

AISWG Marine Subcommittee Minutes2007

AISWG Marine Subcommittee Minutes February 2007 1
AISWG Marine Subcommittee Minutes March 2007 3
AISWG Marine Subcommittee Minutes May 2007 5
Green Crab and Tunicate Monitoring Meeting, June 2007 (Homer) ... 10
AISWG Marine Subcommittee Minutes June 2007 19
AISWG Marine Subcommittee Minutes July 2007 21
AISWG Marine Subcommittee Minutes August 2007 23
AISWG Marine Subcommittee Minutes October 2007 25
AISWG Marine Subcommittee Minutes November 2007 27

Minutes were recorded by Deena Jallen (UAF-CES).

Teleconferences were hosted by the NOAA National Marine Fisheries Service (NMFS).

Alaska Invasive Species Working Group: Marine Subcommittee audio Conference

Thursday February 1, 2007

Hosted via NMFS bridge number

Participants

Deena Jallen- UAF CES, Fairbanks

Lisa Ka'aihue- PWSRCAC, Anchorage

Whitney Rapp- National Park Service, Glacier Bay National Park and Preserve

Linda Shaw- National Marine Fisheries Service, Juneau

Agenda: Items to discuss

- Update on invasive species activities
- Set next meeting time
- Possible agenda items for next meeting

Update on Invasive Species Activities

Linda Shaw opened the meeting. The Marine subcommittee has not met since August, but plans to resume monthly meetings, providing a forum for invasive species activity updates and fostering communication among participants.

Linda Shaw reported that federal budget planning and funding efforts are being stopped for the time being. NOAA has a pot of money to fund green crab modeling, but the funds are on hold. Money may become available at the end of the fiscal year.

She met with Jodie Harney from Coastal and Ocean Resources Inc (from Sydney BC, doing Shorezone coastal habitat mapping) about green crab work. At the Jan. 22nd Alaska Marine Science Symposium in Anchorage Jodi got a lot of interest and questions about using the Delphi approach to model Shorezone data, oblique area videography and georeferenced photographs. The Delphi approach is a method to query which habitat attributes are most critical to green crab survival, and to rank habitat characteristics. Shorezone is then used to identify potential green crab habitat. This work is complimentary to the GARP (Genetic Algorithm for Rule-set Prediction) model being developed in conjunction with the Smithsonian Institute. GARP modeling looks at large scale climatic and habitat variable, and the NOAA Shorezone work models fine scale habitat suitability. Examination of the GARP model helps to point out that the Delphi model is more robust, particularly in terms of including characteristics of green crab habitats in their native range.

Linda has also been working with an effort between NOAA-NMFS and the Corp of Engineers to get funding for invasive species mitigation projects as part of a new cruise ship berth in Ketchikan. The project will use a lot of fill material, and the agencies involved wanted to see some mitigation efforts. Instead of using mitigation funds for land trusts, or other projects, a more connected use was suggested. The funding will go towards monitoring invasive species with settling plates for early detection, with money also going towards education in local schools. This is the first known project approved by the Corp of Engineers to address mitigation efforts towards invasive species.

Lisa Ka'aihue has been working with the Smithsonian researchers to review their draft GARP report. The report was commissioned with the US Fish and Wildlife Service grant funds. Interested persons were able to discuss the report with the authors on a teleconference on 2/7/07.

Dan Gilson from Prince William Sound RCAC and Lisa Ka'aihue recently traveled to an aquatic invasives conference, and learned that hull fouling was an important vector. They may be working with Denny Lassuy of USFWS to get requests for proposals on hull fouling research. Dan Gilson will be continuing green crab monitoring efforts this summer, and will be adding more communities for monitoring.

PWSRCAC also has some unobligated funds. Linda mentioned an opportunity for Spartina studies. Spartina could be transported to Alaska via ballast water, which would tie it into the mission and concerns of PWSRCAC.

Whitney Rapp is working in Glacier Bay, and would be willing to install some settling plates. Glacier Pak NP also has a lot of shore and bay data that could be useful for modeling.

Deena Jallen has been working with Michele Hebert on the Needs Assessment with the Alaska Invasives Species Working Group. Twelve species have been selected for the Dirty Dozen. These species were selected to highlight invasives species issues, including potential invasives (Spartina, green crab), present invasives (Atlantic salmon), and success stories (foxes on Aleutian Islands). Currently 20 agencies have signed the MOU, and they have been asked to provide agency summaries for the Needs Assessment.

Next Meeting for the AISWG Marine Subcommittee:

The next meeting is scheduled for 10 am, Thursday March 1

Call in number: 907-586-7060 (allow line to ring until another party picks up, long distance charges apply)

Topics to discuss:

- General updates from each attendee
- Set next meeting time

Alaska Invasive Species Working Group: Marine Subcommittee audio Conference

Thursday March 1, 2007

Hosted via NMFS bridge number, minutes taken by Deena Jallen

Participants

Reid Brewer- Alaska Sea Grant Marine Advisory Program, Unalaska

Dan Gilson- Prince William Sound Regional Citizens' Advisory Council (PWSRCAC)

Judy Hamilton- ADF&G, Kachemak bay

Deena Jallen- UAF CES, Fairbanks

Lisa Ka'aihue- PWSRCAC, Anchorage

Whitney Rapp- National Park Service, Glacier Bay National Park and Preserve

Linda Shaw- National Marine Fisheries Service (NMFS), Juneau

Agenda: Items to discuss

- Update on invasive species activities
- Set next meeting time
- Possible agenda items for next meeting
- Additional Resources

Update on Invasive Species Activities

Linda Shaw opened the meeting. Since the Alaska Forum on the Environment meeting in Anchorage, She has been working with Ellen Fritts and Poppy Benson to bring a rat display to Juneau. Along with several other southeast Alaska communities, Juneau has invasive rats. The target audience for the display and possible presentation by Benson would be fishermen and vessel owners. Free rat kits are available at www.stoprats.org, and can assist vessel owners in preventing the spread of rats to and from infested port communities.

Dan Gilson from PWSRCAC has been working on green crab monitoring efforts. He is looking to find a graduate student to do monitoring, work with Kachemak Bay collaborators, and to establish sites in 6 pre-chosen areas, and set up additional monitoring in another 4 areas. Some school groups and volunteers in Kachemak bay are already involved in green crab monitoring. PWSRCAC provides green crab traps; these either come from a distributor in Canada, or from Japan. Traps cost about \$25.00 each, and deployed for two days at a time, preferably once a month from April to July. Volunteers set traps during low tide in intertidal areas, and then remove the traps after 2 tides. Persons interested in starting a monitoring program should contact Dan Gilson (gilson@pwsrcac.org) prior to the end of March, so the traps can be ordered ahead of time. See Additional Resources for a link to the protocol provided by Judy Hamilton of ADF&G KBRR.

Whitney Rapp would be interested in doing some green crab monitoring in Glacier Bay. Currently the trapping program is planned to take place in Valdez, Cordova, Tatitlek, and Dutch Harbor. Additional sites are proposed for Ketchikan, Chenega Bay, Whittier, and Seward. NMFS has some funds available for research/monitoring activities in Sitka, Ketchikan, and Juneau. A good contact in Ketchikan would be Gary Freitag; he is connected with the cruise ship berth mitigation settling plate project, and other marine issues. Reid Brewer also suggested contacting Sonny Rice in Petersburg, Ameer Howard from the Sitka Tribe, and Geof Smith (Sitka National Historical Park) or the Sheldon Jackson College in Sitka.

Other small scale monitoring projects are settling plates. Lisa Ka'aihue says that so far, the PWSRCAC settling plates in Valdez have not found any invasive species. The project has only been underway for one year as a pilot program. Whitney Rapp is interested in doing some settling plates in Glacier Bay as well.

