

Near Miss R/V Stenella, June 2010

LOSBO Report

On 20 June 2010 a NOAA Fishery boat conducting marine mammal work had a near miss incident. The R/V Stenella, based out of the NMFS Beaufort laboratory was called into service in response to the Deepwater Horizon oil spill. The vessel was operating near Grand Isle, LA and working in conjunction with another NOS boat. The cooperative project between NMFS and NOS utilized two boats to conduct biopsy and photo-I.D. surveys.

The R/V Stenella was idling near a group of bottlenose dolphins when they noticed, what appeared to be steam coming from the engine. The engine quit running soon after and only then did the overheat alarm go off. After closer inspection the crew realized it was not steam, but smoke coming out of the engine cowling. The smoke odor appeared to be electrical in origin. The crew attempted to remove the cowling, but found it hot to the touch and managed to lift it with a boat paddle. Once it was partially opened, a fire extinguisher was used to extinguish the smoldering fire. No flames were ever observed and the crew did a commendable job dealing with the problem before it could increase in size and scope. The boat was towed back to the Louisiana Department of Wildlife and Fisheries facility at Grand Isle by an LDWF Enforcement boat. A report of the incident was completed by one of their officers. There were no injuries to personnel and damage was limited to the outboard motor.

The engine, a 2003 Mercury 90hp - 4 stroke had been serviced in December 2009 and again inspected in June 2010. The boat was taken to the local Mercury mechanic in Beaufort, NC in June, who conducted sea trials before the vessel was put into service. The boat is 2001 Zodiac SRMN 600 that is use primarily to support marine mammal operations.

On 21 June 2010 the R/V Stenella was trailered to the Pascagoula laboratory and will be temporarily stored here before returning to Beaufort. Once the boat arrived it was inspected by several NOAA operators/mechanics who verified that the origin was electrical and likely started in front of the engine, near the flywheel. All the plastic components and wiring in that part of the engine were melted and would need to be replaced if repairs are warranted. Due to the age and damages to the motor it should probably be replaced. I suggest the Small Boat Program post a possible fire warning regarding 90 hp, 2003 Mercury 4 stroke motors. Had the crew not been idling at the time and quickly dealt with the smoldering fire it could have turned in a serious situation.

Follow up July 8, 2010

The Mercury dealer completed their assessment of the motor that recently caught fire. They did not believe it to be electrical in origin, but caused by a fuel buildup. They think one cylinder likely quit firing, due to a leaky carburetor which allowed gas to collect in the air box. Due to excessive gas the cylinder did not fire and fuel continued to buildup. A spark from a backfire or other source ignited the fumes collected in the air box. The air box suffered the worst damage, which indicated the fire likely started there. According to the mechanics I spoke with, the engine would have continued to run smoothly at

low RPMs even after dropping one cylinder and probably not be noticeable until the motor was operated at high speeds. The operator and scientists were idling at the time the fire started and were probably unable to discern any change in way the motor was running. If they had been operating at high speeds they would have noticed a loss of power. Since the motor had recently been in for repair, we looked back (see below) at what sort of work was done. In December 2009 the carburetors were rebuilt and reinstalled more than once. The motor also had a history of backfiring, as noted in the mechanics comments. Sounds like this was an isolated case and not likely a widespread problem with 2003 - 90hp Mercury motors.

Labor breakdown December 2009

Quantity	Item	Description	Unit Price	Amount
3.25	3.TECH	Tech Labor to disassemble carburetors. Found white jelly-like substance in 3 carbs and pilot jet was restricted in those carbs. Cleaned, reassembled & mounted on intake manifold.	85.00	276.25
2.25	3.TECH	Tech Labor to reinstall carburetors & ran motor on hose - motor has a miss. Remove spark plugs and #1 & #2 were fouled. Cleaned plugs and reinstalled. Motor ran better. Adjusted air/fuel mixture screws, but could not get motor to stop running rich.	85.00	191.25
4.00	3.TECH	Tech Labor to T/S motor running rich and not firing on all cylinders consistently. Performed compression and leak down test - 190 psi on all cylinders and leak down 25% on #1 and 10% on all others. Pulled & cleaned spark plugs again / inspected intake runners, air box, fuel enrichment and engine timing.	85.00	340.00
5.75	3.TECH	Tech Labor to run power tune through engine and attempt to test - motor will backfire when advancing throttle. Remove valve cover & inspect valve clearances. Clearances checked ok. Removed carbs again and reinspect.	85.00	488.75
7.25	3.TECH	Tech Labor to inspect air supply to carbs and found debris lodged in carb vent hose in engine adapter plate. Removed debris and cleaned out hose. Tightened up temperature switch and reassembled carbs and adapter plate assy. Performed synch & link on engine & ran motor on hose - ok.	85.00	616.25
2.50	3.TECH	Tech Labor to launch boat and seatrial - everything performing normally under load. Put boat back on trailer and button up for owner pickup.	85.00	212.50
1.00	5.92858080K01	power tune	8.45	8.45