

Shellfish Safety Guidelines for Boaters & Commercial Harvesters

Marine Sanitation Control Measures

The various hazards associated with consumption of raw shellfish require that adequate control measures be in place to protect consumers. Some controls, such as those required by the National Shellfish Sanitation Program (NSSP) are administered by federal and state shellfish authorities. Other controls are practiced by individual harvesters.

Sewage from boats is a source of pollution that can degrade coastal water quality leading to closure of shellfish beds. The key to controlling boat sewage is proper maintenance and use of on-board toilets and proper disposal of waste.

It is illegal to discharge raw sewage from a vessel anywhere in Maryland waters. If a vessel has an installed toilet, it must be equipped with an operable marine sanitation device (MSD). Vessels 65 feet and under must have either a Type I, II or III MSD. Vessels over 65 feet must have a Type II or III MSD. All Type I and II MSDs (that treat and discharge sewage) must have a certification label affixed by the manufacturer.

Vessels with Type I and II MSDs can legally discharge waste into coastal waters unless the waters are designated as a **No Discharge Zone**. Discharge of untreated sewage is only permitted in ocean waters more than 3 miles from shore. Portable toilets should never be emptied overboard. They should be emptied at shoreside dump stations. Holding tanks should be pumped out at shoreside pumpout stations.

Although a "Y" valve is permitted, when operating in Maryland waters it must be secured to prevent the discharge of raw sewage. The use of a nonreusable wire tie, or padlock, or removing the valve handle are acceptable ways to secure the "Y" valve.

To help reduce the impacts of vessel generated sewage:

- **Never** discharge raw sewage into the water; use appropriate shoreside disposal facilities.
- **Never** empty portable toilets overboard. Overboard dumping of potentially infected feces could cause illness and/or closure of shellfish waters.
- **Never** discharge in a **No Discharge Zone**
- Avoid discharging in shallow estuarine waters, since they are poorly flushed by tides and/or currents.
- When at the dock, use restrooms rather than your MSD.
- Pumpout facilities for sewage disposal may be found at many marinas and boat docking facilities. For information about the location of facilities in Maryland call the Department of Natural Resources 410-260-8770 or visit their web site at www.dnr.state.md.us

Diseases Associated with Shellfish Consumption

There are a number of diseases that are caused by the transfer of fecal bacteria or viruses from infected humans to raw shellfish. These diseases often result from poorly functioning on-board disposal units (MSDs) or overboard disposal of raw human waste. While these diseases do not directly infect the shellfish, clams and other shellfish filter the disease-causing organisms out of the water and can accumulate enough of them to make consumers of raw or partially cooked shellfish ill.

Norwalk and Norwalk-like virus – The main reservoir for this virus is man. Symptoms include nausea, vomiting, diarrhea, abdominal cramps, and fever. The disease is usually self-limiting.

Hepatitis A virus – This virus causes weakness, fever, abdominal pain and yellow jaundice. It may result in damage to the liver. Although death is rare, it may occur among those with underlying diseases.

Shigella – This bacterium causes symptoms very similar to *Salmonella*. *Shigella* is found only in the human intestinal tract and is not a result of contamination by animal species.

Escherichia coli – Also known as *E. coli*, this bacterium is one of the fecal coliforms. Most types of *E. coli* are essential inhabitants of the human intestinal tract and are needed for proper digestion and processing of foods. Pathogenic forms can cause abdominal cramps, diarrhea, fever, nausea and vomiting. Death may occur among the very young, the elderly, or immuno-compromised individuals.

Salmonella – Several species of *Salmonella* are naturally found in the intestines of mammals, birds, amphibians, and reptiles. *Salmonella* can be transferred to shellfish by sewage pollution of coastal waters. *Salmonella* infections cause nausea, vomiting, abdominal cramps, and fever. One species causes typhoid fever.

Campylobacter jejuni – This bacteria is widely distributed in the intestinal tract of poultry, livestock, and warm-blooded domestic animals. In humans, it causes diarrhea, abdominal pain, headache, weakness, and fever.

For more information about Maryland's shellfish safety call:
Maryland Department of the Environment
Science Services Administration
Environmental Health & Risk Assessment Program (410) 537-3906
<http://www.mde.state.md.us>

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