

SOUTH SLOUGH RESERVE MANAGEMENT COMMISSION

AGENDA

South Slough National Estuarine Research Reserve
South Slough Interpretive Center
61907 Seven Devils Road - Charleston, Oregon

July 16, 2015

143rd REGULAR MEETING 1:30-4:00 P.M.

- I. Call-to-Order**
- II. Introductions**
- III. Review of the 142nd regular meeting minutes**
- IV. Public Input***
- V. Old Business**
- VI. New Business**
 - 1. Commission Volunteer Recognition
 - 2. Management Commission Recruiting
- VII. Presentations**
- VIII. Information Reports**
 - 1. Administration/Facilities
 - 2. Education
 - 3. Science
- IX. Adjourn**

*Limited to 5 minutes each unless arranged in advance of the meeting.

** This meeting is being held in a facility that is accessible for persons with disabilities. If you need some form of assistance to participate in this meeting due to a disability, please notify Pam Wilson at 541-888-5558 ext. 34 at least two working days prior to the meeting.

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**SOUTH SLOUGH NATIONAL ESTUARINE RESEARCH RESERVE
MANAGEMENT COMMISSION**

Oregon Institute of Marine Biology
Charleston, Oregon

Minutes of the 142nd Regular Meeting
March 19, 2015

Commission members present:

Mary Abrams, Chair	Nicole Jackson, Vice Chair
Bree Turner- <i>via conference call</i>	Trent Hatfield
Bob Cowen- <i>via conference call</i>	Craig Young
David Kronsteiner	

South Slough NERR staff and others present:

Gary Cooper, Manager	
Pam Wilson	Bree Yednock
Tom Gaskill	Colleen Burch Johnson
Ed Oswald	John Bragg
Kathy Andreasen	Don Smith
Adam DeMarzo	Ali Helms
Lonne Mays, FOSS	Nate Damewood
Patrick Juarez	

The meeting was called to order at 9:16 a.m. by the Chair of the Commission, Mary Abrams.

INTRODUCTIONS

Everyone present at the meeting introduced themselves. Patrick Juarez was introduced as the new contract and procurement assistant on the South Slough NERR staff.

APPROVAL OF THE MINUTES OF THE PREVIOUS MEETING

Chair Abrams asked if there was a motion to approve the minutes. Commissioner Kronsteiner moved to approve and Commissioner Hatfield seconded. The minutes were approved with all in favor.

PUBLIC INPUT

Mr. Cooper asked if there were any comments from the public. There was no public input.

OLD BUSINESS

Reorganization

Regarding the proposed transfer of the Reserve's state partnership from the Department of State Lands, Chair Abrams reported that the conversation with administrators from the University of Oregon and Oregon State University was continuing and they were considering a potential partnership to serve jointly as South Slough NERR's state partner.

Fredrickson House and Barn

Chair Abrams reported that the \$19,635 funding proposal submitted by the Friends of South Slough and the South Slough NERR to the Coquille Tribal Community Fund for the Fredrickson structures was not accepted.

Gary Cooper explained that at present the South Slough Reserve has no staff or funding available to dedicate to the Fredrickson structures. He added that members of the Coquille tribe came out and looked at the site. Tom Gaskill said the Coquille Tribe's historic preservation officer Kassandra Rippee is looking at more grant funding opportunities. Commissioner Jackson requested that staff keep the Commission informed if there is further vandalism to the structures. Chair Abrams suggested the Reserve could contract for some grant writing staff.

NEW BUSINESS

Fees

The Commission discussed the state requirement to review the fee rules adopted for the Reserve every five years. The purpose of the fees was to promote financial self-sufficiency of the Reserve. The fees that have been collected to date are primarily from the rental of the Spruce Ranch facility and are not of sufficient value to offset the costs of operating the Reserve. The Commission agreed that the current fee schedule is too complicated and offered some suggestions to simplify it. Staff will prepare a recommendation for a new fee schedule for the Commission to review at the November regular meeting and approve for adoption in 2016.

