from 1959 to 1962.

Big Joe Capsule Tests

The Mercury recovery system tests started with smoke and dye tests on the Big Joe capsule. This capsule was designed by STG for early heat shield tests using the Atlas booster. It was built by Langley NASA Tech Services (those guys could do anything!). For post landing location aids there was a SOFAR bomb, smoke generator, dye package, shark repellent (best you could say for shark repellant was that it didn't attract any more sharks than you already had!) and the big boy – the UHF SARAH homing beacon which was really all you needed. Caldwell Johnson (a very clever and practical designer!) was responsible for the capsule design and once we convinced him the SARAH was important, he logically said why not have two of them in case one wound up under water-so we did. This was the only capsule configuration with 2 SARAH beacons. There were a lot of tests of the beacon with various USAF & Navy aircraft so we outfitted the Ethel H with a 28v aircraft APU (generator) and an aircraft UHF radio to handle the communications. The Ethel H was probably the only crab boat with a UHF radio in 1960. The amazing thing was that they were paying us to do this kind of thing.

Big Joe Capsule Smoke Test

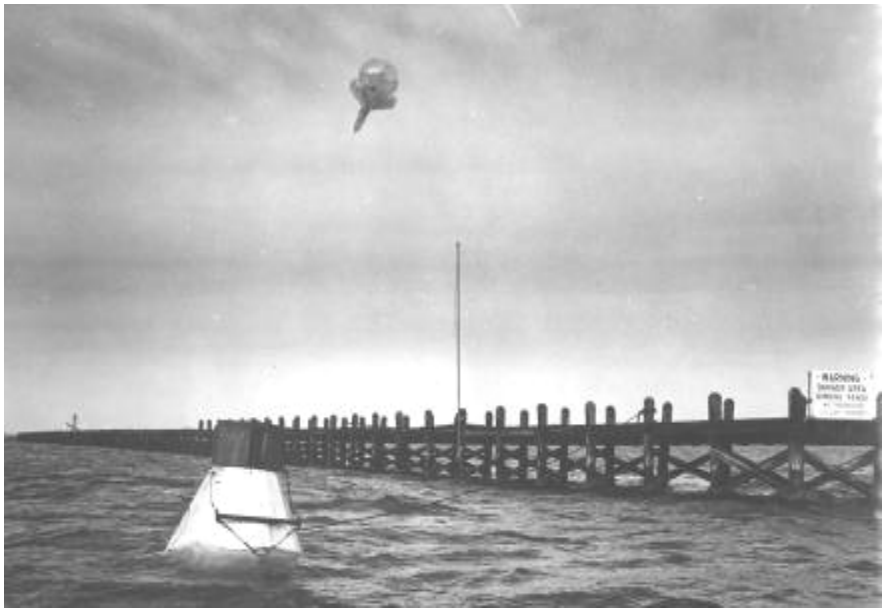


Big Joe SARAH and Dye Test (Ethel H in background)

HIGH FREQUENCY BEACON TESTS

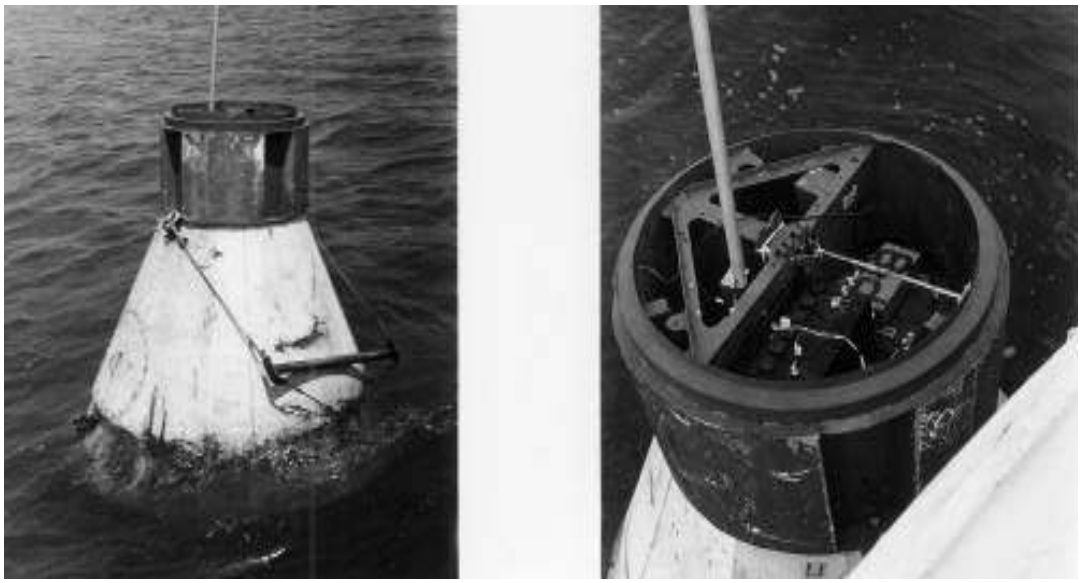
One of the earliest tests of specific McDonnell type Mercury recovery aids was on the High Frequency radio system. It was designed for the world wide HF location net and was expected to be useful over hundreds of miles. A helium balloon inflated post landing and lifted the antenna wire into the air. A good idea in theory, but required a crew of folks to be sure the balloon came out and up!

