

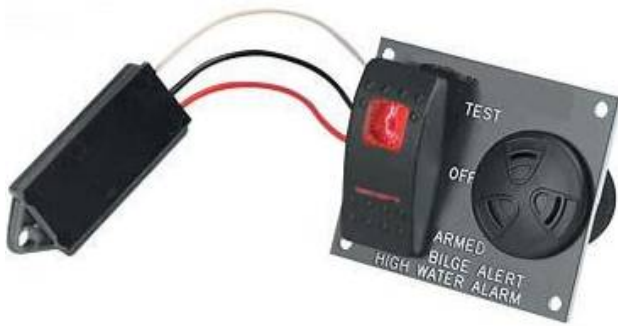


High Water Alarms

Rough seas, leaving watertight openings unsecured that allow uncontrolled down-flooding, failed through-hull fittings that allow flooding, and inadequate response to an emergency can all contribute to capsizing and/or sinking of a vessel in a matter of minutes. High water alarms can alert you to your vessel taking on water and that an immediate response is needed.

Federal regulations in 46 CFR Part 28.250 require documented commercial fishing industry vessels 36 feet or more in length that operate beyond the Boundary Lines or with more than 16 individuals on board, or fish tender vessels engaged in the Aleutian Trade, to be equipped with a **visual** and **audible** alarm at the operating station to indicate high water level in each of the following normally unmanned spaces:

- A space with a through-hull fitting below the deepest load waterline, such as a lazarette;
- A machinery space bilge, bilge well, shaft alley bilge, or other space subject to flooding from sea water piping within the space; and
- A space with a non-watertight closure, such as a space with a non-watertight hatch on the main deck.



Vessels equipped with either a fish processing space or a space used for the sorting of fish in which water is used, should be fitted with high water alarms. These alarms should be both visible and audible in the processing or sorting space and the pilot-house.

A high water level alarm system will signal you of a possible flooding condition in an unmanned space, the bilges, processing spaces, or other compartments at risk on your vessel. If your vessel is taking on more water than the pumps can handle, or if pumps fail, a high water alarm will alert you of a situation to investigate and rectify before it becomes an emergency.

A high water alarm is activated if water reaches a sensor that has been installed in the space to be protected. Built-in time delays can help prevent false alarms due to water moving in a compartments where some water may normally be present. It is critical that the water sensor be installed at an appropriate level for the space.

Just having a high water alarm system installed is not enough. It must be maintained. The sensor and alarm should be inspected and tested on a regular basis. At a minimum, you should test the system every time before you get underway. Repair or replace faulty alarms or sensors before you go fishing.

A failed through-hull fitting or other point where leakage or flooding might occur, can allow a considerable amount of water to enter the vessel in a short period of time. And, the lower down the hole is in the vessel, the faster the flooding rate. The table below shows flooding rates based on hole size and distance below the waterline.

Flooding Rate in Gallons per Minute					
Hole size (Dia.)	6" Below Waterline	1' Below Waterline	1' 6" Below Waterline	2' Below Waterline	3' Below Waterline
1/8"	.17	.30	.31	.35	.43
1/4"	.88	1.20	1.53	1.80	2.20
3/8"	1.94	2.70	3.40	3.90	4.80
1/2"	3.46	4.90	6.00	6.90	18.50
3/4"	7.77	11.00	13.50	15.60	19.10
1"	13.96	19.60	24.20	27.80	34.0
2"	55.49	78.60	96.10	111.10	136.10
4"	222.10	314.30	378.70	444.50	544.40
6"	499.60	707.20	865.30	1000.20	1225.00

For example, a hole 2" in diameter (size of a fathometer transducer) 3' below the waterline, can cause flooding into a vessel at 136 gallons per minute or 7,896 gallons per hour. If your dewatering or bilge pump(s) can't keep up with that rate of flooding, your vessel could sink.

Even if you are not required to have a high water level alarm on your vessel, you should consider installing a system in unmanned or critical spaces to alert you to a potential flooding problem. An alarm may give you enough time to investigate and control the leak or call for assistance before the flooding becomes uncontrolled and your vessel sinks. Be prepared, be safe!

For more fishing vessel safety information, go to: www.FishSafe.info

