



## 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 \*\*\***

### **2017 MENHADEN SEASON IN THE HOUSTON 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 Houston Ship Channel Complex. Texas Parks and Wildlife is also projecting a heavy Menhaden season in the Sabine/Beaumont areas (see attached data sheet).

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, 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 and 2016 efforts. Therefore, we appreciate your input and cooperation again in 2017, 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 and submitting it to the LSHSC 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 Kathleen Eagle at [kathleene@theagcteam.com](mailto: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.
  - Regular cleaning of 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.
- 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)
- 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 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.
- 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.
2. 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.
3. 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.
4. Monitor the pump pressure and filters. If reduced performance is observed, initiate immediate cleaning of sea strainers.
5. 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.

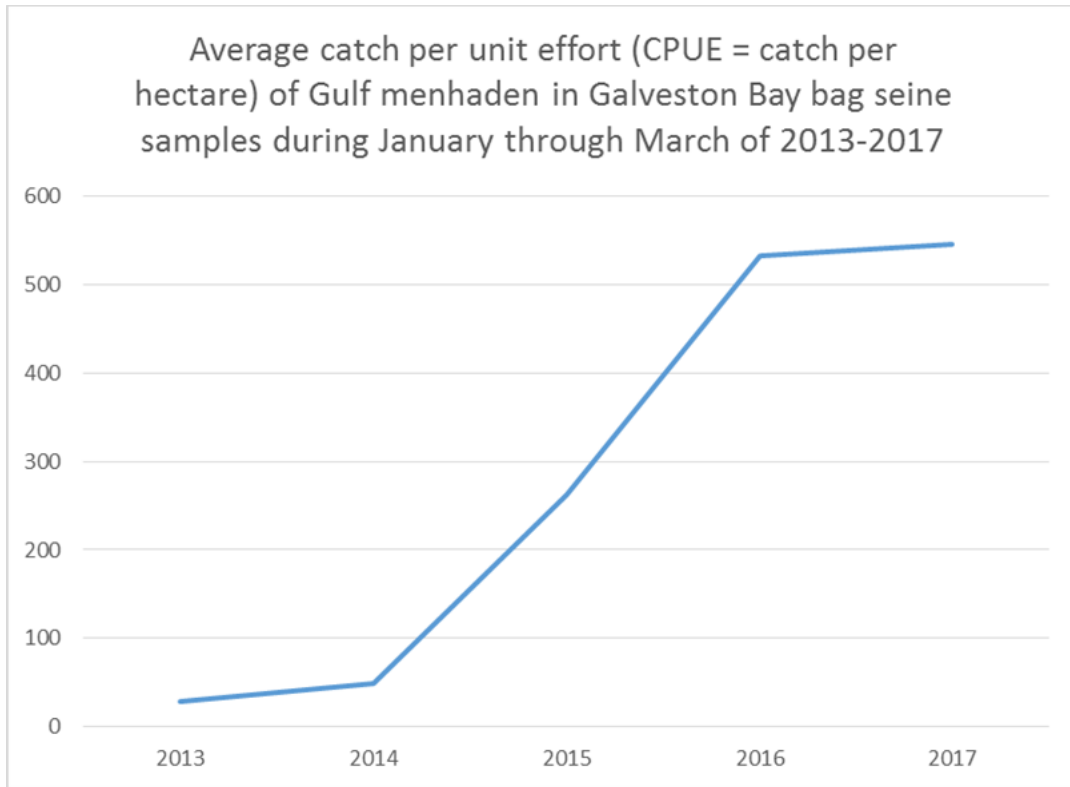
6. All tools and equipment necessary to access the sea chest and clean the strainer should be on hand and ready for immediate use.
7. Consider maintaining spare, clean filter strainers onboard, to facilitate quick exchange of strainers.
8. Consider implementation of an engineering-designed approach, 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 1Q17 Seine Data for Galveston Bay Complex**



Section A - Vessel information (status prior to transit)

1. Date:

2. Time:

3. Barometric Pressure: \_\_\_\_\_ mb     Rising    Stable    Falling

4.     Inbound         Outbound

5. Type of Vessel:

Tanker    Chemical tanker    Container    Dry cargo    Other

6. Summer Deadweight (in thousands of tons):

3-10k DWT    11-20k DWT    21-48k DWT    49-80k DWT    >81k

7. Vessel LOA:    <61m     61m - 152m     153m - 244m     >244m  
                          (<200 ft.)    (200 ft. - 500 ft.)    (501 ft. - 800 ft.)    (>800 ft.)

8. Vessel Breadth:

<15m     15m - 32m     33m - 37m     >37m  
                  (<50 ft.)    (50 ft. - 105 ft.)    (106 ft. - 120 ft.)    (>120 ft.)

9. Vessel Condition:

Ballast                             Loaded

10. Vessel Draft - Aft (if not known, then Mean Draft): \_\_\_\_\_  meters    feet

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.    ≤24 hrs.    ≤48 hrs.    ≤72 hrs.    >72 hrs.

12. What is the height above the keel of your sea suction(s)?

\_\_\_\_\_ Port high    \_\_\_\_\_ Starboard high  
\_\_\_\_\_ Port low    \_\_\_\_\_ Starboard low             meters     feet

13. Which sea suction(s) 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?

Yes

No

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

### 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

Yes (Please answer remaining questions #22-29)

No (Please skip to questions #28-29)

21. Date of occurrence:

22. Time of occurrence:



<p>23. Location of occurrence:</p> <p><input type="checkbox"/> Houston Turning Basin</p> <p><input type="checkbox"/> Above Morgan's Point at: _____ (be specific, such as buoy #)</p> <p><input type="checkbox"/> Below Morgan's Point at: _____ (be specific, such as buoy #)</p> <p><input type="checkbox"/> Galveston/Texas City area: _____ (be specific)</p> <p><input type="checkbox"/> Bolivar Roads and/or Bolivar Roads Anchorage</p> <p><input type="checkbox"/> Offshore Fairway and/or offshore Anchorages</p>	
<p>24.     <input type="checkbox"/> Inbound       <input type="checkbox"/> Outbound</p>	
<p>25. If you had to switch sea chests, which ones did you switch to?</p> <p><input type="checkbox"/> Port high           <input type="checkbox"/> Starboard high</p> <p><input type="checkbox"/> Port low             <input type="checkbox"/> Starboard low</p>	
<p>26. If you had to clean the strainer baskets, how long did it take to complete?</p>	
<p>27. Please briefly describe any other actions taken:</p>	
<p>Section D - Comments</p>	
<p>28. Any best practices to share based on your experiences?</p>	
<p>29. Other comments and feedback you would like to provide to the workgroup?</p>	

# 2017

## Fish Activity Forecast - Eagle Point, TX

Source: Solunar Tables - [www.tides4fishing.com](http://www.tides4fishing.com)

January						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

February						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

March						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

April						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

May						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

June						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

July						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

August						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

September						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

October						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

December						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Very High fish activity predicted  
 High fish activity predicted  
 Average fish activity predicted  
 Low fish activity predicted