



Vessel Questionnaire on Cooling Water Impacts by Menhaden Fish

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

2018 MENHADEN SEASON IN THE HOUSTON SHIP CHANNEL

To Vessel Master/Chief Engineer:

Although we had a reduced Menhaden population in 2016 and 2017, we should prepare for the potential of a more robust 2018 of young menhaden and other fish species in the Gulf of Mexico and in the Houston Ship Channel Complex. In addition to Menhaden, we saw large concentrations of golden croaker and silver eels in 2017.

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 10-18, pertaining to Loss of Vessel Propulsion and Maneuverability due to clogged sea strainers. Menhaden may also impact your vessel while moored to a berth in the Houston Ship Channel.

The purpose of this questionnaire is to assist the Lone Star Harbor Safety Committee (LSHSC) workgroup 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, 2016 and 2017 efforts. Therefore, we appreciate your input and cooperation again in 2018, since it is critical to the safe transit of vessels in the Houston Ship Channel.

The Houston Pilot aboard your vessel has been requested, by this workgroup, to assist you in completing this questionnaire. Once complete we ask that your vessel email the questionnaire to the following -- Kathleen Eagle at kathleene@theagcteam.com.

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.
 - Regularly clean the sea chest, especially if vessel is expected to transit in shallow waters.
- Houston 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 HSC transit.
 - Task Risk Assessments (or similar) should be carried out prior to transiting the HSC, and discuss among crew immediate actions to be taken when the strainer becomes clogged.
- Workgroup will continue to coordinate with Texas Parks and Wildlife to identify peak periods of projected activity in the HSC and the workgroup will make this data available to the vessel via the vessel agent. Workgroup will also be coordinating with Texas A&M University to identify environmental factors that are relevant to peak seasonality and locations where these concentrations may be in the HSC.
- Be aware of the Solunar activity for your day/time of transit, since high levels of “fish activity” have correlated to clogging incidents. (see attached chart)
- 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
- No any recirculation of sea water should be carried out during the transit.
- Continuously monitor and control relevant temperatures.
- Have a contingency plan in place and ensure all engine personnel are familiar with the plan.
- All engine crew to be familiar with the system and its proper procedure of change over from one sea chest to the other and the proper venting.
- 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.
- Vessels regularly transiting the HSC 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.
- The quantity of small fish sucked into the sea chest is dependent on the sea water cooling flow. The sea water quantity which is pumped through the sea water pumps may be reduced in order for the vacuum in the sea chest to be decreased.
- Keep fresh water generator ready for use. Fresh water evaporator must be ready but the ejector sea water pump should be at stop condition.
- Consider back-flush arrangements for filters and coolers during design or retrofit of vessel.



Coast Guard Sector Houston-Galveston Marine Safety Information Bulletin 10-18

Loss of Vessel Propulsion, Maneuverability and Safety Systems Due to Clogged Sea Strainers

Loss or reduction in propulsion continue to occur in the Houston Ship Channel (HSC) complex. One of the causes continues to be accumulation of small fish in vessel's sea strainers. Since early April this year, issues beyond propulsion including significant reduction of firefighting water supply and deck water spray systems have been encountered during vessel examinations and have raised concern for these critical systems while moored in the port. Any system that takes suction from the sea could be at risk at any given moment due to the narrow waterway and the draft of vessels creating very high density of schooling fish in the water column.

This is typically a seasonal event involving primarily Gulf Menhaden, with May-October being the highest risk (although vessels have reported encountering Menhaden in their sea strainers year round). Schools of fish are drawn into a vessel's sea chest clogging the sea strainers, reducing cooling and causing high water/oil temperatures that without quick response can result in engine overheating and auto slow down or automatic shutdown. Texas Parks and Wildlife are anticipating a greater than normal Menhaden concentrations throughout this year.

The Lone Star Harbor Safety Committee's Causality Analysis Workgroup (CAWG) developed a feedback form titled "*Vessel Questionnaire on Cooling Water Impacts by Menhaden Fish*" which deep draft vessels are again asked to complete and submit to kathleene@theagcteam.com. The data collected will assist the CAWG with its continued analysis of the patterns of the Menhaden and the development of additional best practices.