Next Meeting for the AISWG Marine Subcommittee:

The next meeting is scheduled for 10 am, Thursday April 5

Call in number: 907-586-7060 (allow line to ring until another party picks up, long distance charges apply)

Possible agenda items for next meeting

- General updates from each attendee
- Set next meeting time

Additional Resources

Green Crab Monitoring Protocol (pdf)

<http://www.uaf.edu/ces/aiswg/resources-links.html#InvasiveMarine>

Potential contacts for Green crab monitoring projects

Sheldon Jackson College in Sitka

<http://www.sheldonjackson.edu/>

Sitka National Historical Park (Geof Smith)

<http://www.nps.gov/sitk/>

Sitka Tribe (Amee Howard)

<http://www.sitkatribe.org/>

Southern Southeast Regional Aquaculture Association, Inc. (Gary Freitag)

<http://www.ssraa.org/>

Alaska Invasive Species Working Group: Marine Subcommittee audio Conference

Thursday May 10, 2007

Hosted via NMFS bridge number (907-586-7977,

Participants

Kristine Benson- AKDOT

Catie Bursch- Education Assistant, Kachemak Bay Research Reserve

Tammy Davis- ADF&G, Juneau

Jennifer Gibbons- Executive Director, Prince William Soundkeeper, Cordova

Judy Hamilton- ADF&G, Kachemak Bay Research Reserve

Jeff Heys- National Park Service

Deena Jallen- UAF CES, Fairbanks

Lisa Ka'aihue- PWSRCAC, Anchorage

Denny Lassuy- USFWS, Anchorage

Whitney Rapp- National Park Service, Glacier Bay National Park and Preserve

Linda Shaw- National Marine Fisheries Service, Juneau

Terry Thompson- Education Coordinator, Kachemak Bay Research Reserve

Coowe Walker- Watershed Specialist, Kachemak Bay Research Reserve

Agenda: Items to discuss

- Green crab and tunicate monitoring coordination
- Set next meeting time
- Additional Resources
 - Websites
 - ADF&G Annual Interim Performance Report on Invasive Species Monitoring on Copper River Delta

Green crab and tunicate monitoring coordination

The purpose of this meeting of the AISWG Marine Subcommittee was to share and discuss ideas about Green Crab and Tunicate monitoring efforts in Alaska.

Linda Shaw of NOAA reports that their green crab suitability model should be done in the summer. It studied areas in Alaska, British Columbia, Washington, and Oregon. The model can be used to identify potential invasive points and hot spots. She suggested that ferry terminals would be good locations for monitoring, and Kristine Benson of AK DOT replied that she would look into it.

Lisa Ka'aihue of Prince William Sound Regional Citizens' Advisory Council has been working with Dan Gilson (of PWSRCAC). In partnership with the USFWS, the PWSRCAC has gone to communities in their region, and through cooperative agreements, have been able to expand monitoring efforts out side their region. Dan Gilson has traveled to towns to train teachers and students. The PWSRCAC has sent traps to Judy Hamilton at Kachemak Bay Research Reserve. This year, they plan to expand green crab monitoring to Seward and Chenega Bay, and to Ketchikan and Sitka in Southeast Alaska. They are also working with the USFWS to expand citizen based monitoring programs, and to expand monitoring efforts to include tunicates. The PWSRCAC is generally funded by the Oil Pollution Act of 1990, and receives \$2.9 million form Alyeska annually. Additional money for green crab monitoring comes from USFWS grants. The ratio of PWSRCAC funds to USFWS funds for the green crab monitoring is about 70:30, with the PWSRCAC funding Dan Gilson's time. The USFWS funds are generally secure, but the method of delivery is more complicated via the grants.gov system.

Judy Hamilton, Terry Thompson, Coowe Walker, and Catie Bursch called in from the Kachemak Bay Research Reserve. Last summer they developed a protocol for middle and high school groups to monitor for green crab. The education team took out groups last fall, and this spring. This week, they are going to set up a program with a middle school in Seldovia, and are planning to expand monitoring efforts in Kachemak Bay. ADF&G is supplying 3 years of funding to improve scientific monitoring and will help to facilitate coordination in the region for green crab and tunicate monitoring projects. The KBRR has also been in contact with the Smithsonian Institute for scientific advice.

ADF&G has provided funds to the KBRR through NISA funds (National Invasive Species Act), and will continue to fund KBRR for at least the next 3 years. ADF&G also has a contract with the Prince William Sound Science Center (Mary Ann Bishop), and will be doing green crab monitoring in Cordova. They are currently in year 2 of their contract. The PWSSC does general trawls, and monitors for green crab (the annual report for 2005-2006 is included under Additional Resources). ADF&G is continuing to fund project under the NISA-5 grant that fit the goals of that grant, and is looking at expanding monitoring in to additional coastal areas.

The KBRR has an idea of a larger scope and regional coordination for green crab monitoring. People in southeast AK, Dutch Harbor, etc. would collect data, and send it to a central hub location. Denny Lassuy was happy to see monitoring and a linked network being affiliated with the State of Alaska. Lisa Ka'aihue and Jennifer Gibbons (of Prince William Soundkeeper) were very supportive of the idea as well.

Jeff Heys of Park Service said the Parks (Katmai, Kenai Fjords, Lake Clark, Wrangell-St. Elias, Sitka, Glacier Bay, Klondike Gold Rush) would also be interested in expanding citizen and scientific green crab monitoring programs. Park Service has given \$3,000 grants to PWSRCAC in recent years to fund outreach programs and green crab ID cards. Park Service would like to be more involved in inventory and monitoring for marine invasives, their current efforts are more oriented to control. They would like to know if protocols are already being developed, and might be able to justify using them on park lands.

Judy Hamilton would like to see the Kachemak Bay Research Reserve serve as a hub for monitoring efforts throughout the gulf and southeast Alaska. She sees this as a way to work with different groups and not duplicate efforts. Jennifer Gibbons from the Prince William Soundkeeper and others expressed support. Prince William Soundkeeper is based primarily out of 5 communities in the Sound. They are in the process of developing system based monitoring and education programs. J. Gibbons would like to have more scientific and technical advice from other organizations involved with monitoring.

Call participants agreed that it would be a good idea to have a central coordinating area to compile monitoring data. Judy Hamilton of the KBRR believes that their organization would be a good place to have it. They have a good location, physically and scientifically. Terry Thompson pointed out that the KBRR has a person on staff that has time and is willing to take on the role. Catie Bursch said that from an education standpoint, the monitoring efforts would tie in well with citizen, school, and homeschool education programs. The green crab and tunicate modeling would provide a jump off point for student in the coastal communities to share their catch data and learn about marine organisms. Linda Shaw pointed out that tunicate monitoring would lend itself well to this kind of activity, linking students not only in AK. but to the US, Canada, and Europe. The timing of green crab monitoring is somewhat problematic to fit in with school scheduling. Green crab monitoring in Kachemak bay would be best done in late spring or summer (on the west coast, the crabs were mostly out and feeding in water temperatures above 10 C). Some native crab species were caught in the spring and into October. Settling plate projects may be better suited. Researchers could place the plates in summer (June) and school classes could do the pickup and sampling in mid-September.

The KBRR is part of a partnership between the Alaska Department of Fish and Game, and NOAA. The employees are state employees, but most of the funds come from NOAA. There are 26 other research reserves across the US and Costa Rica, and all the others do monitoring for invasive species in their estuaries, so it would be appropriate for the Kachemak Bay location to become more involved in invasive species collaborations. The KBRR has a history of being funded by state, federal and NGO funds, so funding should not be much of an issue.

Judy Hamilton will be the contact person at the KBRR for continued coordination on green crab monitoring. Call participants agreed that it would be useful to meet in person with the new KBRR research coordinator, Daniel Doolittle, who will be starting on the 1st of June. The meeting time will be 10 am on June 12th in Homer. Participants will be able to meet on site, or call in. Judy Hamilton will try to get Greg Ruiz from the Smithsonian institute to attend via phone. Goals of the meeting will be to discuss coordinated monitoring and to develop research proposals and timelines. One issue will be linking tunicate and green crab monitoring so that the two issues can be packaged and tied into one another so that monitoring efforts can encompass both species of interest. Tunicate monitoring consists mainly of settling plates; plates are set in the summer or spring. In the fall/winter, plates are retrieved, cleaned lightly, photographed, and samples are scraped into preserving solution and sent to Smithsonian institute researchers. In past years, shipping has been difficult due to the hazardous nature of the formalin preservative solution. The protocol has now changed to an alcohol solution, making handling and shipping of samples easier. The Smithsonian institute has good protocols in place for sending in pictures. Judy

Hamilton from KBRR sent plates into the Smithsonian last year for monitoring, and is expecting to get recommendations on plate locations for this summer. They have stacks of bricks and plates available, and Gary Sonnevil with USFWS has palates of settling plates available. A consideration for placing settling plates is to get permission from harbor masters, oyster farmers, etc. before using their waters. Judy Hamilton has packets available on settling plate protocols. Good locations for settling plates would be ferry terminals (Kris Benson from AKDOT will look into this before the June 12th meeting), and harbors. Harbor masters have an annual meeting, and it was recommended that someone give a presentation on monitoring at their next meeting.

Upcoming meetings

Green Crab and Tunicate Monitoring Coordination

June 12th, 10 am. Homer, Alaska

Location and call-in information to be announced.

Please contact fndmj@uaf.edu or judy_hamilton@fishgame.state.ak.us for more information

Marine Subcommittee teleconference

June 28th, 9am 907-586-7977, allow line to ring until another party picks up.

Long distance charges apply.