Disaster Plan Update

Gary Cooper reported that the Reserve has received funds from NOAA to develop a Disaster Plan. Stewardship coordinator Hannah MacDonald is putting the final edits on the plan. The development of the plan has included a public meeting and consultation with OIMB and various other stakeholders in the community such as the Port of Coos Bay. Mr. Cooper said that staff safety issues have been addressed and a training drill needs to be scheduled. He added that Reserve staff will benefit from the incident command training that is included in the plan. The Commission approved and commented positively on the effort.

South Slough NERR Management Plan Update

John Bragg thanked staff for writing the chapters of the Management Plan and he said the first draft has been submitted to NOAA. He expects the draft to be returned with comments from NOAA about the end of May. The Commission agreed to review the document together in the middle of June and to reserve most of the July regular meeting to discuss the plan, after which the plan would be made available for public comment. Bree Turner (NOAA) recommended that the Management Commission approve the plan after the public comment period. In consideration of this, the Commission agreed to hold a tentative meeting in October to approve the plan in advance of the November regular meeting. There was concern that the November

regular meeting would be too late for final approval given the grant timeline from NOAA.

Updates

A state budget scenario and report on the progress of the Legislature was provided by Chair Abrams. She said the Department of State Lands staff is experiencing construction and remodel contractors on site in Salem.

Tom Gaskill and Bree Yednock briefed the Commission on recent staff activity in the Education and Science programs.

ADJOURNMENT

Chair Abrams adjourned the meeting at 10:40 a.m.

SUBJECT:

Contributions of Volunteers

ISSUE:

Annual SSNERR Management Commission recognition of South Slough Volunteers

BACKGROUND:

At their 114th regularly scheduled meeting held in November 2005, the SSNERR Management Commission initiated a process to formally recognize the service of volunteers. The Commission agreed to recognize the contributions of volunteers by taking the following actions.

- Each person who has contributed more than 10 hours during the previous year shall receive a thank you letter signed by the Chair of the Commission.
- People who have volunteered at the Reserve for one year or more will be given certificates marking their ongoing contribution of time measured in three-year increments. In addition, the names of volunteers with three or more years of service should be added to a volunteer recognition plaque displayed in the Reserve's Interpretive Center.
- Volunteers who have made unique and significant contributions as recommended by the Reserve staff should also receive special recognition at the meeting.

Listed below are the names of individuals meeting one or more of the above criteria for volunteer recognition. Though every effort was made to be as inclusive as possible in compiling the following list we recognize that the voluntary contributions of some may have been omitted. South Slough Reserve is grateful for all who have donated their time and care for this special place over the years whose name(s) may not be noted in this report.

Volunteer Service Award Nominees for 2014

* = SSNERR Commission member

= FOSS Board member

Each person who has contributed more than 10 hours during the previous year will receive a thank you letter signed by the Chair of the SSNERR Commission.

Ana Andazola-Ramsey, Max Beeken, Toni Ann Brend*, Jonathan Brigham, Barbara Booth, Mark Burnap, Sue Cameron#, Curt Clay#, Valerie Cooley#, Dr. Bob Cowen*, Eric Dean, Becky Galindo, Gabriel Gaskill, Rick Green, Dave Gray, Cheyenne Hannaman, Trent Hatfield*, Ralph Helse, Emma Hunt, Bob Ivey, Nicole Jackson*, Marley Jarvis, Anne Jelinek, Megan Joyce, Isabella Kharrazi, Jamie Krebs, David Kronsteiner*, Erik Larsen, Steve Larsen, Dave Lunde#, Bob Main*, Andrew Martin, Anne Matthews, Phillip Matthews, Laura Mays#, Lonnie Mays#, Lindsay McAfee, Kylie McDermott, Judith McDonald, Patricia McKillip#, Mike Miller, Mike Mueller, Molly O'Neil, John Ortega, Rich Pakkula, Ava Petley, Ian Rodger, Sam Schrager, Nathan Schroeder, Nancy Shinn#, Bob Sleeth, Janet Stoffel, Linda Sullivan, Will Sullivan, Beth Tanner, Diego Torres, Dick Vigue, Kris Wall*, Sawyer Watson, Dr. Craig Young*, Tom Younker#.

