CT Bureau of Aquaculture

How the DA/BA Implements the NSSP-MO Guidelines for Marina Calculations in Connecticut's Growing Areas

Growing Area Classifications

- Based on sanitary survey NOT on water sample results

- Surveys include marina identifications and evaluations

Marina Definition
[NSSP MO Definitions (B.)(69.)]

Any water area with a structure (docks, basin, floating docks, etc.) which is:

    (a) Used for docking or otherwise mooring vessels;

      and

    (b) Constructed to provide temporary or permanent

      docking space for **more than ten boats**.

Marina Survey Objectives

- Identify and evaluate all marinas and mooring zones which may affect the growing area;

- Determine the classification of the water area within the marina proper based on fecal coliform loading, presence/absence of deleterious substances, presence and type of vessels, etc.;

- Determine the impact of potential pollution from the marina to the waters adjacent to the marina/mooring area using dilution analysis; and

- Determine the classification of the adjacent waters based on the results of the dilution analysis.
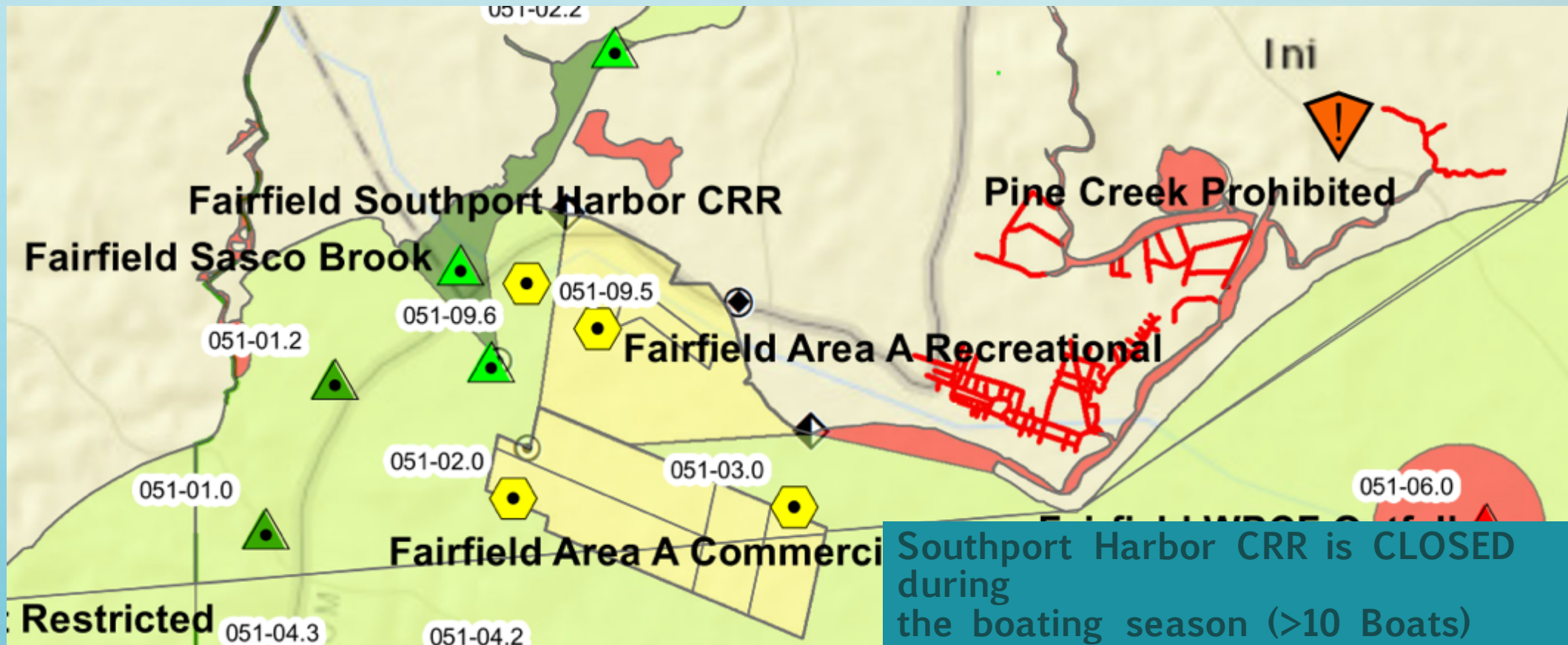
Marina Proper (Growing Area Classification)

[Chapter IV@05.(A.)]

Any marina in, or adjacent to, a shellstock growing area shall be classified:

Conditionally Approved Seasonal, Conditionally Restricted, or Prohibited

Southport Harbor CRR is CLOSED during
the boating season (>10 Boats)

Marina Survey Questionnaire:

- Dates of operation (seasonal/year-round)
- Total *maximum* occupancy (slips/moorings)
- Pump-out available?
- Is facility on septic or served by public sewers?
- Does the facility provide haul-out, repairs, fuel etc. and if so, are these located on, or near the water?
- Other amenities: restaurant, laundry, bathrooms, showers available?
- Transient or live-aboards?
- Does facility provide boater education on no discharge and other environmental issues?

Dilution Analysis Requirements
[Chapter IV@05.(B.)(1.-6.)]

- Shall be used to determine if there is an impact to adjacent waters
- Shall be based on the volume of water in the vicinity of the marina

The dilution analysis shall incorporate the following:

- A slip occupancy rate for the marina;
- An actual or assumed rate of boats which will discharge untreated waste;
- An occupancy per boat rate (i.e., number of persons per boat);
- A fecal coliform discharge rate of 2×10^9 fecal coliform per day; and
- The assumption that the wastes are completely mixed in the volume of water in and around the marina

Marina Occupancy Options

- Actual number of live aboard (under worst case conditions, e.g., holidays, heavy use periods)

- Assumed rate of discharge (50 – 50 rule)

- Assumed rate based on boats with marine sanitation devices (boats with heads)

- Actual worst case (total number slips/2 person occupancy per vessel per slip)

How Does the DA/BA Determine Occupancy?

