

Status Update on an Invasive Colonial Tunicate in Whiting Harbor, Sitka February 20, 2014

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Contemporary Overview: Between 2010 and 2011, USFWS granted \$110K to ADF&G to respond to a newly detected invasive tunicate, *Didemnum vexillum* (*D. vexillum*), in Whiting Harbor, Sitka. ADF&G completed a dive survey of Whiting Harbor to map the known distribution of the invasive tunicate, bagged and disposed of infested lantern nets dangling in the water column from aquatic farm infrastructure, as well as an infested portion of the Whiting Harbor AquaFarm infrastructure was decommissioned. A local contractor was hired to investigate reports of invasive tunicates, outreach the issue to stakeholders, including southeast aquatic farmers, and to develop a decision-based response plan. A Capitol Improvement Project (CIP) was appropriated in FY13 (\$500K) to remove the former aquatic farm structural material and conduct containment and eradication activities of the invasive tunicate. Prior to receipt of CIP funds, a severe fall storm caused the destruction of the aquatic farm structure. The balances of USFWS funds (\$32K) were expended to clean up the destroyed farm infrastructure. The department has continued to respond to the invasive tunicates in Whiting Harbor with CIP funds.

- A detailed survey of distribution and mapping was conducted by ADF&G staff in fall 2012 (see fig. 1); results used for planning and solicitation of a marine environmental contractor via a request for proposals (RFP). The RFP was issued on April 8, 2013 and closed May 21, 2013.
 - We received no proposals from private contractors during the request period. Since ADF&G had been given the impression there were suitable interested parties, several contractors were contacted after closure of the RFP to gain input as to why proposals were not submitted. Potential contractors cited lack of sufficient time to prepare and implement treatment trials, lack of availability due to existing workload, and unfeasible expectations for the project.
 - Numerous follow-up conversations were had with potential contractors over the course of the summer and early fall; the Smithsonian Environmental Research Center (SERC)
 - is interested in working on this project,
 - are experts in the field of marine invasive species and have participated with the Alaska *D. vexillum* rapid response team since detection in 2010,
 - have laboratory experience investigating methods for killing marine tunicates, and have a history of working in Alaska waters.
- In December 2013, all remaining infrastructure was removed from Whiting Harbor, loaded into shipping containers and delivered to Washington State for disposal. Whiting Harbor is free of floating structures.
 - This activity completes a key objective of the CIP as all floating docks and superstructures at the site have been disposed.
 - Two large warning buoys were deployed near the entrance to Whiting Harbor in the summer of 2013 urging boaters to refrain from entering in the bay.

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- In late November 2013, the online version of Marine Pollution Bulletin published a paper authored by SERC research staff reporting results of various treatments used to cause mortality on *D. vexillum* in aquarium-sized trials conducted in Sitka.
 - In the winter of 2014, discussions with SERC continued with ADF&G requesting a scope of work to collaborate on conducting large-scale treatment trials based upon their published experiments.
 - A draft scope of work (SOW) was received on January 3, 2014 from SERC, detailing multiple phases of work to be completed within a 12-15 month timeframe. Proposed treatments include: Chlorine, high concentration saline, and cement dust, as well as a combination of these agents. Each has been successful at inducing mortality of *D. vexillum* over short durations of 2-4 hours of exposure.
 - SERC is an agency recognized by the state such that the formal bid processes do not apply allowing ADF&G to enter into a direct contract to conduct the work.
 - ADF&G and SERC are working toward development of a final SOW to meet the department's objectives and avoid nonessential expenditures. A final agreement is expected to be executed by the end of February.
 - Upon agreement by both parties, initiation of expedited permitting (DEC and US Army Corps of Engineers) and field trials of various containment devices will commence with full scale deployment tentatively scheduled for August 2014. Given this timeline and assuming successful completion of proposed activities, the following will take place:
 - Data analysis and results reporting (October-November, 2014)
 - Collaborative ADF&G/SERC full scale eradication and monitoring program proposal to be submitted to North Pacific Research Board (NPRB) in December 2014.
 - Anticipated full scale control program instituted in spring 2015 with periodic monitoring continuing at least through 2017.
 - Financial information (CIP \$500K)
 - Removal of nets and a segment of the aqua farm superstructure (August 2011)-\$26K (USFWS)
 - Removal of destroyed aqua farm debris and structures (November 2011)- \$32K (USFWS)
 - Sitka-based contractor and outreach (2011)-\$36.6K (USFWS)
 - Underwater mapping of infestation established on seafloor (Summer 2012)- \$36K
 - Signage in Whiting Harbor (Spring 2013)-\$7K
 - Removal of floating docks and superstructure (Fall 2013)-\$19K
 - CIP Balance available for control and monitoring as of February 2014-\$431K