Additional Resources

Kachemak Bay Research Reserve

<http://www.habitat.adfg.state.ak.us/geninfo/kbrr/index.html>

Prince William Sound Regional Citizens' Advisory Council

<http://www.pwsrcc.org/>

Smithsonian Institute Invasive Species

http://www.serc.si.edu/labs/marine_invasions/index.jsp

Prince William Sound Science Center

www.pwssc.gen.ak.us/

Alaska Department of Fish and Game State Invasive Species Program Grant

ANNUAL INTERIM PERFORMANCE REPORT

Coop-06-088

Project Title: Invasive Species Monitoring on Copper River Delta

Project Duration: 1 July 2005 – 30 June 2008

Report Period: 1 July 2005 – June 30, 2006

Report Due Date: September 30, 2006

Objectives (*as submitted or amended in the Federal Aid Grant Agreement to the Regional Federal Aid Office*):

1. Develop a cooperative program for monitoring invasive species on the Copper River Delta involving the ADF&G and the PWSSC.

2. Collect scientific knowledge and local knowledge of invasive species in and around surveys on the western Copper River Delta and Orca Inlet.

Summary of Accomplishments (*Describe accomplishments related to the work that was proposed to be done during this same period in the Project Description and work schedule*):

Objective 1.

Ten Prince William Sound Science Center (PWSSC) staff involved with scientific collections or education outreach received outreach materials from ADFG Invasive species program including laminated identification sheets for nonnative aquatic species, and wallet-size cards for identifying mitten crab, European green crab, and Atlantic salmon, and pamphlets on invasive plants. Beginning in fall 2005, the public atrium at PWSSC has included a section dedicated to information on invasive species with a special emphasis on the small, wallet-sized cards for identifying European Green Crab and Atlantic Salmon. The area is visible to any visitor entering the building. In August 2005, PWSSC hosted a meeting on green crab monitoring, that included an evening presentation on invasive species with guest speakers Dennis Lassuy (U.S. Fish and Wildlife Service) and Marilyn Leland (Prince William Sound Regional Citizen Advisory Council).

Objective 2.

We monitored for invasive crabs and Atlantic salmon during two studies being conducted in and around the channels and mudflats of the Copper River Delta. The first study was investigating juvenile salmon use of the estuary and included two study areas: near the outflows of Eyak River and Alaganik Slough. Between 1 July and 31 October 2005, three staff members conducted 218, 20m-long beach seines (104 at Eyak, 114 at Alaganik). They also deployed 42 fyke nets (21 per study area), and conducted 132 surface trawls (66 per study area) during these months. Our second study, investigating the intertidal resources at risk to oil spills, conducted monthly bottom trawls at 6 sites on the western Copper River Delta, and 1 site southern Orca Inlet (southeast Prince William Sound). Between 1 July 2005 and 30 June 2006, 126 bottom trawls were conducted (63 trawls in each calendar year). No Atlantic salmon or invasive crab species were noted.

Significant Deviations (*if any, and explain the reasons for these*):

Actual Costs during this Report Period (*personnel plus all operating expense totals*):

Federal (from ADF&G): Partner (nonfederal share):
(Note: ADFG will fill in cost information based on billings received by 30 June 2006.)

\$ _____ \$ _____

Project Leader (*or Report Contact Person*): Mary Anne Bishop, Ph.D., Research Ecologist,

Prince William Sound Science Center, Cordova, Alaska

Additional Information: *(Please answer questions below, and add any additional detail, if desired, related to the progress of the project):*

All field work for the juvenile salmon study ended 31 October 2005. During 2006, bottom trawls for the study on intertidal resources at risk to oil spills will be conducted monthly through September 2006.

Green Crab and Tunicate Monitoring Coordination Meeting (DRAFT)

Kachemak Bay Research Reserve, Islands and Oceans Visitor Center conference room

June 12, 2007

Participants:

Amy Alderfer- Kachemak Bay Research Reserve, Acting Reserve Manager

Catie Bursch- Kachemak Bay Research Reserve, Education Assistant

Tammy Davis; ADF&G, invasive species program

Daniel Doolittle- Kachemak Bay Research Reserve, Research

Dan Gilson- PWSRCAC in Valdez

Judy Hamilton- Kachemak Bay Research Reserve, Fisheries Biologist, near shore issues

Deena Jallen- UAF-CES, AISWG program assistant

Lisa Ka' aihue; PWSRCAC, invasives

Denny Lassuy; USFWS, invasives

Linda Shaw- NMFS

Terry Thompson- Kachemak Bay Research Reserve, Education Coordinator

Participants met at the Islands and Oceans Visitor Center in Homer, AK. Judy Hamilton opened the meeting by handing out the 'Kachemak Bay National Estuarine Research Reserve State-wide Coordination of Community-Based Marine Invasive Species Monitoring Input Forum'. The eleven participants introduced themselves, and gave a presentation about the Kachemak Bay Research Reserve and the National Estuarine Reserve system.

Presentation notes:

National estuarine research reserve system monitors water quality, and is expanding to include biological monitoring. In Alaska, the research reserve coordinates with NOAA and ADF&G Sportfish division on research and education. The KBRR is non-regulatory, and focuses on the Kachemak Bay estuary, with research and education projects expanding beyond that geographical area. They work to integrate research and education.

European Green Crabs have been on the west coast of the US since the mid 1980's. They are relatively small, but are aggressive, and can reduce native crab populations. They are adaptable, and tolerate a wide range of environmental conditions. The Smithsonian institute (SERC: Smithsonian Environmental Research Center) has determined that green crab would be able to tolerate temperatures and salinity levels found in Kachemak bay (and other Alaskan areas).

In 2006 the KBRR developed and tested protocol for green crab monitoring efforts in area schools. In 2007, monitoring was expanded to Seldovia, and a graduate student in Peterson Bay also did some monitoring. Methods examined included trap type (pit, minnow and folding), bait, beach location, and site selection. Minnow traps were unsuccessful. Pit traps consist of buckets sunk into the beach. Although simple to deploy, downsides include inability to bait, crab cannibalism, trap theft (ooh! Free bucket!), and awkwardness for class use (students have to remove trapped crabs from the bottom of the bucket by hand, with silt making visibility very

limited). Minnow traps were found to be ineffective unless trapping is targeting very small things. Judy reported catching 250 crabs in folding traps, and 1 crab in minnow traps in the same area/time period.

Folding traps were found to be the most effective. Dan Gilson has found a supplier of the traps in Japan. He modifies the traps by cutting mesh along the sides, and then sewing the mesh back together with cotton twine. The cotton twine will quickly degrade; reducing bycatch and continuous trapping if the trap is lost. KBRR and PWSRCAC also modify the traps by using zip ties to reduce the size of the trap mouth, preventing larger animals from being accidentally caught. Catie Bursch did trapping last year in April and October with four folding traps, and one pit trap. Bycatch included one of each; sea urchin, snail fish, barnacle, and sculpin, and 2 mussels.



Folding trap with mesh panels. Trap is about 2 ft long, and 1ft tall.

Bait in folding traps is placed in a perforated tub. Canned bait (tuna, catfood), can be set in a trap after puncturing the can. Dan Gilson reported always using herring as bait (also suggested by Greg Ruiz in his studies). Judy Hamilton has used locally available salmon scraps for bait, which worked better than cat food. Canned foods can be very convenient for school groups and citizen monitors to use. Dan Gilson said that he usually stops trapping in late July and August. In Valdez, the salmon runs are high at that time, salmon carcasses are readily available, and traps catch very few crabs. Judy Hamilton has not found that to be a problem in Homer, which does not have a large influx of salmon.

For school classes, Catie found it helpful to have a minimum of 5 traps. Each student should have a 'job' to do while checking the trap. She has developed a kit of crab ID and sampling materials. Each group of 5 students gets a bucket kit, and a trap to monitor. The kit consists of a bucket labeled with its contents; tidepool guide, crab guide, clipboard with pencil, data sheet on waterproof paper, calipers, and pair of gloves. Students identify and count all contents of the trap.



The KBRR has a grant from ADF&G for the next three years. Their goal is to get a baseline for crab populations in Kachemak bay. There is a habitat types model for Dungeness crab. The Reserve will also continue to implement its education programs. The funding consists of \$139,000 for the three years, the bulk of which will go to salary.

Tunicate monitoring

Tunicates are a colonial animal that reproduces by budding and gametes. They can alter benthic habitats by overgrowing native flora and fauna. The Smithsonian institute has an interest in monitoring fouling organisms. Settling plates have been deployed in Kachemak bay for several years. The plates are set in summer, and retrieved in September. Organisms on the plate are then photographed, scraped off, preserved, and sent to SERC. Samples undergo genetic analysis in San Francisco. SERC scientists will be coming to KBRR in September to train identification protocol and refine photographic methods. They will also be refining the website to improve photographic identification. So far, there are 10 plates in Valdez, Dutch Harbor, Petersburg, Ketchikan, and Juneau (20 plates total in Juneau, 10 at cruise ship dock and 10 at Harris Harbor, 10 in Gustavus). Potential locations include Tatitlek, Cordova, and Whittier. Upper areas of Cook Inlet may be too silty for monitoring. Valdez has silt and a

freshwater lens that may interfere with monitoring. Potential monitoring sites include ferry terminals. Involving the ferry system could also help to streamline the process of transporting the settling plate-and-brick setup. KBRR is currently using a PVC plastic plate (about 15cm x 15cm) attached to a perforated brick. The plate is roughened on one side by a grinder, and attached to the brick with zip ties. The brick is then suspended from a dock or other structure.



