

Vessel Questionnaire on Cooling Water Impacts by Menhaden Fish

*** PARTICIPATION IN THIS QUESTIONNAIRE IS VOLUNTARY AND ANONYMOUS -PLEASE DO <u>NOT</u> INCLUDE VESSEL NAME OR NUMBER ***

2017 MENHADEN SEASON IN THE SABINE-NECHES SHIP CHANNEL

To Vessel Master/Chief Engineer:

Although we had a reduced Menhaden population in 2016, we should prepare for a more robust 2017 of young menhaden fish in the Gulf of Mexico and in the Sabine-Neches Ship Channel. Texas Parks and Wildlife is also projecting a heavy Menhaden season in the Sabine/Beaumont areas (see attached data sheets).

These fish can clog sea chest strainers and restrict the flow of sea water cooling, not only while transiting, but also while your vessel is alongside a berth. Please review the attached USCG Marine Safety Information Bulletin MSIB 02-17 from Coast Guard Sector Houston-Galveston, pertaining to Loss of Vessel Propulsion and Maneuverability due to clogged sea strainers, as the Sabine Neches Ship Channel also has a very high population of Menhaden fish.

The purpose of this questionnaire is to assist the Lone Star Harbor Safety Committee (LSHSC) & Southeast Texas Waterways Advisory Committee (SETWAC) continue to develop Best Practices, for preparing vessels for port calls in the western US Gulf during Menhaden season, (Menhaden can be present all year round with the heaviest periods in April through October time frame), in order to reduce or avoid overheating issues. We have included the Best Practices that were identified in our 2015 and 2016 efforts. Therefore, we appreciate your input and cooperation again in 2017, since it is critical to the safe transit of vessels.

The Sabine Pilot aboard your vessel has been requested to assist you in completing this questionnaire and submitting it for review. This questionnaire should take less than 10 minutes to complete. Please return the completed questionnaire to the Pilot before he or she departs your vessel.

If you are unable to provide the Pilot with the completed questionnaire before he/she departs your vessel, you may, email your completed questionnaire to Aaron Heniger at aaron.b.heniger@uscg.mil.

Thank you for your assistance,

The LSHSC Menhaden Workgroup

Identified Best Practices

- Prior to transit, inspect and clean the service sea chest. Ensure filters and coolers are clean prior to entry into US waters.
 - Regular cleaning of the sea chest, especially if vessel is expected to transit in shallow waters.
- Sabine Pilots will proactively engage in discussion on this issue during Master/Pilot conference
 - Recommend additional personnel standby in engine room with essential equipment ready to clean the strainers.
 - Recommend that strainers be cleaned just prior to ship channel transit.
- Be aware of the Solunar activity for your day/time of transit, since high levels of "fish activity" have correlated to clogging incidents. Utilize <u>www.tides4fishing.com</u> to observe Solunar tables which show levels of fish activity.
- Operate on minimum cooling capacity, keep maximum buffer.
- Ensure all pressure gauges are working.
- Monitor pumps and filter differential pressures. Monitor SW pressure for signs of reduced performance. If observed, call out team for cleaning strainers.
- Continuously monitor suction and discharge pressure of main engine sea water pump in use during transit. Have low pressure alarm for sea water cooling for main engine air coolers
- Continuously monitor and control relevant temperatures.
- Have a contingency plan in place and ensure all engine personnel are familiar with the plan.
- Maintain good communication between bridge and ECR
- Consider posting a double watch in the engine room while in pilotage waters. Have personnel ready for cleaning of strainers during transit.
- All tools and equipment used for opening the sea chest and cleaning the strainer should be standing by and ready for usage.
 - It is a good practice to always keep all the bolts and nuts of the sea chest filter cover well lubricated and eased up in order to avoid unnecessary delay in opening the filter. Same should be done for the coolers suction filters.
 - Have a spare LT cooler sea water inlet strainer basket to reduce the time required to get the cooling system back in use.

Identified Best Practices

- Vessels regularly transiting the ship channel should consider having a spare clean filter strainer standing by, allowing quick changeovers of strainers.
- Use one sea chest only and keep the other one(s) for backup / stand by. Make it a routine to check / clean sea chest and central coolers for efficient operation of the ship.
- Keep fresh water generator ready for use.
- Consider back-flush arrangements for filters and coolers during design or retrofit of vessel.



Coast Guard Sector Houston-Galveston Marine Safety Information Bulletin 02-17

Loss of Vessel Propulsion and Maneuverability Due to Clogged Sea Strainers

Gulf Menhaden, small fish common to Galveston Bay and coastal waters, present a seasonal threat to ships transiting Galveston Bay and the Houston Ship Channel (HSC). These small fish are commonly ingested into sea strainers causing transiting ships to lose propulsion or experience reduced propulsion; which could hazard affected vessels, other vessels in proximity and waterfront facilities. The Menhaden hazard is highest between the months of May through October although incidents of sea strainers clogged with Menhaden have been reported between November and April. Gulf Menhaden are most commonly found in coastal and inland tidal waters. They form large surface schools, typically in Gulf near-shore waters. The fish, attracted to the sea chest of transiting ships, become trapped in sea strainers. This, in turn, restricts cooling water available to propulsion machinery and results in high water and lube oil temperatures. In some instances Menhaden have entirely clogged the coolant systems aboard affected vessels and caused engines to overheat. The result is often automatic engine shutdown or slow down. The risk in 2017 is increased as the Texas Department of Parks and Wildlife anticipates greater than normal Menhaden concentrations in Galveston Bay and coastal waters.