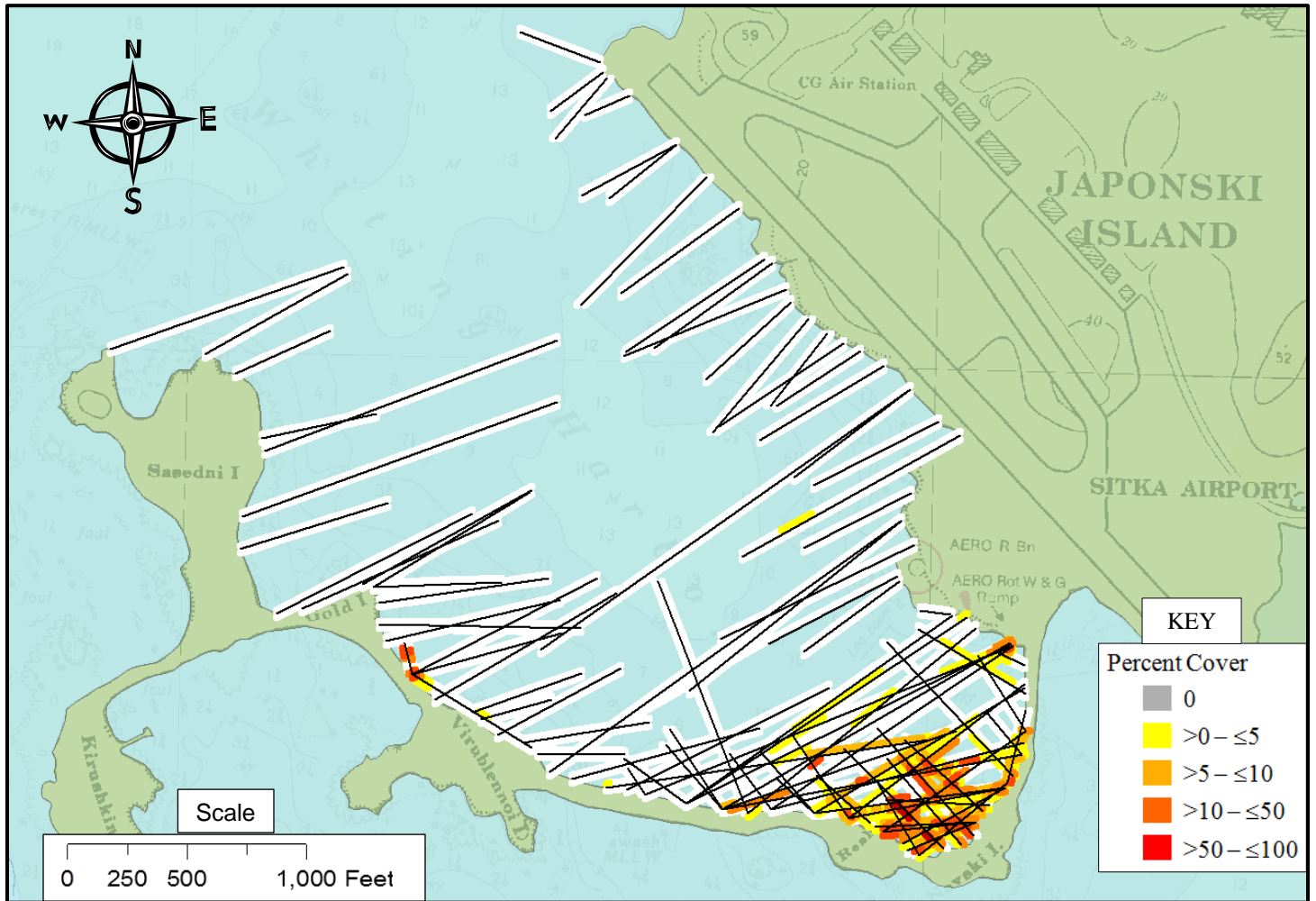


Figure 1. Distribution of *Didemnum vexillum* on the seafloor by percent cover with completed transects, August 2012.

