

Shellfish Harvesting Area Water Classifications for Marinas and Mooring Areas

Rule 5L-1.003, F.A.C.

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Shellfish Harvesting Area Classification Program
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INTRODUCTION

Marina and mooring areas provide for the concentration of boats and pose a potential public health threat through consumption of potentially contaminated shellfish. Determining the classifications around marina and mooring areas is of interest to 1) the marina or mooring area owner or applicant, 2) the permitting agencies involved with marina and mooring areas, 3) the shellfish control agencies, 4) the shellfish industry, and 5) interested individuals and parties.

Chapter 5L-1, Florida Administrative Code (F.A.C.), Shellfish Control Code, pursuant to statutory authority establishes regulations and specifications of sanitary practices relating to shellfish products. Rule 5L-1.003, F.A.C. defines shellfish harvesting area classifications and specifically references sanitary survey requirements of Chapter IV of the National Shellfish Sanitation Program (NSSP) Model Ordinance. Chapter IV.@01.D.(1)(a) of this Ordinance states that the shellfish control authority shall, "Identify and evaluate all actual and potential sources of pollution which may affect the growing area."

MARINAS

According to the NSSP Model Ordinance, a marina means any water area with a structure (docks, basin, floating docks, etc.) which is used for docking and constructed to provide temporary or permanent docking space for more than ten (10) boats.

Chapter IV of the Model Ordinance discusses the requirements for classifying waters in and adjacent to marinas. Section @05.A states that "the area within any marina which is in or adjacent to a shellstock growing area shall be classified as conditionally approved, conditionally restricted, or prohibited." According to the public health reasons and explanations provided for Section @05.A, any growing area within the marina proper is presumed to be contaminated for some time. Therefore, it cannot be placed in the approved classification.

Section @05.B states that "waters adjacent to marina waters classified under Section A. may be impacted by pollution associated with the marina.

- (1) A dilution analysis shall be used to determine if there is any impact to adjacent waters.
- (2) The dilution analysis shall be based on the volume of water in the vicinity of the marina.
- (3) The dilution analysis shall incorporate the following:
 - (a) A slip occupancy rate for the marina;
 - (b) An actual or assumed rate of boats which will discharge untreated waste;
 - (c) An occupancy per boat rate (i.e., number of persons per boat);
 - (d) A fecal coliform discharge rate of 2×10^9 fecal coliforms per day; and
 - (e) The assumption that the wastes are completely mixed in the volume of water in and around the marina.
 - (f) Documentation, verification and enforcement of Federal No Discharge Zones and locally well enforced no discharge and occupancy by-laws and regulations.
 - (g) Availability and documented use of pump out boats or facilities.
- (4) If the dilution analysis predicts a theoretical fecal coliform loading greater than fourteen (14) fecal coliform most probable number (MPN) per 100 ml, the waters adjacent to the marina shall be classified as:
 - (a) Conditionally approved;
 - (b) Restricted;
 - (c) Conditionally restricted; or
 - (d) Prohibited.
- (5) If the dilution analyses predict a theoretical fecal coliform loading less than or equal to fourteen (14) fecal coliform MPN per 100 ml, the waters adjacent to the marina may be classified as:
 - (a) Approved; or
 - (b) Conditionally approved.

(6) If the Authority chooses not to determine a specific occupancy per boat rate by investigation in specific areas or sites, the Authority shall assume a minimum occupancy rate of two (2) persons per boat.”

According to the public health reasons and explanations provided for Section @05.B, the microbiological and chemical contamination associated with marinas may result in the contamination of adjacent shellfish growing waters. Since there are significant regional differences in all factors that affect pollution loading from marinas, sufficient flexibility must be allowed to account for these differences. The Authority has the option of applying the specified occupancy and discharge rates necessary to conduct a dilution analysis. Best professional judgment of qualified individuals and best available technology must be applied to determine adequate restrictions on harvesting in and around marinas.

MOORING AREAS

According to the NSSP Model Ordinance, a mooring area means any water area that is used to provide temporary or permanent anchorage for more than twenty (20) boats with marine sanitation devices. Mooring areas do not include any structures for docking boats.

Chapter IV of the Model Ordinance discusses the requirements for classifying waters in and adjacent to mooring areas. Section @06.A states that “the area within any designated mooring area where there is anchoring of boats, which is in or adjacent to a shellstock growing area shall be classified as conditionally approved, conditionally restricted, restricted or prohibited.”