In 2016, the Lone Star Harbor Safety Committee (LSHSC) developed a feedback form (*Vessel Questionnaire on Cooling Water Impacts by Menhaden Fish*) and requested that transiting deep-draft vessels provide feedback on the problem. This information aided efforts to determine how these fish are being ingested, which lead to identification of best practices to mitigate the potential impact on transiting vessels. In 2017, the LSHSC will again request feedback to continue its analysis and development of effective strategies to counter this seasonal threat.

Recommended Best Practices:

- 1. Filter strainers should be in place whenever sea chests are in operation. Isolation valves should be closed and switched to a sea chest equipped with a clean filter strainer.
- Sea strainers should be cleaned regularly and procedures for cleaning established. These
 procedures may include back-flushing by opening the strainer outlet valve from upstream to
 prevent fish carryover into the pumps, and closing the valves on either side of the strainer to
 isolate the strainer prior to accessing it for cleaning.
- Inspect and clean the service sea chest prior to transit. Ensure filters and coolers are clean prior to entry into U.S. waters. Implement a preventative maintenance system that requires frequent cleaning and exchange between sea strainers.
- Monitor the pump pressure and filters. If reduced performance is observed, initiate immediate cleaning of sea strainers.
- Develop a contingency plan and ensure all engineering personnel are familiar with the plan. Consider posting a double watch in the engine room while in pilotage waters. Have personnel ready to access and clean sea strainers during transit.

- All tools and equipment necessary to access the sea chest and clean the strainer should be on hand and ready for immediate use.
- Consider maintaining spare, clean filter strainers onboard, to facilitate quick exchange of strainers.
- Consider implementation of an engineering-designed approach, such as using the aft peak tank for seawater cooling purposes. Internal cooling, for example, is commonly used aboard vessels that operate in extreme cold weather conditions such as the Baltic Sea and Great Lakes during the winter months.



This bulletin shall remain in effect until April 10, 2018.

P. F. Martin

Captain, United States Coast Guard Captain of the Port

TEXAS PARKS AND WILDLIFE Data for Sabine Lake Area





Section A - Vessel information (status prior to transit)		
1. Date: 2. Time:		
3. Barometric Pressure: mb		
4. Inbound Outbound		
5. Type of Vessel:		
6. Summer Deadweight (in thousands of tons):		
7. Vessel LOA: □ <61m		
8. Vessel Breadth: □ <15m □ 15m - 32m □ 33m - 37m □ >37m (<50 ft.) (50 ft 105 ft.) (106 ft 120 ft.) (>120 ft.)		
9. Vessel Condition:		
10. Vessel Draft - Aft (if not known, then Mean Draft): <u>8.0</u>		
Section B - Engine cooling information (status prior to transit)		
11. Has your vessel cleaned the sea chest strainers prior to transiting the Houston Ship Channel?		
≤12 hrs.		
12. What is the height above the keel of your sea suctions?		
2.995 Port high Starboard high		
Port low 2.0 Starboard low <u>meters</u> feet		
13. Which sea suctions are being used for this transit?		
Port high Starboard high		
Port low Starboard low		

14. Are sea chests equipped with an operating back flush arrangement?		
□ Yes □ No		
15. Number of sea water Main Engine coolers:		
16. Are sea chests and coolers on a common system?		
□ Yes □ No		
17. Select one:		
Sea water from the sea chest will be used for other functions or equipment during the transit.		
Only essential equipment will be running during the transit - all non-essential equipment will be switched off or isolated.		
18. Do you have a contingency plan if a sea chest gets clogged or if the low sea water pressure alarm activates?		
<u>□ Yes</u> □ No		
Section C - Transit information		
20. During this transit did your vessel experience any of the following:		
Overheating of the main engine or loss of propulsion		
High temperature alarms		
A voluntary speed reduction to prevent any loss of maneuverability, potentially due to cooling water obstructions		
\Box Yes (Please answer remaining questions #22-29)		
\Box No (Please skip to questions #28-29)		
21. Date of occurrence:	22. Time of occurrence:	
23. Location of occurrence:	1	

Houston Turning Basin		
Above Morgan's Point at:	_ (be specific, such as buoy #)	
Below Morgan's Point at:	(be specific, such as buoy #)	
Galveston/Texas City area:	(be specific)	
Bolivar Roads and/or Bolivar Roads Anchorage		
Offshore Fairway and/or offshore Anchorages		
24. Inbound Outbound		
25. If you had to switch sea chests, which ones did you switch to?		
Port high Starboard high		
Port low <u>Starboard low</u>		
26. If you had to clean the strainer baskets, how long did it take to complete?		
27. Please briefly describe any other actions taken:		
Section D - Comments		
28. Any best practices to share based on your experiences	\$?	
29. Other comments and feedback you would like to provid	de to the workgroup?	