The following people have volunteered at the Reserve for one year or more and will be given certificates marking their ongoing contribution of time measured in three year increments.

Max Beeken, Toni Ann Brend*, Barbara Booth, Eric Dean, Becky Galindo, Rick Green, Dave Gray, Trent Hatfield, Megan Joyce, Jamie Krebs, David Kronsteiner*, Bob Main*, Mike Mueller, Sam Schragger, Nancy Shinn#, Linda Sullivan, Will Sullivan, Kris Wall*.

The following individuals have volunteered for three or more years. Their names will be added to the volunteer recognition plaque displayed in the Reserve's Interpretive Center:

Sue Cameron#, Curt Clay, Valerie Cooley#, Dr. Bob Cowen*, Ralph Helske, Bob Ivey, Nicole Jackson*#, Steve Larsen, David Lunde#, Laura Mays, Lonnie Mays#, Anne Matthews, Phil Matthews, Pat Mckillip#, Joe Neill, John See, Bob Sleeth, Dick Vigue, Dr. Craig Young*, Tom Younker#.

Volunteers who have made unique and significant contributions in 2014 as recommended by the Reserve staff

Max Beeken and Ava Petley: For pioneering the mapping of Indian Point, for contributing immensely to the GIS capacity of the Reserve, for adaptability to contribute to various programming (education, stewardship, research). Both worked hard mapping existing roads and trails on the new Indian point acquisition. Max also helped make some neighborhoods maps for the Partnership for Coastal Watersheds socio-economic assessment.

Eric Dean: Helped install three water quality monitoring stations on the west fork Winchester Creek, to collect baseline data for a Coho restoration project. He quickly learned how to maintain the data-loggers and made the project his own.

Jase Fuller and Tait Miller: For contributions to Port Orford cedar root rot resistance monitoring, and for the work contributed to the Wasson Creek Restoration Project forest inventory project.

Rick Green: Rick spent one day a week for the year assisting SSNERR Maintenance Assistant Don Smith with trail upkeep. Rick also participated in the SSNERR paddle training series and has helped provide safety support on SSNERR paddle trips.

Erik Larsen: Last summer, he went above and beyond as the oyster restoration intern. He designed a monitoring project to compare South Slough's oyster beds with established beds in Coos Bay and developed a monitoring protocol aligned with a nationally recognized standards. He recruited and coordinated volunteers to help with the data collection and compiled and analyzed the data at the end of the project. He created a final report and two posters, one of which he presented at the 40th celebration and the other I presented at the NERRS national meeting.

Sawyer Watson: Sawyer helped with both research and education. It was very cool that she took the initiative to get involved with both teams. She was a big help with our field projects and was eager to be plugged in to the oyster and eelgrass monitoring

projects. From what I hear, she was also a big help with the summer education programs, specifically she helped Kylie and Isabella deliver presentations at the State Parks and the Charleston mud flats and docks.

Administrative/Facilities Report

Administrative

Attached are the state budget reports for the 2013-15 biennium through May 2015. The federal budget for FY14 is dedicated to salaries with some travel to the annual meeting.

The FY15 Ops Award grant was submitted and accepted. Once again, this grant is dedicated to salaries and travel.

The South Slough Reserve received a \$10,000 grant from the Gray Family Foundation to be used for middle school and high school environmental education programs. This will focus on the exploration of fish use in the Coos estuary over time.

Once again, South Slough will receive \$60,000 for the continuation of the Bay Watershed Education & Training (BWET). This program has been training teachers about the estuary and to bring their students for field trips.

