Invasive Colonial Tunicate: Whiting Harbor, Sitka
For City and Borough of Sitka Assembly
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Background: An invasive tunicate, *Didemnum vexillum,* was first detected in Alaska in Sitka at Whiting Harbor Aquafarm in June 2010 during the Marine Invasive Species Bioblitz. Results from genetic analysis received in August 2010 confirmed the organism was an invasive colonial tunicate of concern.

Actions Taken:

2010

- **August** -Preliminary survey of Whiting Harbor Aquafarm was conducted top-side by ADF&G, Sitka Tribe of Alaska and UAS, Sitka branch, and the seafloor was surveyed by ADF&G, Sitka Fire Dept., and Sitka Sound Science Center divers. Divers confirm D. vex is established on the seafloor below the aquatic farm and on submerged material near to the farm site.

- **September**-ADF&G dive survey determined the tunicate was not contained to the aquatic farm and the bottom substrata below the farm, but had spread toward the head of the Whiting Harbor on the seafloor and into intertidal areas of the causeway. A small, distinct population is detected near the proposed dock for the Fort Rousseau Causeway State Historical Park.

- **September** -USFWS provided $87,000 to the ADF&G Invasive Species program to assess distribution, investigate feasible treatment options, and draft a response plan for invasive tunicates in Whiting Harbor.

- **Fall and Winter 2010/11**-ADF&G provided educational presentations to the Sitka Fish and Game Advisory Committee, City of Sitka Assembly, Alaska Shellfish Growers Assn., The Board of Fisheries, The Alaska Legislative Fish Caucus, a stakeholders group, and a town meeting in Sitka.

2011

- **January** -ADF&G Sport and Commercial Fisheries divisions completed a comprehensive dive survey of Whiting Harbor to determine tunicate distribution within Whiting Harbor.

- **March** -Sitka-based coordinator hired by ADF&G to develop a response plan, and investigate potential treatment options in conjunction with multi-agency response team, investigate local reports of the tunicate, and provide outreach to Southeast aquatic farmers and the community.

- **April** -ADF&G collaborates with USFWS to provide Hazard Analysis and Critical Control Point Planning (HACCP) workshop, and develops a HACCP plan for phase I of aquatic farm clean-up effort. Phase I includes removal of lantern nets from the aquatic farm.

- **May-** Raven Radio begins airing PSA to avoid Whiting Harbor. ADF&G communicates with three marine contractors to investigate options for removal of the aquatic farm infrastructure. ADF&G work with Dept. of Law to prepare necessary documents for infrastructure removal.

- **June -** ADF&G, Sitka contractor, local diver and aquatic farm owner test proto-type bags to be used in Phase I of aquatic farm clean up. Mooring lines to farm reattached, errant pieces of farm infrastructure secured. Quonset hut in Whiting Harbor reconnected to mooring lines.

- **July-** Planning meeting held in Sitka: facilitated by City and Borough of Sitka (CBS), attended by CBS harbormaster and superintendent, ADF&G, UAS, BLM, USFWS, Whiting Harbor Aquafarm owner, local ADF&G contractor, local marine contractor. Objective of meeting was to assess feasible response actions to remove aquatic farm infrastructure.

Ongoing Activities and Outreach:

- A rapid response team comprised of governmental agencies and interested organizations continues to meet bimonthly to devise response actions, discuss completed tasks, share expertise, and plan for multi-phased clean-up of invasive species;

- Outreach includes: Daily airing of a PSA requesting avoidance of Whiting Harbor, informational brochures developed and distributed, near completion of underwater video for distribution.

Next Steps

- **August** – Phase I of aquatic farm decommission: Remove all lantern nets.
  - Lantern nets infested with the invasive colonial tunicate to be bagged to diminish risk of viable fragments entering the water column and to be distributed into Sitka Sound.
  - Bagged lantern nets to be hoisted from aquatic farm into lined fish totes and then into upland containers.

- **Fall 2011-**
  - Investigate funding options for Phase II of aquatic farm decommissioning: Remove farm infrastructure.
  - Continue to investigate options and funding to control/eradicate invasive tunicate on natural substrata in Whiting Harbor.