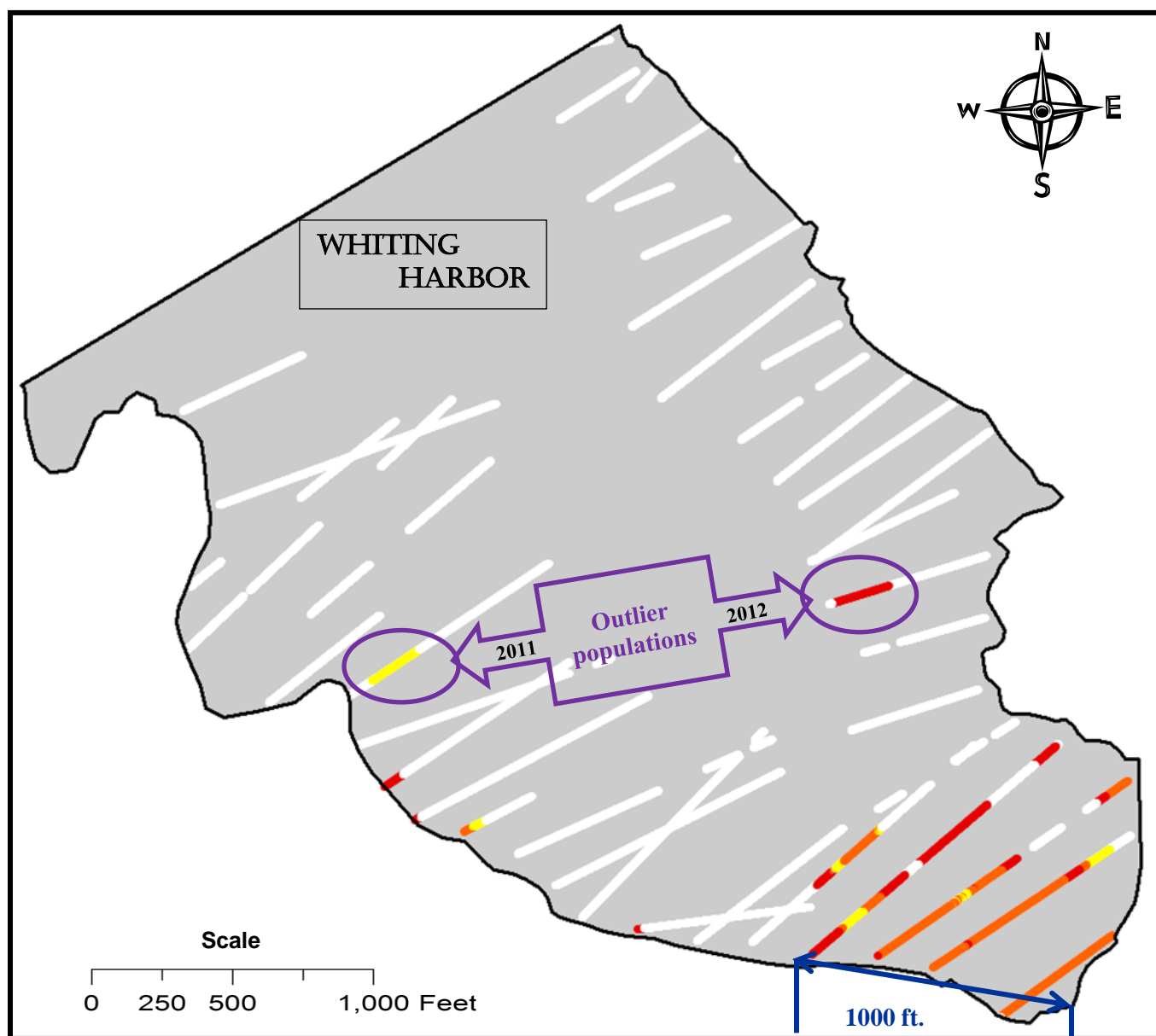


Figure 2. Change in observed distribution of invasive tunicate in Whiting Harbor between 2011 and 2012.

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White represents areas of Whiting Harbor sampled in both 2011 and 2012, where *D. vexillum* was not found either year.

Gray represents areas of Whiting Harbor that were not sampled in both 2011 and 2012.

Yellow represents locations where *D. vexillum* was found within Whiting Harbor in 2011 but not 2012.

Red represents locations where *D. vexillum* was found within Whiting Harbor in 2012 but not 2011.

Orange represents locations where *D. vexillum* was found within Whiting Harbor in both 2011 and 2012.