A grant request was submitted to PMEP by South Slough, however, when awarded, with the help of FOSS, the award will actually go to FOSS. Due to the type of funds, South Slough was not able to accept the grant, but FOSS is able to and we will coordinator the financials with FOSS. Thank you FOSS.

Tom Gaskill, Education Coordinator, resigned in April, 2015, to take a position with Metro in Portland at the Oregon Zoo. Tom had been at South Slough for over 20 years and contributed a lot to the success of the education programs present at the South Slough.

Joy Tally, Education Specialist, was promoted to Education Coordinator effective June 1, 2015. Joy has been working at South Slough for almost 10 years as the education specialist and will continue the great work.

Eric Dean was hired in March 2015, as an NRSI temporary position to assist in deploying and maintaining the pH and $p\text{CO}_2$ sensors in South Slough. Eric worked closely with the Estuary Monitoring Coordinator and accomplished the deployment. Eric then transitioned to the Temporary Education Specialist during the transition to fill the position.

Jake Robinson began work on April 1, 2015, as an NRS2 to assist the stewardship coordinator as the Restoration Technician. Jake's project was to quantify upland stands in the Wasson Creek drainage (stand inventory; density, species composition), identify restoration prescription areas (by stand) in the Wasson Creek drainage, map prescription areas using geospatial software, and articulate basic prescriptions for the quantified stands. Jake's temporary position ended June 30, 2015.

Max Beeken was hired in March 2015 as a temporary to replace Jenna Kulluson and work on the OCEP project to prepare for the teacher workshop that will be happening in August 2015. Max's assigned ended June 30, 2015.

Colleen Birch-Johnson has been with South Slough working as the GIS/Data Manager for the partnership program. Colleen has done an excellent job and will be finishing her work on June 30, 2015.

Facilities

The inmate crew continued to work on the Hidden Creek boardwalk. The upper deck of the observation platform was determined to be unsafe and the stairs were removed. A temporary rail was installed for safety. We hope to have the inmates return to continue work on these areas.

A new roof for Spruce Ranch was completed in May.

We have received construction costs for the remodel of the ECOS facilities. When a construction opportunity arises, we will be prepared to apply for construction grants

from NOAA. At that time, we will still need to determine how much match is required and where those funds will come from.

Inmate crews were used recently to help with invasive species (scotch broom) removal located on the Indian Point property. Also, there have been small groups of high school students helping with invasive species removal for community service credits.

SSNERR Education Program update

March 6, 2015 through June 24, 2015

South Slough's education program has gone through a tremendous shift this spring. Tom Gaskill, Education Program Lead, for almost 21 years accepted a new challenge at the Oregon Zoo in Portland. Tom's last day of service with South Slough was April 14. Joy Tally, formerly the Education Program Specialist, became Interim Education Program Lead. After a full scale recruitment process, Joy accepted the permanent position of Education Program Lead beginning June 1. At almost the same time, Jenna Kulluson, Oregon Coast Education Program (OCEP) Specialist, accepted a naturalist position with METRO in Portland. Along with her duties coordinating OCEP, Jenna was also the Summer Science Camp Lead Teacher for the Friends of South Slough for the last 4 years.

As all of this transition was happening within the education program, spring programs for schools and visitors were also kicking into high gear. Fortunately, we were able to recruit Eric Dean as the Interim Education Program Specialist until the position is filled permanently. Eric had already been volunteering with the education program. The recruitment announcement for the Education Program Specialist has closed and interviews will be happening in mid-July. This spring we were also able to hire Max Beeken as an Education Program Assistant to help with program delivery and preparation.

The focus of the spring and early summer season has been on formal education program delivery and the beginning of 6 summer science camps. Megan Joyce, the Science Outreach Specialist, through AmeriCorps UCA has wrapped up our first full school year of the Estuary Explorers program. Megan will be leaving South Slough at the end of July when her service term ends and attending veterinary school in her home state at the University of Florida. In September 2015, Astrea Strawn will be joining us as the next Science Outreach Specialist through AmeriCorps UCA.