Plates can be reused from year to year if thoroughly cleaned. Dan Gilson from PWSRCAC scrapes them clean, then soaks them in a dilute bleach solution overwinter.

Potential sites for monitoring include oyster farms, ferry terminals, and harbors. Denny Lassuy pointed out that it would be important to pick sites strategically, to avoid overwhelming SERC and KBRR with samples. Potential vectors for tunicates include hull fouling and ballast water. Oyster farmers in AK can move oysters within the state, and can also purchase certified spat from elsewhere. Non-sterile oysters can also be found from sterile shipments (not necessarily due to lax screening, but to life finding a way). Many oyster farmers have been very helpful and interested in habitat variables, and already allow researchers to install monitoring equipment on their floats. Judy Hamilton says that they are taking plankton samples and temperature readings from oyster farms. Another group to involve would be Harbormasters; their annual meeting takes place in the fall, and may be held in Homer this year. Locating sediment plates near ballast exchange areas may also be helpful. The bulk of ballast water exchanged in Alaska is from oil tankers, who are exempt from regulations. Other ships are required to comply with ballast water transfer regulations, but the Coast Guard does not verify actual compliance, only record keeping of ballast transfers.

State of Statewide Monitoring

Needs:

1. Central database/manager
2. Consistency in sampling
3. Maintenance of database
4. Web based resources (online ID guide, communication resources for volunteers, students, teachers, etc.)

KBRR has the resources for coordinating, training, equipment, ID guide, mapping, community contacts and data collection. They have contacts for travel and regional coordinators in Dutch Harbor, Prince William Sound and Juneau. They have storage space for traps and supplies, and function as the hub for SERC tunicate monitoring in Alaska. They might also be able to do the

same for Green Crab. In summary, KBRR has the capability and interest to serve as the facilitator of Green Crab and Tunicate monitoring efforts throughout the state.

Discussion

Daniel Doolittle opened the discussion by asking about what public outreach has been done to explain the 'so what?' questions of invasives. PWSRCAC, ADF&G, KBRR, USFWS all have booths/materials for community events. Earlier this spring, PWSRCAC hosted an invasive film festival at the Alaska Forum on the Environment. Soil and Water Conservation Districts, and other organizations involved with plants have been active in Alaska for several years. Awareness of invasive weeds hits people in their backyards. There is not uniform awareness about invasive species.

Judy Hamilton wanted thoughts on how training citizen monitors has been worked out. Dan Gilson said that it was not difficult. When he started in Valdez, he resumed work begun by the Smithsonian institute. He had 24 traps at 3 locations. It was overwhelming for the other communities to maintain that level of effort. In Kodiak, the trapping locations are 10 miles out of town, and Dan trained 4 high school students. In Tatitlek, he found 16 traps and 12 kids to be more manageable. Denny Lassuy brought up the issue of statistically significant trapping. How many traps would be needed to validly estimate populations of native crabs, or to monitor for presence/absence of green crabs? Dan Gilson noted that the 3 Valdez locations were spread out, and they were trapping in the port. Judy Hamilton mentioned that they had been putting out 20 plates for tunicates, but on recommendation from SERC, they reduced their efforts to 10 traps, so presumably SERC has done some of the research to figure out adequate effort for tunicates, at least.

From an educational perspective, Catie Bursch pointed out some of the considerations of working with school groups and kids of different ages. In elementary school, students often have a whole day with one teacher, and can go on field trips more easily than middle school students, who have 50 minute class periods. Also, for younger kids, they quickly get wet, cold, and muddy, and packing them all into a bus and going to another sampling site is unfeasible. High school students may have more freedom of movement and travel, and may be able to get out of class to work on a monitoring project in a small group. It is also important to have enough traps, so that kids are not left out.

For doing citizen monitoring, the number of traps and where set will have to take into consideration outreach/education, and effective monitoring. One tool that will be helpful in site selection will be the Shorezone habitat assessment study.

Linda Shaw said it should be done in early July. The Shorezone project is an ongoing habitat mapping project in the state of Alaska. It was started by Sue Saupe, and takes data from photo imagery from super tidal to subtidal at the lowest tides. The habitat modeling looks at geomorphology, sediment type, wave exposure, and bio-banding (kelp band, etc.). In Auke Bay, researchers have also added data on fish species. Visitors to the web site can select area of the coastline, and see flyover images. Jodie Harney asked Sylvia Yamada for advice on modeling data. Jodie combined green crab habitat data, and the ShoreZone habitat data using the Delphi approach and queried the ShoreZone database to find which areas would be suitable green crab habitat. The model will include surveyed areas from Washington and British Columbia, where populations of green crab already exist, so the model will be tested against to see if it predicts areas where green crab have been found on the west coast. Lisa Ka'ahue said that the Prince William Sound data is not quite all done, they still needs to some of the flying, which should be done by October.

Of primary interest to PWSRCAC are issues of ballast water and hull fouling. Citizen monitoring is their #1 priority. They have funding from the USFWS to do monitoring in 10 communities. To meet this goal, they need to set up monitoring in Seward, Chenega Bay, Whittier, and Ketchikan. They currently have sites in Valdez, Cordova, Tatitlek, Kodiak, Dutch Harbor, Homer and Seward. In most of these communities, they have liaisons in place. The funding from the USFWS should be good for 5 years, and will help the RCAC to fulfill mutual priorities. Terry Thompson thinks that reaching the additional communities would be doable. The KBRR has monitoring protocols, however, they may be short staff. Ketchikan would be an easy community to start monitoring in, and there are enthusiastic coordinators in Dutch Harbor (Reid Brewer), Cordova (Allen Marquette), Tatitlek (local teachers), and Whittier (Jane Osmond).

Needs

Dan Gilson said that a 'one-stop-shopping' location for ID material is necessary. He has a pretty good book (Pacific Coast Crabs and Shrimps). Catie Bursch has lists of crab species in Kachemak Bay, and can do scientific illustrations, which are especially helpful in showing identification markers. A printed guide should show commonly encountered species, and specific invasive species, with additional resources online. Deena Jallen could add a crab monitoring section to the AISWG website with links to resources, and pages on crab identifications. More complicated web resources, such as online communities and databases would probably need to be subcontracted out. Funding may be available from ADF&G or PWSRCAC to fund website development.

Green crab models, or specimens in acrylic blocks would be very helpful for showing monitors what they are looking for. Sylvia Yamada may be a good contact for such models, as well as Jason at ClearBio . Jason has recently e-mailed Linda Shaw with a price list, which she has forwarded to a number of meeting participants. It is difficult to train citizen observers to find something they have not seen before. Ideally, in a school setting, the program would tie into five classes on crab life cycle, classroom identification exercises, and then field work. Dan Gilson from PWSRCAC uses an ice cube tray to represent the ballast compartments in oil tankers. He finds it is easier to work with small groups, and then they can explain things to the other kids. He has been doing more 'train the trainer' type work.

An issue with tying green crab monitoring into school groups is the timing. Trapping would ideally take place in the summer. Alternate resources for observers might be retired naturalists, and native or village summer programs. Catie Bursch pointed out that in villages, where teacher turnover is high, getting volunteers from tribes and villages would be a good idea.

Tunicate plates

Tunicate sites so far are in Dutch Harbor, Homer, Valdez, Cordova, Gustavus, Juneau, and Yakutat. Linda Shaw got \$15,000 through Corp of Engineers mitigation projects to do invasive species monitoring on a new dock in Ketchikan. She has been working with Gary Freitag, who would be an excellent contact in that area. Where possible, it would be advisable to combine green crab and tunicate monitoring in order to save on travel costs.

Tunicate data has been mailed from communities to Dan Gilson. He then packages and sends the data to ADF&G for permitting requirements, and also sends the data to Greg Ruiz. So far, the community monitors have not expressed an interest in seeing the results of the monitoring. Lisa Ka'aihue with PWSRCAC has contracted out database programmers in the past to do user-friendly queryable databases. She feels that as long as the data is tied in with PWSRCAC goals, it would be a good use of their resources to have the data available online. Susan Harvey used

ASP pages, and PWSRCAC continues that contract for site upgrades. The literature data base is queryable by port, species, and author.