- DA/BA implements a modified dilution calculation based on the total number of slips.

- Documenting occupancy would require DA/BA staff to visit every marina (or mooring area) in the state annually, during peak occupation times.

- DA/BA staff is not authorized to perform routine work duties during these times, except in case of emergency or as required to enact closures.

- According to the NSSP Guide Ch. IV@.05: 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 persons per boat.

Dilution Models

- FDA Guidance Formula (NSSP MO Chapter IV@05 (B.).)

- Virginia Institute of Marine Science (VIMS) Model
  - **VIMS model assumes: 50% of vessels occupied and of that 50% total, 50% are discharging**
  - **For a 100 slip marina, VIMS would use an assumed rate of 25 discharging boats in the formula calculations**

- US EPA CORMIX Model

DA/BA Uses The VIMS Model

- VIMS model assumes a rate of occupancy in which 50% of slips (or moorings) are occupied by an inhabited boat, and 50% of these boats are discharging (i.e. 25% discharge rate).

- The 50% occupancy rate is extremely conservative, in CT we have determined that a 10% rate of occupancy is more realistic, yet provides an adequate measure of safety.

- According to the FDA Guideline (1989), a 10% rate of occupancy is the minimum factor that may be used, even if overboard discharges are prohibited.

- Assuming 50% of occupied boats are discharging correlates to an overall discharge rate equal to 5% of the total number of slips.

FDA Guidance Formula VS Modified VIMS

FDA Guideline (100% rate of discharge)

$$\frac{(50 \text{ slips} * 2 \text{ people}) * (2 \times 10^9)}{\frac{14FC}{100 \text{ mL}} * \frac{1000 \text{ ml}}{L}} = \frac{200 \times 10^9 FC}{140 \text{ FC/L}} = 1.4 \times 10^9 \text{ L}$$

$$\frac{1.4 \times 10^9 \text{ L}}{3 \times \frac{1000 \text{ L}}{M^3}} = \textbf{476,190 square meters of surface area needed}$$

Modified VIMS (10% rate of occupancy & 50% of occupancy discharge = 5% discharge overall

$$\frac{(50 \text{ slips} * 0.1 \text{ Rate of Occ} * 0.5 \text{ Occ DC} * 2 \text{ people}) * (2 \times 10^9)}{\frac{14FC}{100 \text{ mL}} * \frac{1000 \text{ ml}}{L}} = \frac{1.0 \times 10^{10} \text{ FC}}{140 \text{ FC/L}} = 7.1 \times 10^7 \text{ L}$$

$$\frac{7.1 \times 10^7 \text{ L}}{3 \times \frac{1000 \text{ L}}{M^3}} = \textbf{23,810 } M^2 \textbf{ of surface area needed}$$

FDA Guidance Formula VS Modified VIMS

FDA Guideline

Modified VIMS

Other Considerations

- Unprotected fuel on or near water

- Unprotected repair and/or boat maintenance facilities

- Accessibility and maintenance of pump-out facilities

- Destination Harbors

- Cocktail Coves

Destination & Cocktail Harbors

"Top 10 places to anchor, raft-up, or just cruise by this weekend"

http://blog.ctnews.com/kantor/2011/06/29/top-10-places-to-anchor-raft-up-or-just-cruise-by-this-weekend

You can even rent a boat in Connecticut for your vacation on Airbnb
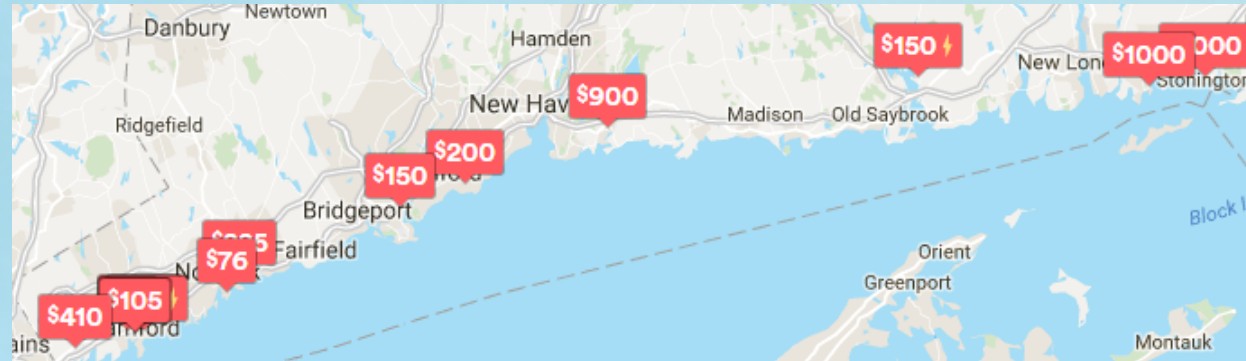
$95

★★★★★ 123 reviews

Sleep on a boat in Stamford!
Entire home/apt · 1 bed · 2 guests

$225 🏆

★★★★★ 47 reviews

Romantic Perfection on the Sound
Entire home/apt · 4 beds · 5 guests

Marina Reference Materials

- NSSP Model Ordinance Chapter IV.@.05

- NSSP Model Ordinance Public Health Reasons and Explanations, Section III.IV.@.05

- FDA Guideline 1989 Evaluation of Marinas by State Shellfish Sanitation Control Officials

- DA/BA Marina Dilution Calculation Procedure