Hank Wall, McDonnell; Milton Windler, Recovery Ops Test Group; and several technicians inflate the HF balloon as Capt Graham looks on at all this craziness



HF balloon flying at the Plum Tree Island Bombing Range

The long wire antenna worked well after getting airborne, however common sense prevailed and an extendable whip antenna was evaluated. This worked out much better.



HF Whip Antenna Test With Mercury Boilerplate

The Ethel H was later used to test the final McDonnell UHF SARAH beacon and HF beacon/antenna configuration which passed with flying colors and served the Project Mercury post landing location needs throughout the program.

Prototype Mercury Spacecraft with Flight Type Location Aids in Back River

FLOATATION TESTS

The Ethel H was there in 1960 when we made the first floatation test of the Mercury configuration. This included a landing system in which a heavy rubberized air bag dropped down about 4 feet to cushion the landing shock should there be a land landing following a launch pad abort. The heavy heat shield remained attached to the bottom of the air bag and, for the normal water landing, was to serve as a sea anchor to keep the capsule upright in the water. The boilerplate capsule was placed in Chesapeake Bay with the air bag deployed for what was probably supposed to be a 24 hour test. We were a little surprised when, after a few hours, the capsule showed a decided list and was in some distress, as were we all. Seems the rubber fabric was not nearly up to all those wave cycles (which were not particularly strong). The next photo shows the tangled mess being dragged back aboard the Ethel H by John Graham and Milton Windler.

Mercury Boilerplate after Failed Air Bag Seaworthiness Test

The solution as put forward by clever design folks was fairly simple. Since the air bag had done its work after landing, go ahead and let it rip up, but keep the heat shield attached for a sea anchor. This required adding some flexible stainless steel straps which could take the wave cycles. The next photo shows this new configuration which turned out be able to stand the real world of the Ethel H recovery operations.

Revised Air Bag Attachment
(Note air holes to allow semi-controlled collapse)

The Ethel H was used to test the final McDonnell landing bag configuration which passed with flying colors

EGRESS TRAINING

The Ethel H was also host to the Mercury astronauts on several occasions when we did egress training as you can see from the collage at the beginning. She looked pretty spiffy on those activities. They included egress from the Mercury onto the floatation collar and then into the one man raft, as shown by Gordon Cooper in the next photo. As an indication that we were willing to try all possibilities, the recovery arsenal included a radar reflector for the life raft. This was the closest the Ethel H came to being outfitted with radar in her long career.

Gordon Cooper Does Egress Training in Back River

Radar Reflector for Astronaut Survival Raft

Life in Recovery Test Operations was a lot of fun actually. That is if you had no trouble with seasickness since we went out some times amid the white caps (but nothing like those guys on the navy ships).

There were some interesting moments during these test runs, such as in the time when the spacecraft took on water. We hooked on to the spacecraft with the Ethel H winch line. One of the technicians had to open up the hatch and was working in the opening as the spacecraft was suspended over the side. After this had gone on for some minutes, Capt Graham was heard to observe that “he hoped the tech would get done soon since the winch clutch was known to overheat and start to slip”. This got our attention since there was a real chance of the technician getting seriously damaged if the capsule dropped down while his head & shoulders were inside. But it didn’t.

There were some other chances for a little fun as part of work. On two occasions it became necessary to swim out to the capsule to secure a line or something like that. Of course John Graham & Milton Windler needed little encouragement.

The Ethel H served us well for 3 years. She ultimately went the way of most crab boats--pulled up into the marsh and left to the weather. That brings us to late 1962, Clear Lake, Galveston Bay and the Lilla M. But that is another story.

Photo References to JSC System

Recovery Group B-60-1191
Big Joe Sarah test No Number
HF balloon inflation B-60-1176
HF balloon launch B-60-1166
HF balloon flying B-60-193
HF whip antenna No Number
Prototype Mercury floating No Number
Mercury boilerplate with failed air bag B-60-1436
Revised Air bag G-60-2530
Mercury with final bag S-61-2921
Cooper egress No Number
Cooper Helicopter pickup S-61-2539
Radar reflector S-61-4500
Test operations retrieval G-60-2604
Swimmers in water No Number