Permitting

Judy Hamilton mentioned that getting a blanket permit for sampling would be great. Tammy Davis will look into the requirements needed to do a broad permit for sampling associated with this project. Dan Gilson said that the current permits specify sites, but initially, the sampling sites will not be known. Tammy responded that adding people and locations to permits is not hard, but that getting the initial permit can be an ordeal. Bob Piorkowski with ADF&G handles permitting. One option may be to look into giving power to amend a permit to regional coordinators. So far, Cordova, Chenega Bay, and Tatitlek are lumped under one permit. Dan Gilson may be able to get sites established before September.

Involvement and Coordination

Lisa Ka'aihue would like to see the communities involved in the monitoring keeping up their involvement. Daniel Doolittle and the KBRR can assist by taking on the role of regional coordinator. Terry Thompson from KBRR can take over training this summer for Seward, Chenega Bay, Whittier, and Ketchikan. Chenega Bay is in Prince William Sound, and either it or Whittier would be a good location for co-training between PWSRCAC and KBRR. Prince William Soundkeeper will also be a good organization to coordinate with, their executive director, Jennifer Gibbons, has expressed interest in getting coordinated monitoring efforts up and running.

Judy Hamilton sees the KBRR acting as a state coordinator. They would collect all the data from the regions, and would support regional trainers. They have facilities to store and assemble sampling equipment. Tammy Davis and Daniel Doolittle confirmed that this would tie in well with ADF&G's missions. Sustainability will be important. At the end of 3 years, the project will be easier to keep funded.

Funding

Tammy Davis said that ADF&G funds would likely not be available until September. Lisa Ka'aihue said that PWSRCAC should be able to supply funding before then to get things moving. What she is hearing is that there is a need for bridge funding, and then in the September, ADF&G will likely have money to continue the project. In order to supply funding, PWSRCAC will probably use an MOU as a mechanism to transfer funds.

Other funding considerations will be for website work. Deena Jallen will look into costs of expanding the AISWG website to include crab identification materials, and costs of database/communication resources. PWSRCAC might fund database work, especially if it incorporates PWSRCAC data.

Future Considerations/Plans

Linda Shaw would like to see monitoring efforts tied into the green crab habitat suitability models. NOAA has a strong interest in doing statistically sound monitoring efforts. Denny Lassuy said that one of the greatest values in having citizen monitoring will be to have an educated, engaged public. Catie Bursch pointed out that most likely, the first green crab in Alaska will not be found by a scientist. Citizen monitoring needs to start out as simple projects with realistic goals and expectations. Once the program is solid, then additional data collection methods can be added based on what data will be the most important and feasible to collect (salinity, temperature, etc.). Number and placements of traps can also be revisited, but initially, monitoring will likely take place in areas that volunteers can easily access.

One of the main questions concerns what can be done once green crabs are found in Alaska. Linda Shaw mentioned that there are eradication efforts under way in Bodega Bay in California. They are doing well, and examining using pheromones (They are being funded by the Pacific States Marine Fisheries Commission. The eradication effort is being done by Catherine de Rivera, Portland State University, Greg Ruiz, Smithsonian, Edwin Grosholz, University of California, and Mark Systma of Portland State University, and the pheromone work is being done by Sylvia Yamada of Oregon State University).

For this summer, important resources will be training materials, traps, and volunteers. Dan Gilson and Catie Bursch already have significant resources in these areas. PWSRCAC has 40 traps in Valdez. KBRR has 10 traps at least, possibly as many as 25, enough for the Kachemak Bay area. It will take 6 weeks to order new traps. Lisa Ka'aihue will look into buying traps for Southeast Alaska soon using USFWS funds, so monitoring can be done this summer. Dan Gilson estimates that each community will use between 16 and 24 traps, depending on the size of the community.

Judy Hamilton suggested possibly starting each community with half as many traps this summer, and then focus on full trap deployment next summer. Dan Gilson recommended getting 12 traps for Chenega Bay, 16 each for Whittier and Seward, and also traps for Juneau. Focusing on full trapping next summer will also allow for more funding being in place from ADF&G, crab guides should be available for more areas, use of the habitat suitability model to assist in site selection, and for more blanket permitting, instead of getting piecemeal permits. This summer it will be useful to get volunteers and coordinators engaged, and to scout out available sites. This winter, work can focus on expanding educational materials, and shipping out additional traps for a full trapping effort next summer.

Regional Coordinators

Prince William Sound (Valdez, Cordova): Dan Gilson, Fran Lathan (Yakutat)

Southcentral (Homer, Seward, Kodiak): KBRR

Southeast (Gustavus, Juneau, Sitka): Linda Shaw

Bristol Bay/King Salmon: unknown. Gets a lot of shipping traffic, monitoring would be important.

Southwest (Dutch Harbor, Akutan, Sand Point): Reid Brewer

Train the Trainer Sessions

Location: Whittier (or TBA)

Date: July 30, 31, or August 1. Depends on low tides and personnel availability.

Southeast: Judy Hamilton and Linda Shaw will follow up contacts in Sitka and Ketchikan and look into planning a meeting for trainers.

Monitoring, Additional contacts

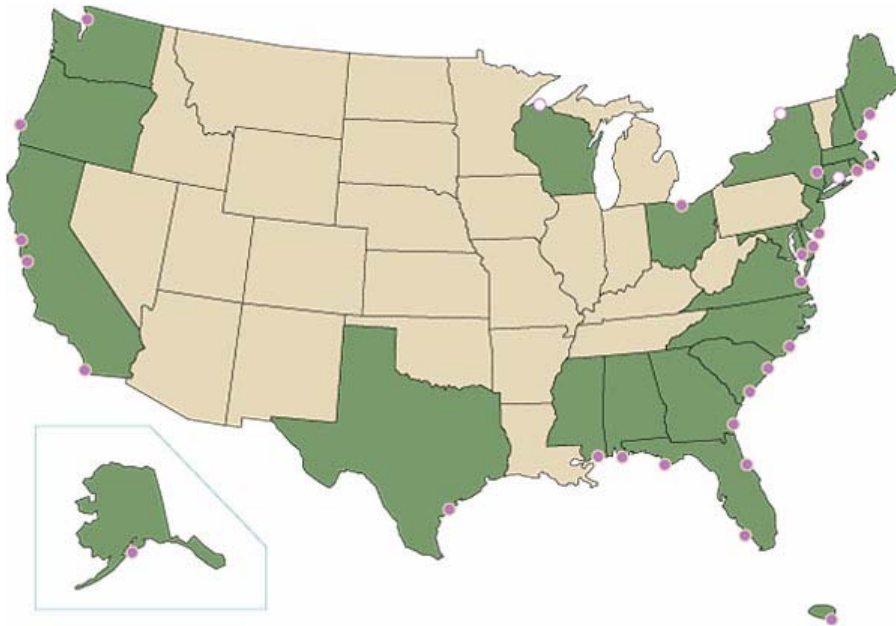
Tunicates plates should be set out in June. Train the Trainer sessions can set out plates late this summer in preparation for next summer. Linda Shaw will talk to Whitney Rapp in Glacier Bay to see if she can set up traps in addition to tunicate plates.

Crab identification information needs to be put together for Whittier, Seward, Chenega Bay area, and southeast communities, including Juneau, Ketchikan, Gustavus and Sitka.

Additional Resources

National Estuarine Research Reserve System

<http://www.nerrs.noaa.gov/welcome.html>



<http://www.nerrs.noaa.gov/Reserves.html>

Smithsonian Environmental Research Center

www.serc.si.edu/

**Projecting Range Expansion of Invasive European Green Crabs (*Carcinus maenas*) to Alaska: Temperature and Salinity Tolerance of Larvae
1 February 2004, Research Report**

Submitted to: Prince William Sound Regional Citizens' Advisory Council

Submitted by: Anson H. Hines, Ph.D., Gregory M. Ruiz, Ph.D., Natasha Gray Hitchcock, M.S., Catherine deRivera, Ph.D.

serc.si.edu/labs/marine_invasions/publications/PDF/RCAC_Green%20Crab_Final_2004.pdf

Alaska Association of Harbormasters

<http://www.alaskaharbors.com/index.html>

2007 Annual Conference date and location not yet announced.

Coastal and Oceans Resources Inc.