What can I do to stop the spread of aquatic invaders?

Be observant. Report any animal or plant you think is unusual and may be a pest, PLEASE DO NOT TAKE A SAMPLE! Instead, note its location (take GPS points if you can), take a photo, and immediately phone the Alaska Department of Fish and Game Invasive Species hotline at **1-877-INVASIV** or email tammy.davis@alaska.gov.

Avoid infested waters–avoid Whiting Harbor. If you have visited an area known to be infested with an aquatic pest, inspect anchors, ropes and chains before leaving the area and dispose of any unusual plants or animals in a sealed container in a trash can. Let lines and anchors dry completely or rinse thoroughly with fresh water.

Keep your vessel hull free of fouling. Don't let pests hitchhike to a new location. Maintain antifouling treatments to your vessel hull, if appropriate. Do not conduct any hull-scraping in the water. Use a dry dock or other facility where the fouling material can be collected and disposed of in an upland area or landfill.

Don't move contaminated gear. Pieces of dock, barges, and other materials that are stored in the water can easily be contaminated with invasive species. Do not move pieces of dock without first having dried them out completely or decontaminated them.

Decontaminate your gear. Use plenty of fresh water, away from saltwater or let it dry out completely.

Remove colonial tunicates manually from your gear. Dispose of tunicates in a garbage receptacle or let dry completely. If pressure washing of aquatic farm gear cannot be avoided, only do so on land and make sure the outflow does not go into the sea.

Educate a friend about invasive species. Learn about your local marine habitats and the organisms they support. Learn about invasive species that threaten your local areas and share information with others.

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Invasive Species ALERT: COLONIAL SEA SQUIRT

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An invasive colonial sea squirt, *Didemnum vexillum*, was found in Sitka's Whiting Harbor in June 2010. It grows over a variety of surfaces, such as docks, boat ramps, boat hulls, rocks and gravel seabeds, as well as pliable substrates such nets, rope, kelp, and other native organisms. It can encrust nonmobile marine animals such as mussels and oysters.

Colonial sea squirts invade Alaska

Commonly known as sea squirts, colonial tunicates are effective invaders of the marine environment and can have serious impacts on natural habitats, biodiversity, and economic activities. The colonial sea squirt, *Didemnum vexillum*, also called marine vomit, was found in Sitka waters. This nonnative tunicate grows on natural substrates such as rocks and gravel seabeds, as well as seaweed, mussels and oysters. It also colonizes man-made structures like docks, boat hulls, lines and nets. The aggressive growth of this invasive tunicate may alter fisheries resources and the habitats that sustain them.

- *D. vex* is expanding across the offshore fishing grounds of Georges Bank off the New England coast.
- When tunicates foul aquatic farm gear, defouling activities result in increased handling and increased product costs.
- Populations of *D. vex* on the Pacific coast of the U.S. may be sources for further expansion to Alaska.

Tunicate profile

Description: *D. vex* may be orange, pink, yellow, tan or cream. Its surface has visible veins with small pores. The texture of the sea squirt is smooth, like firm gelatin, and is somewhat leathery rather than slimy. Mature colonies can form large, pendulous lobes that resemble tendrils of dripping wax or may form extensive undulating mats with short lobes when growing on the ocean floor.

This invasive tunicate is tricky to identify, and may easily be confused with colonial sea squirts or sponge animals that naturally occur in Alaska.

Habitat: Primarily found along inshore coastal areas, *D. vex* typically grows on submerged hard surfaces including docks, pilings, and rocky ocean bottoms. In Sitka it has been found growing in the intertidal zone. It can tolerate a wide range of water temperatures and environmental conditions.

Reproduction and dispersal: *D. vex* is a particularly strong invader in part because it is capable of reproducing sexually and asexually. When fragments detach from a parent colony they are viable and can reproduce as long as suitable habitat is available. This characteristic is especially concerning because cleaning infested boat hulls or aquatic farm gear into or near the marine environment can easily result in spreading this invasive sea squirt.

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