Professional meetings

Reserve education staff, Joy Tally and Jenna Kulluson helped to facilitate and present sessions at the Sharing the Coast conference of the Northwest Aquatic and Marine Educators (NAME) in March. This multi-day educational opportunity was held in Newport, Oregon at the Hatfield Marine Science Center. Sharing the Coast featured talks and activities on relevant topics in marine and coastal education. Reserve education specialist Joy Tally led a workshop for educators on designing a simple, low-cost light trap to collect planktonic larvae for study as a part of the conference.

Education Program Totals

For the period from March 7, 2015, to June 24, 2015 an overall total of 100 educational activities were conducted for 3071 participants. 294 contact hours and 205 hours of preparation were recorded. These totals include all types of education, interpretation, training and outreach.

Including visitors to the South Slough Interpretive Center, a combined total of 4509 individuals learned about estuaries and coastal watersheds through South Slough educational programs and interpretive facilities during this period from early March, 2015 to mid-June, 2015. This level of activity and participation is consistent with results for this same period of time last year. Staffing capacity for both periods was enhanced by the addition of AmeriCorps members and is the primary contributing factor to an overall increase in program activity.

Visitation and Visitor Services

Independent of education programs, 1,438 people visited the interpretive center from early March to mid-June, 2015 accounting for an average of 18 visitors per day. This represents an increase in visitation for the same period in 2013-14 when an average of 11 visitors per day was recorded.

The period covered by this report spanned 81 days when the South Slough Interpretive Center was open to the public. Typical public hours for the building remain 10am – 4:30pm, Tuesday through Saturday, throughout the year.

Formal Education & Training

A total of 69 formal education programs were offered for 2,229 participants during the period from early March to mid-June, 2015. A total of 200 contact hours and 118.5 hours of preparation time were recorded. Programs were offered on-site at the reserve and in Charleston for school groups while Estuary Explorers programs occurred at Blossom Gulch, Madison and Sunset schools in Coos Bay. Professional development activities occurred at Myrtle Crest Elementary in Myrtle Point and the University of Oregon's Academic Extension center in Eugene.

Of the formal education programs, 4 were offered for pre-school, 51 were delivered for elementary level classes, 1 for middle school classes, 8 for high school classes, 3 for college level classes, and 2 professional development trainings for teachers. This data will be submitted as a part of the required performance indicators included in the National Estuarine Research Reserve's performance measures database.

The demand for formal education program offerings is highest in spring, when both local and regional schools take advantage of improved weather and low tides. AmeriCorps member Megan Joyce worked to complete the 2014-2015 Estuary Explorers program including two successful Friday afternoon field trips to South Slough for participants in addition to weekly sessions at local schools. With funding from the Coos Bay School District and the Oregon Forest Resource Institute, we were able to offer bus transportation to students to bring them out to South Slough. The added capacity of the Science Outreach Specialist position supported by AmeriCorps UCA has greatly increased the programs South Slough offers to elementary and middle school aged children. This 11 month position is the first of its kind hosted by the reserve and a new proposal for a continuation of this work was accepted.

Oregon Coast Education Program (OCEP)

OCEP represents a partnership of education institutions working to advance the use of best practices in field and classroom-based education to incorporate meaningful watershed education experiences for students. Through teacher professional development workshops and activities, participating schools receive support and funding to facilitate coastal education activities with their students. Institutions participating include South Slough NERR, the Oregon Coast Aquarium, the Hatfield Marine Science Center, Portland State University, the High Desert Museum and the Oregon Institute of Marine Biology. Funding for OCEP has been provided through the NOAA Bay Watershed Education and Training (B-WET) program.

