

Control of colonial tunicates

Treatment by air drying when oysters and rearing structures are deployed on the water

Method:

1. Expose oysters and structures to air by flipping the rearing structures.
2. Dry them out for about 48 hours, depending on weather conditions.

Recommendations:

1. In cases of severe infestation, it may be necessary to do this exercise every two weeks while recognizing that the frequent flipping of structures may have an impact on oyster growth. The frequency of treatment should be determined according to the cost-benefit analysis of the procedure.
2. The treatment period should start as soon as organisms appear (i.e., when they are very small) to better control the presence of tunicates.
3. At the end of the growing season, it may be beneficial to give the structures a final flip to dry them as much as possible just prior to overwintering the facilities.

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Treatment by air drying of oysters, structures, and equipment on land

Method:

1. Allow the oysters, rearing structures, and equipment to air dry on land for a minimum of 3 days (according to weather conditions).
2. Sprinkle for a few minutes with fresh water using a spray gun.

Source: Karney et al. *Invasive tunicates at Shellfish Restoration and Aquaculture Sites on Martha's Vineyard, Massachusetts*
http://www.rimeis.org/stakeholders/docs/aquaculture/ais_shellfish_poster.pdf

Recommendations:

1. Weather conditions can greatly influence drying time. It is important to ensure that the equipment and/or aquaculture product is dry before applying the water.
2. Perform the watering operation away from any body of water to reduce the risk of runoff.

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Immersion treatment in a solution of 4% lime and 30% brine (300ppt)*

Method:

1. Prepare a solution in a large tank by mixing:

4 kg of lime	(8.4 lb.)
29kg of salt	(64 lb.)
96 litres of water	(25.4 gallons)
2. Immerse the oyster/equipment for 30 seconds.
3. Allow to air dry for at least one (1) hour to avoid dilution of treatment.

*Treatment suggested by Fisheries and Oceans Canada (June 2011)

Recommendations:

1. For better control, treatments should be performed as soon as the organisms appear (i.e. while they are very small).
2. Treat the oysters/equipment before transferring them into another body of water.
3. Set up a treatment schedule.
4. Shake oysters prior to exposure to treatment to encourage them to close their shells.
5. Dispose of the solution to avoid the risk of runoff into a body of water.

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Practices to mitigate the risk of spread

- Due to the **HIGH PROPAGATION HAZARD**, it is best **NOT** to **wash the equipment/remove tunicates on the water using a pressure washer or other means**. Washing may result in the fragmentation of tunicate colonies, which may increase their spread as they may be viable for at least 18 days after such treatment (Paetzold and Davidson, 2010). To maximize the effectiveness of the treatment, it is recommended to wash the equipment *on land* only when it is completely dry.
- Treat oysters/equipment before transferring them from one body of water to another.
- After taking the boats, motors, and trailers out of the water, inspect them and remove any dirty plants or organisms and dispose of them in a garbage bin or composter on land. It is also necessary to empty the water in the hold and other places that can retain seawater (e.g., motor, tanks, etc.). Then wash with fresh water or pure vinegar using a spray gun. **Do all this work away from any body of water** to reduce the risk of runoff and allow to dry for at least one hour before moving to another body of water.
- When visiting more than one body of water in a single day, work should begin in non-tunicate-infested waters and terminate in waters where they are known to be present.
- Worn out or non-reusable equipment must be disposed of in an approved landfill; the same is true for dead oyster shells in order to reduce the risk of spreading undesirable organisms.
- Where possible, it is recommended to apply an environmentally friendly anti-fouling paint to boats and motors.

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