Recommended Best Practices:

1. Sea chests should not be used without filter strainers in place and should be monitored at all times in the HSC.
2. Detailed procedures for cleaning seawater strainers should be established. These procedures may include back-flushing or regular changing and cleaning duplex strainers as appropriate.
3. Prior to transit, inspect and clean the service sea chest. Ensure filters and coolers are clean prior to entry into U.S. waters. Implement a preventative system that requires frequent cleaning and swapping between sea strainers.
4. Monitor the pressure on pumps and filters. Be prepared to respond quickly when reduced performance is observed.
5. Have a contingency plan in place and ensure all engineering staff is familiar with the plan. Consider posting a double watch in the engine room while in pilotage waters. Have crew ready for cleaning of strainers during transit.
6. All tools and equipment for opening the sea chest and cleaning the strainer should be prepared and ready for usage.
7. Vessels regularly transiting the HSC may consider having spare clean filter strainers onboard, allowing quick changeovers of strainers.

8. Consider implementation of an engineering-designed approach, such as using the aft peak tank for seawater cooling purposes or internal cooling, which is commonly used for vessels which operate in extreme cold weather conditions such as the Baltic Sea and Great Lakes during the winter.

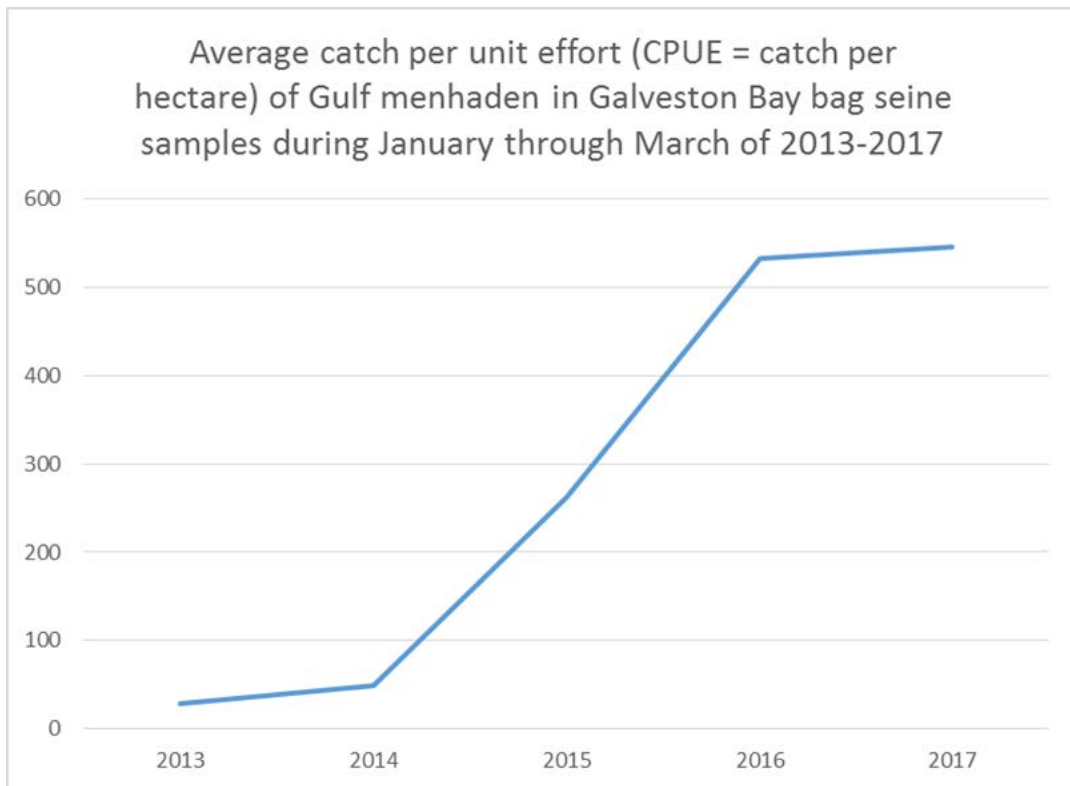


This bulletin shall remain in effect until April 1, 2019.