Jenna Kulluson, as mentioned earlier, left the OCEP program in early April. Cait Goodwin, based at the Hatfield Marine Science Center and OCEP North Coast Coordinator, ensured that participants from last summer's workshops completed their Coastal Education Plans and evaluations. Once these were completed teachers were eligible to receive stipends and supply reimbursements.

South Slough just received notice that the fifth year of B-WET funding has been awarded to us. The project will continue to be implemented by a core leadership team from partnering institutions. We will expand this collaboration to include four Oregon Science, Technology, Engineering and Math (STEM)Hubs and offer community workshops that support STEM training based in meaningful watershed education experiences (MWEE). Two OCEP project coordinators will work with the existing OCEP alumni network to recruit and train new teachers while working to strengthen the integration of coastal education in five Oregon communities. The project will directly impact 120 teachers.

In June, Cait Goodwin and Joy Tally presented a condensed OCEP "Stormwater Pathways" workshop at the Next Generation STEM, Standards and Sustainability Conference in Eugene. Teachers were connected with OCEP resources through the exploration of the Stormwater Pathways topic guide. Participants investigated watersheds through a place-based field experience and connected activities to Next Generation Science Standards.

B-WET Year 5 will help OCEP conduct a Teachers on the Estuary (TOTE) workshop at South Slough, August 4 – 7, 2015.

Gray Family Foundation – Fishing the Tides

A funding request was developed in response to the spring 2015 K-12 Environmental Professional Development solicitation of the Gray Family Foundation through the Oregon Community Foundation. The request was accepted and will provide \$10,000 to complete the Fishing the Tides project. South Slough had requested \$15,170 to support curriculum development, teacher training, and student field experiences associated with a South Slough science program proposal "Spatial and Temporal

Analysis of Fish Assemblages in Tidal Estuarine Habitats in the South Slough and Coos Estuary” submitted to the Pacific Marine and Estuarine Fish Habitat Partnership.

The Fishing the Tides project goals are to: 1) Train teachers to engage their students in inquiry-driven study of real world issues related to our understanding of fisheries and the role that science plays in managing our natural resources for the benefit of all. 2) Develop a curriculum module comprised of activities, data products, and tools to support and enhance student understanding of the role estuaries play in the health of fish populations. 3) Provide field and classroom-based experiences that support and enhance the understanding of change over time in estuaries and possible causes. This project will be developed in support of a multi-year scientific study that is designed to collect data on fish populations in the Coos estuary through sampling and analysis of historic data for locations in Coos Bay and South Slough.

The Fishing the Tides project objectives are to: 1) Establish a leadership team of classroom teachers, informal science educators, and scientists to inform project design and development. 2) Develop a curriculum module and associated resources based upon existing and new activities to provide inquiry-driven data collection and access. 3) Conduct pilot field experiences with middle and high school classes to further develop and refine educational experiences and techniques for use in a teacher professional development workshop. 4) Plan and conduct a multi-day teacher professional development workshop for middle and high school teachers from the 6 counties of southwestern Oregon.

A total of 30 middle and high school teachers (including leadership team teachers) are anticipated to participate in the project at an estimated cost of \$1,326 per teacher. Student participation is estimated at 750 individual students including pilot classes and classes participating in the school year following the summer 2016 training. Combined field experience time per participant (teacher) is estimated based upon workshop time and subsequent field experiences with students to be 24 hours total per participant and includes sampling experiences to support data collection and several local field experiences to study local watersheds.

Community Education, Interpretive & Outreach Activities

Interpretive programs continue to be offered for a diverse public audience of children, adults, and families. A total of 30 interpretive and outreach programs were offered and 698 people attended activities ranging from toddler programs, education booths and workshops. 84 hours of contact and 79.5 hours of preparation were recorded. This data is being provided to NOAA as part of the performance measures reporting requirements on a semi-annual basis.

A highlight of the spring interpretive calendar was a native plant workshop presented by Hannah McDonald, Stewardship Coordinator and Alexis Brickner of the South Coast Native Plant Society.