<http://www.coastalandoceans.com/>

ShoreZone coastal Habitat mapping

<http://www.coastalandoceans.com/shorezone.html>

<http://www.coastalaska.net/>

Crab ID Book: Pacific Coast Crabs and Shrimps

Gregory C. Jensen, Published by: Sea Challengers (February 1, 1995)

Alaska Invasive Species Working Group: Marine Subcommittee audio Conference

Thursday June 28, 2007

Hosted via NMFS bridge number

Participants

Erica Ammann- NOAA, Anchorage

Tammy Davis- ADF&G, Juneau

Deena Jallen- UAF CES, Fairbanks

Denny Lassuy- USFWS, Anchorage

Linda Shaw- National Marine Fisheries Service, Juneau

Agenda: Items to discuss

- Update on invasive species activities
 - Collection Permits
 - Monitoring
 - Funding
 - State activities
- Upcoming meetings and training sessions

Additional resources

- Link to Green Crab habitat suitability model report

Update on Invasive Species Activities

Collecting Permits

Collection permits are handled by Sarah Larson with ADF&G Commercial Fish division. Comm. Fish issues permits for salt water collection areas, and Sport Fish handles permits for freshwater and estuarine collection areas. If a project takes place in both types of habitat, the application should be sent to both S. Larson, and Bob Piorkowski (permitting, Sport Fish Division). There is a statewide general public collection permit for freshwater, which Denny Lassuy has been using for collections related to New Zealand mudsnail work.

The main purpose of the permits is to have people touch base with the ADF&G, so that they know what people are collecting. Permit applications should include the target species, and a reasonable estimate of likely bycatch (a green crab trapping effort will probably also catch other crab species). Actual bycatch numbers should be recorded on the permitting reports. Permits are issued for collecting species of fish, shellfish, and aquatic plants that are not otherwise covered by harvest regulations.

Monitoring

Linda Shaw and Tammy Davis, along with Lance Lerum from Forest Service have put out 20 tunicate monitoring plates (10 at the cruise ship dock, and 10 at Harris Dock). They also attempted to take salinity readings, but Lance Lerum did not have meter calibrated for salt water. Linda Shaw has now obtained a refractometer that can be used to measure salinity at tunicate monitoring sites.

There are plans to have a green crab monitoring training session in Juneau in mid August. The tides will be suitable on August 13th and 14th. Dan Gilson is planning on traveling to Juneau on August 11th. By then, Linda will have some sites pre-selected using the green crab habitat suitability model (now available. See Additional Resources). The plan is to set the traps Monday morning, and retrieve them Tuesday morning. Linda is working with ADF&G to get permitting, and is looking into getting funding to bring in other people. Whitney Rapp (NPS), Heather Woody, Allan Unmack (Sitka Tribe), and Gary Freitag (Ketchikan) are possible people to bring in for training.

Tammy Davis and Linda Shaw said that setting the plates didn't take very long. After 3 months, they will pull the plates, photograph them, and if needed, send samples to SERC. This is part of a larger monitoring effort that is ongoing in locations all over North America and Europe.

Linda Shaw has spoken to Kris Benson from DOT, and has gotten the go ahead to use ferry terminal docks as sites for tunicate settling plates. They will have to work with local managers and volunteers, and plates must be set in areas that do not cause safety concerns (where they would not be sucked in during ship maneuvering). Linda will connect volunteers with Judy Hamilton from KBRR.

Funding

Denny Lassuy said that USFWS has preliminary approval to continue funding for PWSRCAC, and that if PWSRCAC chooses, it would be appropriate for a portion of that funding to go to supporting citizen monitoring networks in coastal waters potentially affected by shipping-mediated species transfers.

PWSRCAC is currently considering this potential use of the funds. PWSRCAC funding will be used to send Dan Gilson to Juneau and other areas for training local monitoring programs. Funds may also be used to support a green crab website because of the concern for ballast water transfers of this species into Alaska waters.

State activities

Tammy Davis said that ADF&G is working on getting their pike management program back on track. They are also doing their close-out of the fiscal year. Kelly Hepler, the Sport Fish director is retiring. Denny Lassuy said that Kelly was very involved in the National Fish Habitat Action Plan and his contributions will be missed. Hopefully the new leadership will provide the same (or greater) level of support for invasive species programs. Also, a new director for the Division of Agriculture has not yet been named.

Michele Hebert will be going on sabbatical on the first of August, at which time a state representative will need to take over chairing the council.

Upcoming meetings:

The next meeting is scheduled for 9 am, Thursday July 26.

Call in number: 907-586-7977 (allow line to ring until another party picks up, long distance charges apply)

Topics to discuss:

- General updates from each attendee
- Set next meeting time

Green Crab Monitoring Training Sessions (Train the Trainer)

July 30 - August 1 (approx.) Whittier (or TBA). Contact Dan Gilson

August 13-14 (approx.) Juneau. Contact Dan Gilson or Linda Shaw

Additional Resources

Green Crab habitat suitability model report

<http://www.coastalandoceans.com/downloads.html>

Alaska Invasive Species Working Group: Marine Subcommittee audio Conference

Thursday July 26, 2007

Hosted via NMFS bridge number

Participants

Kris Benson- AK DOT,

Tammy Davis- ADF&G, Juneau

Deena Jallen- UAF CES, Fairbanks

Denny Lassuy- USFWS, Anchorage

Linda Shaw- National Marine Fisheries Service, Juneau

Agenda: Items to discuss

- Update on invasive species activities
- Green Crab informational poster
- Set next meeting time

Update on Invasive Species Activities

Dan Gilson will be traveling to Juneau for green crab monitoring training on August 13th and 14th. Linda Shaw will identify trapping sites using Shorezone models. Jodie Harney has been working on more detailed models for specific areas of that may have suitable habitat. A pdf version of the model has been produced that can be zoomed in to display shore attributes on a finer scale for the area near Juneau.

Linda Shaw has applied for a sampling permit, which is being processed by ADF&G. An area biologist in Ketchikan wanted very specific locations for the sampling sites. At this point, the permits are somewhat on hold. Dan Gilson from PWSRCAC will have his permit on hand for the training.

Denny Lassuy said that recently the USFWS Director, his national program directors and all of the USFWS Regional Directors met here in Alaska. During a field trip, local USFWS personnel were able to present materials to them about Alaska issues. Denny Lassuy was able to speak to these USFWS leaders, including the national director for the Fisheries Program (which funds his work) about collaborative efforts in Alaska, including the AISWG and the newly forming network of coastal communities involved in invasive species monitoring. Denny also mentioned that, if fund allocations remain stable, he had completed a 5-year funding agreement with the Prince William Sound RCAC that should help stabilize funding support for this network and its collaboration with AISWG.

Tammy Davis from ADF&G said that they are still waiting to hear from NOAA about the NISA-5 grants. They might not have the funds until the end of September. Part of the funds go to support the Kachemak Bay Research Reserve.

Kristine Benson from AKDOT joined the teleconference, and said that AKDOT has not yet followed up on using ferry terminals for tunicate monitoring, and she will readdress the issue in the fall. Linda Shaw said that she figures it will be up to NMFS, PWSRCAC, KBRR and the regional coordinators to find the people to do the monitoring at the ferry stations, so the ball is in their courts. Tunicate modeling is more successful in the summer, so the coordinating organizations will hopefully have people on board by then.

Deena Jallen will look into using the UAF BlackBoard online resource as a possibility for community coordination for green crab monitoring. Participating teachers and classes may be able to use the system to host online communities for sharing data and experiences. Teachers may be able to sign up for the system using 'no-credit' UAF email addresses.

Green Crab informational poster

Linda Shaw has some funds available for the development of an informational poster about identifying green crab. Deena Jallen will design the poster and get printing cost quotes. These posters should be waterproof so they can be posted near harbors, marinas, and other public areas near predicted green crab

habitat areas. If green crab are found, the 1-877-INVASIV number can be used to notify ADF&G and other interested agencies.

Upcoming meetings/events

The next Marine Teleconference meeting is scheduled for 9 am, August 16th.
Call in to: 907-586-7060*, allow line to ring until another party picks up.
Long distance charges apply. ***Please note the new phone number**

Green Crab Training. Juneau 13-14. Contact Linda Shaw for more details.

Additional Resources

<http://www.alaska.edu/oit/cts/blackboard/>

Information on the UAF Blackboard system

Alaska Invasive Species Working Group: Marine Subcommittee audio Conference

Thursday August 16, 2007

Hosted via NMFS bridge number

Participants

Dan Gilson- PWSRCAC, Valdez

Deena Jallen- UAF CES, Fairbanks

Lisa Ka'aihue- PWSRCAC, Anchorage

Linda Shaw- National Marine Fisheries Service, Juneau

Whitney Rapp- Glacier Bay National Park and Preserve, Gustavus

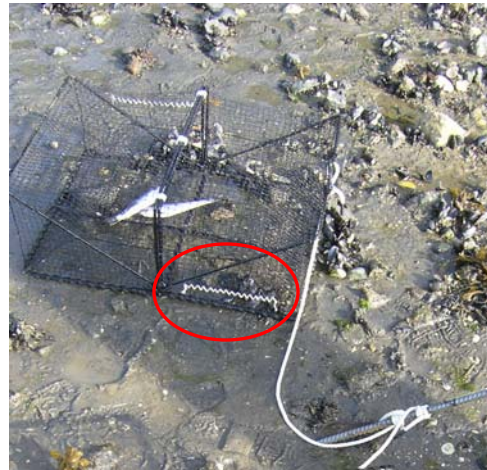
Agenda: Items to discuss

- Update on invasive species activities
- Set next meeting time
- Additional Resources

Update on Invasive Species Activities

Linda Shaw opened the meeting. She said they had an excellent green crab monitoring training session the previous Monday and Tuesday in Juneau. The training went very well, and used the habitat model to pick trap sites. Traps were set on Monday, and then retrieved on Tuesday. Participants went over modeling protocol, and discussed monitoring efforts in communities.