K. D. OBITT
Captain, United States Coast Guard
Captain of the Port

Enclosure: (1) Menhaden Identified Best Practices and Menhaden Questionnaire

TEXAS PARKS AND WILDLIFE Seine/Trawl Data for Galveston Bay Complex



Vessel Questionnaire on Cooling Water Impacts by Fish

Section A - Vessel information (status prior to transit)	
1. Date:	2. Time:
3. <input type="checkbox"/> Inbound <input type="checkbox"/> Outbound	
4. Type of Vessel: <input type="checkbox"/> Tanker <input type="checkbox"/> Chemical tanker <input type="checkbox"/> Container <input type="checkbox"/> Dry cargo <input type="checkbox"/> Other	
5. Summer Deadweight (in thousands of tons): <input type="checkbox"/> 3-10k DWT <input type="checkbox"/> 11-20k DWT <input type="checkbox"/> 21-48k DWT <input type="checkbox"/> 49-80k DWT <input type="checkbox"/> >81k	
6. Vessel LOA: <input type="checkbox"/> <61m <input type="checkbox"/> 61m - 152m <input type="checkbox"/> 153m - 244m <input type="checkbox"/> >244m (<200 ft.) (200 ft. - 500 ft.) (501 ft. - 800 ft.) (>800 ft.)	
7. Vessel Breadth: <input type="checkbox"/> <15m <input type="checkbox"/> 15m - 32m <input type="checkbox"/> 33m - 37m <input type="checkbox"/> >37m (<50 ft.) (50 ft. - 105 ft.) (106 ft. - 120 ft.) (>120 ft.)	
8. Vessel Condition: <input type="checkbox"/> Ballast <input type="checkbox"/> Loaded	
9. Vessel Draft - Aft (if not known, then Mean Draft): _____ <input type="checkbox"/> meters <input type="checkbox"/> feet	
Section B - Engine cooling information (status prior to transit)	
10. Has your vessel cleaned the sea chest strainers prior to transiting the Houston Ship Channel? <input type="checkbox"/> ≤12 hrs. <input type="checkbox"/> ≤24 hrs. <input type="checkbox"/> ≤48 hrs. <input type="checkbox"/> ≤72 hrs. <input type="checkbox"/> >72 hrs.	
11. What is the height above the keel of your sea suction? _____ Port high _____ Starboard high _____ Port low _____ Starboard low <input type="checkbox"/> meters <input type="checkbox"/> feet	
12. Which sea suction are being used for this transit? <input type="checkbox"/> Port high <input type="checkbox"/> Starboard high <input type="checkbox"/> Port low <input type="checkbox"/> Starboard low	

13. Are sea chests equipped with an operating back flush arrangement?

Yes

No

14. Are sea chests and coolers on a common system?

Yes

No

15. Do you have a contingency plan if a sea chest gets clogged or if the low sea water pressure alarm activates?

Yes

No

16. If yes, please briefly describe your contingency plan:

Section C - Transit information

17. During this transit did your vessel experience any of the following (check all that apply):

- Complete loss of propulsion
- A temporary and/or voluntary speed reduction to prevent any loss of maneuverability, potentially due to cooling water obstructions
- Overheating of the main engine (high temperature alarms)
- Low sea water pressure alarm activated

- If you checked any box above, please answer remaining questions #18-24.
- If you did not check any boxes, please skip to questions #23-24.

18. Date of occurrence:

19. Time of occurrence:

20. Location of occurrence:

- 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
- Alongside berth _____ (berth name)

21. If you had to switch sea chests, which ones did you switch to?

- Port high Starboard high
- Port low Starboard low

22. Please briefly describe any other actions taken:

Section D - Comments

23. Any best practices to share based on your experiences?

24. Other comments and feedback you would like to provide to the workgroup?