Section @05.B states that “waters adjacent to open water mooring areas classified under Section A. may be impacted by pollution associated with the mooring areas. If determined a pollution source:

- (1) A dilution analysis shall be used to determine if there is any impact to adjacent waters.
- (2) The dilution analysis shall be based on the volume of water in the vicinity of the mooring areas.
- (3) The dilution analysis shall incorporate the following:
 - (a) An occupancy rate for the mooring areas;
 - (b) An actual or assumed rate of boats which will discharge untreated waste;
 - (c) An occupancy per boat rate (i.e., number of persons per boat);
 - (d) A fecal coliform discharge rate of 2×10^9 fecal coliform per day; and
 - (e) The assumption that the wastes are completely mixed in the volume of water in and around the open water mooring areas.
- (4) If the dilution analysis predicts a theoretical fecal coliform loading greater than fourteen (14) fecal coliform MPN per 100 ml, the waters adjacent to the mooring areas shall be classified as:
 - (a) Conditionally approved;
 - (b) Restricted;
 - (c) Conditionally restricted; or
 - (d) Prohibited.
- (5) If the dilution analyses predict a theoretical fecal coliform loading less than or equal to fourteen (14) fecal coliform MPN per 100 ml, the waters adjacent to the mooring areas may be classified as:
 - (a) Approved; or
 - (b) Conditionally approved.
- (6) If the Authority chooses not to determine a specific occupancy per boat rate by investigation in specific areas or sites, the Authority shall assume a minimum occupancy rate of two (2) persons per boat.

FDACS MARINA AND MOORING AREA POLICY

The Shellfish Harvesting Area Classification Program (SHACP) is responsible for evaluating, classifying, and monitoring shellfish harvesting waters in the State. Specifically, SHACP identifies, evaluates, and monitors those factors influencing the quality of shellfish harvesting waters which may include potential or actual sources of pollution. This is necessary because shellfish are filter feeding organisms and are able to concentrate pollutants. Even if overlying waters contain low levels of pollutants, shellfish can assimilate and magnify both biological and chemical contaminants.

Good water quality is an absolute necessity to provide conditions conducive to shellfish growth and to protect the consumer from shellfish-born contaminants. Any development or action which results in permanent closure of portions of shellfish harvesting waters may contribute to economic hardship for the shellfish industry. Recreational shellfish harvesting for area residents and tourists would also be impacted.

Construction of a marina or mooring area may result in short term localized water quality problems. Construction may necessitate drastic alteration of existing upland vegetation, and changes in the area watershed may lead to water quality problems. However, the long-term effects of marina maintenance and operations cause the greatest concern. Operation may contribute petroleum hydrocarbons, heavy metals and pathogenic microorganisms. The concentration of human activity poses additional possible water quality problems related to sewage disposal.

As a result of public health, water quality, and natural resource concerns, SHACP has established a practice regarding marinas and mooring areas in relation to shellfish harvesting area water classifications.

The practice states:

"In accordance with provisions of the Interstate Shellfish Sanitation Program (ISSC) and Food and Drug Administration (FDA) policy, the possibility of a chance of contamination of shellfish in the immediate vicinity would require a reclassification of that area within the marina or mooring area proper to prohibited for the harvesting of shellfish. Additional prohibited areas beyond the marina limits may be required as well, depending on such factors as marina or mooring area design and quality, usage, and hydrography."

Therefore, according to this practice, and the Department's authority to classify waters to protect the public health, the area within a marina or mooring area proper must be classified as prohibited. To determine the extent of the additional prohibited area, SHACP relies on a dilution analysis calculator created by the FDA. The calculator uses the rate of discharge formula from the marina and mooring area sections of the NSSP Model Ordinance to determine the volume or area of water needed to dilute sewage to the approved standard of 14 MPN/100 ml. The formulas are listed below, and an example of the dilution analysis calculator is included in Attachment A.

$$\text{FC load} = \# \text{ of slips} \times \% \text{ occupied} \times \# \text{ of persons/boat} \times \text{FC/person/day}$$

$$\text{Volume needed} = \text{load/target concentration}$$

$$\text{Area needed} = \text{dilution volume/water depth}$$

Prior to initial construction or expansion, the dilution calculation is utilized to provide comments on the potential impacts of a proposed project on shellfish harvesting water classifications for permit applications.

ATTACHMENT A

Volumetric Dilution Analysis

Do calculations for ☒ Discharge ☐ Marina Enter and report values in: ☒ Standard U.S. Units ☐ Metric Units

Number of slips in the marina: Enter the average persons per boat:

Typical percent of slips occupied: % Typical percent of boats discharging: %

Load = # slips x % occupied x % discharging x persons/boat x FC/person/day
Load = 30 slips x 100% slips occupied x 100% boats discharging x 2 persons/boat x 2E+09 FC/person/day = 1.20E+11 FC/day

Calculate the Volume needed for Dilution

Enter the Target Value for Fecal Coliform Concentration in receiving water (typically the applicable NSSP Geometric Mean criterion): FC/100 mL

Volume needed = Load ÷ Target Concentration
Volume needed = 1.20E+11 FC/day ÷ 3962 FC/ft³ = 3.03E+07 ft³

Calculate the Area needed for Dilution
Proceed below if you expect the closure area to be a simple shape (circle, rectangle, semi-circle). If it is a more complex shape with islands, tributaries and embayments, click on the "Complex Area" button to the right.

Enter the average water depth in the waters suspected to be impacted: ft

Area needed = Dilution Volume ÷ Water Depth
Area needed = 3.03E+07 ft³ ÷ 5 ft = 6.06E+06 ft²

Desired shape for closure area is:
☐ Circle ☒ Semi-Circle ☐ Rectangle

The radius of the semi-circle for this closure should be 1963.76 ft

Tools for measurements and mapping