The traps deployed were the folding mesh type, baited with herring, and anchored to rebar stakes. Dan Gilson from PWSRCAC has the traps set up to reduce unintended bycatch by cutting a section of the mesh and re-sewing it with 'rotten cotton' (see picture). This can be found in most marine supply stores. Dan separates the 3 strands of the cotton, and then uses a paperclip to sew the opening in the trap shut with one strand.



Linda Shaw said that Shorezone models should be available soon for other trapping areas. Ketchikan was imaged last summer. The mapping for Ketchikan and the west side of Prince William Sound should be available soon. Glacier Bay was not mapped because the Park Service already has data in that area. For Glacier Bay, monitors can use habitat suitability parameters. Whitney Rapp said that only a couple areas in Glacier Bay are accessible without using a boat. She will look into selecting a couple of accessible sites for trapping. Dan Gilson said that Gary Freitag was also willing to fly south from Ketchikan to monitor in remote areas using a private plane.

Dan Gilson has been looking into working with Dan Gillespie in Northern Vancouver to see if he can travel there and see green crab in their habitats there. Linda Shaw said that she had met Dan Gillespie at the ASLO conference, and that Sylvia Yamada had done some trapping with him in Vancouver as well.

The State of Alaska is doing its triennial review process, and is soliciting comments on water quality standards. Suggested topics are ballast water and invasive species. There is a form circulating with the top issues asking if people would be interested in being on advisory committees. Linda has made the case at NOAA about flagging ballast water. Whitney Rapp said that in Glacier Bay the ship traffic is mostly cruise ships, which do not constitute much of a ballast water concern. Lisa Ka'aihue from PWSRCAC said that they have recently submitted their comments on NPDES (National Pollutant Discharge Elimination System) permitting. The EPA was looking at clean water act as a result as a lawsuit. Regulation of ballast water might come under the Clean Water Act as a result.

Linda Shaw also said that she has been working with Lisa Ka'aihue on a hull fouling Request for Proposals. She thinks that invasive species will be getting more attention in fiscal year 09. The RFP can be used to show that the issue of invasive species is of importance in the region. In Washington state, invasives are getting a new look. They were on a maintenance track, but might be getting more funding and interest in FY09.

Deena Jallen has been setting up an Invasive Species of Coastal Alaska course on the UAF Blackboard website. The Blackboard site has resources for hosting documents, forums, etc. that can be used to support green crab monitoring efforts in different communities. All that participants need to supply is their full name and email address to be added to the UAF Blackboard system.

Next Meeting for the AISWG Marine Subcommittee:

The next meeting is scheduled for 9 am, October 11, 2007.

Call in number: 907-586-7977 (allow line to ring until another party picks up, long distance charges apply)

Additional Resources:

Links to AKDEC Triennial review comment forms

<http://www.uaf.edu/ces/aiswg/news.html>

UAF Blackboard

<https://classes.uaf.edu/webapps/login>

Group photo from the Juneau Green Crab Monitoring Training. Photo taken by Richard Enriquez of the USFWS.



Top Row:

Tammy Davis, Alaska Department of Fish and Game
Cindy Hartmann, National Marine Fisheries Service
Dan Gilson, Prince William Sound Regional Citizen's Advisory Council
Gary Frietag, Southern Southeast Regional Aquaculture Association
Alan Unmack, Sitka Tribe
Heather Woody, Sitka Tribe

Front Row:

Whitney Rapp, Glacier Bay National Park and Preserve
Linda Shaw, National Marine Fisheries Service

Alaska Invasive Species Working Group: Marine Subcommittee audio Conference

October 11, 2007

Hosted via NMFS bridge number

Participants

Kris Benson- AKDOT

Daniel Doolittle- KBRR, Homer

Deena Jallen- UAF CES, Fairbanks

Ingrid Harrald- KBRR, Homer

Judy Hamilton- KBRR, Homer

Lisa Ka'ahue- PWSRCAC, Anchorage

Linda Shaw- National Marine Fisheries Service, Juneau

Joan Tovsen- UAA/UAF, Anchorage

Agenda: Items to discuss

- Update on invasive species activities
- Set next meeting time
- Possible agenda items for next meeting

Update on Invasive Species Activities

Joan Tovsen is doing graduate work in Northern studies with UAA and UAF online. She is looking at cruise ships as a driver of tourism. Alaska is currently the # 2 destination in the world for cruising (Caribbean is #1). Cruises are a form of 'soft tourism' and are increasingly popular with baby boomers. The ships often come from warm waters to Alaska, and carry organisms in their ballast water. Another issue with cruise ships is blackwater (sewage) discharge. The ocean ranger program has encountered political snags and provisions. The cruise ships have sophisticated processing systems for blackwater, but don't always turn them on. The ships are essentially dumping fertilizer into Alaskan waters. The impact this has on invasive and native species is not known. Joan is also looking at emergency preparedness issues with cruise ships.

Linda Shaw wondered if studies have been done on comparing the quantities of discharge from oil tankers vs. cruise ships. To some extent, the attitude becoming conventional wisdom is that 'cruise ships aren't as bad as oil tankers'. Joan said that the numbers of cruise ships have greatly increased since 2000. The oil tankers are another issue, they go to California, and could pick up invasive species there in ballast water.

Judy Hamilton from Kachemak Bay Research Reserve has been looking at a Sea Grant proposal call. They will be putting in a request for hull fouling research. The tunicate plates placed earlier in the year were recently picked up. The KBRR was able to go through the actual processing protocol for the plates. So far, they have not found anything suspicious, and have been looking for a caprellid amphipod that was found in Homer several years ago. The KBRR has a new education and outreach coordinator, Ingrid Harrald. Ingrid will be working on community monitoring projects in the bay. She will be the point person for groups doing green crab monitoring. Tunicate plates were also deployed in Juneau, and Linda Shaw will contact Lance Lerum about them.

Linda Shaw attended the 15th International Conference on Aquatic Invasive Species in Nijmegen, Netherlands, and moderated a session on risk assessment. The ICAIS is one of the oldest aquatic invasives conferences. Conference attendees also went on a walk on the River Waal. All the rivers in continental Europe are connected by canals, going all the way back to the Caspian and Black Seas. The Caspian and Black Seas are the source of zebra mussels, which eventually spread through the European rivers and canals and then were carried by ballast water to the Great Lakes. On a tour of the banks of the River Waal Linda said that it was amazing how invaded the water systems were. She saw zebra mussels, two Asian clam species, and mold casts from Asian mitten crabs. Invasive species had become the predominant species in the areas, which was a contrast to Alaska, where native species still dominate ecosystems. In sampling a tributary of the River Waal, they caught invasive Chinese breeling, and spiny cheeked crayfish. The 'take home' message was that Alaska does not want to end up like Europe. All the ecosystems there have been altered for so long, that the beginning state is lost. At least in Alaska, we have the luxury of knowing what the undisturbed ecosystems mostly look like. Also in England and Scotland (on a personal

side trip) , she spotted Alaska fireweed, and a presenter in her session reported that in Ireland, a nursery is marketing skunk cabbage (as a wet tolerant ornamental), which is native to Southeast Alaska. Linda and some of the other conference attendees felt that papers on control methods were lacking. Europe is not doing much to actively control invasive species. However, there was one interesting paper on 'bio-bullets' from a Cambridge researcher. The study involved encapsulating potassium chloride in such a way that it was taken up by zebra mussels in their diet. The 'bullets' would then dissolve, and release the chemical. Other methods of killing zebra mussels involve broadcast release of chlorine, which affects all the organisms in the area. The bio-bullets were more targeted; the native mussel species did not recognize them as food, which made the method more species specific. Linda and some of her colleagues were musing about the possibility to use such a control method on invasive tunicates.

ICAIS attendees also toured Rotterdam, the 2nd largest port in the world (Shanghai is 1st). Rotterdam does not have ballast water regulations like USA ports do, where ships traveling from outside of the exclusive economic zone (EEZ) are affected by ballast water regulations. Rotterdam is waiting for the International Monitoring Organization (IMO) to do something and put regulations in place.

Also at the ICAIS meeting, Linda was able to discuss some funding priorities regarding Spartina monitoring and training with some NOAA higher-ups. Rapid response plans for green crab, Spartina and tunicates are needed in Alaska, and NOAA may be able to involve the AISWG in some of those efforts. Dan Gilson from PWSRCAC attended ICAIS, and gave a talk about green crab monitoring.

Kris Benson from AK DOT asked about setting up tunicate monitoring at ferry terminals. Linda Shaw said that she will look into setting up monitoring over the winter, and identify who should be involved in a conference call to discuss the matter. Judy Hamilton recommended contacting Greg Ruiz from SERC (Smithsonian Environmental Research Center). The project would be targeted for setting out plates in the spring. Chris Benson will look into getting someone directly from the Marine Highway program involved in the planning.

Lisa Ka'ahue reported that they are negotiating a contract with the University of Washington to do some baseline hull fouling research. They would like to sample marine ferries in Bellingham, and PWSRCAC has been asked to find a contact in Alaska for other ferries. Lab work would likely be done at the University of Washington at their labs. The contract is currently in phase one, and is going out for bid. They will be doing a literature search regarding traffic in Prince William Sound, and identifying the greatest source of invasive hull fouling species and standardizing sampling methods. PWSRCAC will attempt to identify which sources pose the greatest risk (tankers, barges, ferries, etc.) Judy Hamilton said they have been looking into a pilot study on hull fouling for Sea Grant by sampling hulls from fishing vessels coming to Kachemak Bay for the summer from out of State, and comparing vessels that are resident vs. transient. The KBRR will be doing that sampling on its own. Lisa said that she expects phase two of the project will involve a broader sampling effort, which will be expensive and need more participants. Such work may also tie into Joan Tovsen's projects. To clarify, the ballast issues would not apply to the ferry system, as their vessels don't carry ballast, but they could be a source of hull fouling organisms. Kris Benson will look into finding a contact person for hull sampling efforts.

Linda Shaw closed the meeting by saying that after coming back from Europe, it is very encouraging to see how Alaska is doing on problem solving, dealing with issues, and intervening before things become big problems. Hopefully next summer, they will do more training on invasive species management, and also implementing additional proactive habitat monitoring programs tied into community monitoring efforts.

Next Meeting for the AISWG Marine Subcommittee:

The next meeting is scheduled for 9:30 am, Thursday November 8th.
Call in number: 907-586-7977 (allow line to ring until another party picks up, long distance charges apply)

Additional Resources

<http://www.icaais.org/>

International Conference on Aquatic Invasive Species

<http://www.icaais.org/pdf/program07.pdf>

preliminary program

Alaska Invasive Species Working Group: Marine Subcommittee audio Conference

Thursday November 8, 2007

Hosted via NMFS bridge number

Participants

Tammy Davis- ADF&G, Juneau

Ingrid Harrald- KBRR, Homer

Deena Jallen- UAF CES, Fairbanks

Lisa Ka'aihue- PWSRCAC, Anchorage

Linda Shaw- National Marine Fisheries Service, Juneau

Joan Tovsen- UAA/UAF, Anchorage

Agenda: Items to discuss

- Upcoming Alaska Invasive Species Conference on November 13th
- Update on invasive species activities
- Set next meeting time
- Possible agenda items for next meeting
- Additional Resources
 - Radio clip link
 - Websites
 - Frogs and Tongass email from Lance Lerum

Upcoming Alaska Invasive Species Conference on November 13th

Roger Green from Prince William Sound RCAC will be attending the AISConference instead of Lisa Ka'aihue. Marine Subcommittee members and other interested folks will meet during lunch for additional discussion on marine invasive species concerns.

Update on Invasive Species Activities

Lisa Ka'aihue and Linda Shaw were recently featured on an NPR radio piece about aquatic invasive species (see Additional Resources)

Tammy Davis reported that Lance Lerum from US Forest Service is working on a final report and peer reviewed article about red legged frogs on Chichagof Island. Some of their findings are that the population was introduced by a science teacher. The frogs are doing well, and there is some concern they may impact boreal toads native to the area. They are looking at control measures. Red legged frogs are declining in their native North California areas. One possibility may be to capture and export the frogs to California. The population is on Forest Service lands in the Tongass National Forest.

Judy Hamilton said that the Kachemak Bay Research Reserve held a 2 day USFWS oil and rat spill workshop. They had a speaker from the New Zealand Channel Islands discuss eradications of hogs and other species. The focus of the workshop was shipwreck response; recovering from spills of oil, other pollutants, and invasive species. They workshop also looked at emergency response activities.

The Pacific States Marine Fisheries Commission has workshops coming up in 2008. Tammy Davis and Dan Gilson might attend the ballast water meeting, Linda Shaw and Lisa Ka'aihue are planning to go to the Green Crab meeting in March.

Linda Shaw said that Varina Wang (?) from the Smithsonian in California traveled to Sitka, Juneau and Ketchikan. Tunicate plates showed chain tunicates (Botrylloides) and Botryllus present in Ketchikan, and Botrylloides present in Sitka. There was some baseline population work done in 2002. Linda Shaw said that there are still non-native tunicates in the area. Gary Freitag sent in pictures of the plates being checked. Tunicate will be redeployed, and Tammy Davis will hopefully be available when the plates are picked up.

Next Meeting for the AISWG Marine Subcommittee:

The next meeting is scheduled for 9:30 am, January 10th.

Call in number: 907-586-7977 (allow line to ring until another party picks up, long distance charges apply)

Topics to discuss:

- General updates from each attendee
- Set next meeting time

Additional Resources**Radio piece on aquatic invasives**

aprn.org/2007/11/01/invasion-of-the-atlantic-salmon/

Link to the APRN radio broadcast audio from November 1. Linda Shaw and Lisa Ka'aihue contributed to the story

The Pacific States Marine Fisheries Commission

www.psmfc.org

USFS Tongass Forest

<http://www.fs.fed.us/r10/tongass/>

Subject: [AISC-L] introduced red-legged frog in Southeast Alaska

From: "Lance Lerum" <llerum@fs.fed.us>

Date: Wed, November 21, 2007 3:40 pm

To: aisc-l@lists.uaf.edu

Priority: Normal

Mailing List: [Unsubscribe](#) | [List Archives](#) | [Post to List](#) | [Reply to List](#) | [Help](#) | [Subscribe](#)

Options: [View Full Header](#) | [View Printable Version](#) | [Download this as a file](#) | [Add to Addressbook](#) |

[View Message details](#) | [Bounce](#)

I just posted the following on the akherps listserv and since Deena just connected me up to this listserv will post the information here also:

As many of you know a population of red-legged frogs (*Rana aurora*) has become established on Chichagof Island here in Southeast Alaska. For the last two field seasons Robbie Piehl and I from Admiralty Monument have been investigating the status of this population. I recently had several inquiries relating to this population and would like to use this forum to update the AK herp community.

Last January we prepared a brief internal progress report of our 2006 findings which is attached to this email. I have not yet found time to update this document with 2007 field results; however, we are currently in the process of completing our stated 2007 objectives. A manuscript authored by Greg Pauly, Santiago Ron, and myself is in draft form and near ready for peer review. This manuscript documents DNA work and ecological niche modeling we've completed for this species, and includes a brief discussion of management considerations. This manuscript will be submitted to the *Journal of Herpetology* in the near future.

In 2007 we were able to swab a few individuals for Chytrid testing although more is needed. I have not received the results of the analysis of those samples from the lab. Last winter's record snows in SE severely hampered several weeks of spring survey efforts and breeding was delayed by up to a month from 2006 timing. Our time was then needed on other projects so we were not able to complete field surveys to the extent that we wished. We

did not document significant range extensions from our 2006 findings and a brief mid-summer survey did not locate any frogs in the Game Creek drainage. In two years of searching we finally found one pond where probably only a single pair of toads had bred and observed newly hatched tadpoles and viable eggs. No adult toads were observed and red-legged frogs were breeding within 100m of this small toad pond. We were not able to return to monitor the reproductive success at this site.

A brief overview of action items that we hope to continue relating to management of this population includes:

- An education program to notify neighboring communities of the presence of this population and ramifications of transporting animals to new sites.
- Further work to define the known distribution extent
- More thorough Chytrid testing.
- Explore control techniques so that further spread or new introductions can be managed.
- Monitor known toad breeding sites to document any interspecific interaction
- Additional niche modeling that factors in any adaptation to biotic influences or ecological release.
- Secure funding for any or all of the above.

If anyone has any questions or would like to discuss further please contact me.

(See attached file: progress_report_2006.pdf)

Lance Lerum
Fish, Wildlife, & Ecology
Admiralty Island National Monument
Tongass National Forest
8510 Mendenhall Loop Road
Juneau, Ak 99801
voice: 907-789-6222

Info on Chytrid fungus and prevention:

<http://www.nationalparks.nsw.gov.au/npws.nsf/Content/Frog+Chytrid+fungus>