Public Involvement

Volunteers/Internships

From January through May 2015 SSNERR volunteers logged in 1,982.5 hours valued at \$45,365.00. The hours' breakdown included 984 education, 424.5 research/stewardship, 282.75 administration, 139.5 Treasures Program parent volunteers, 118.75 other volunteer hours, and 33 trail crew hours.

A Farmer's Market subcommittee put together themed interpretation for the Wednesday market sessions. Parents and children are encouraged to participate in our summer Farmer's Market passport series. Two Wednesdays a month the South Slough will present a themed education presentation at the Downtown Coos Bay Farmer's Market from 9:00 am-3:00 pm. Children receive a passport and at the end of summer can bring their punched passport to the Interpretive Center for their own South Slough patch. This is sponsored by the Friends of South Slough Reserve, Inc.

This Spring the South Slough hosted four interns, Grace Pettygrove-Education Assistant, Livier Enciso-Research Assistant, Jase Fuller and Tait Miller, Forestry/GIS Interns. The Internship Program at the South Slough National Estuarine Research Reserve is designed to help students gain job skills and work experience in the field of natural resources. We offer a broad range of internships for university and community college students, high school students, and adults wishing to gain additional job skills and work experience. Internship opportunities exist for those interested in the sciences, research, education, business, stewardship, forestry, writing, and customer service.

The Reserve has recruited three Summer Internship positions, one education and two science.

Friends of South Slough (FOSS)Board of Directors

The Friends of South Slough (FOSS) was awarded \$2000 for project support in the SSNERR Estuary Explorers education program by the Plum Creek Foundation. The funds FOSS is receiving from Plum Creek will be used to purchase equipment to expand the Estuary Explorers activities. This equipment will provide students the opportunity to explore the underwater and benthic environment of South Slough via a submersible ROV (Remote Operated Vehicle) with a high-definition camera that sends video to a topside laptop computer. The imaging captured by the ROV will enable students to see and learn about the fauna and flora that live in and depend upon the tidal waters of the South Slough. The captured video and sensor-measurements will also be used for review and discussion in subsequent classroom activities. An example of the ROV can be seen at the following weblink: www.openrov.com

Friends of South Slough board members have also been working with the SSNERR Stewardship Coordinator on invasive weed removal on the newly acquired Indian Point Property.

More recently, FOSS went through the process and is now eligible for contracts, assistance awards, and to do business with the federal government.

Outreach/Marketing

SSNERR Education Staff, FOSS and Volunteers/Interns participated in a few outreach events this spring. The Charleston Oyster Feed held at the OIMB cafeteria April 25. The Bay Area Brigade trash clean up along the Highway 101 corridor May 2, and the OR International Port of Coos Bay community clean-up effort on May 15.

Work to create a rack card and update the SSNERR Site brochure is complete. Rack cards have been distributed to local hotels, restaurants and visitor centers. We hope to deliver these to attractions along the Oregon Coast as well. Sterling Media has finished making a short video that will be used as a tool to promote the Reserve through media broadcasting and social media outlets.

Coastal Training Program

The Coastal Training Program is working with NOAA's Coastal Services Center to provide training workshops in Coos Bay and southwestern Oregon in fall and winter.

Climate Adaptation for Coastal Communities, a three-day workshop, provides a thorough grounding in the topic of adaptation, and time in class to apply the lessons learned to local problems and projects. The course covers: understanding climate science and impacts; determining community vulnerabilities; communicating effectively; identifying adaptation strategies; and finding mechanisms to implement those strategies. Opportunities for local collaboration and next steps for adaptation planning and implementation are emphasized through discussion, participant activities, and with the participation of local speakers using local examples.

The course is designed for program administrators, land use planners, public works staff members, floodplain managers, hazard mitigation planners, emergency managers, community groups, members of civic organizations, and coastal resource managers. The Reserve anticipates collaborating with the Oregon Coastal Management Program to provide the training for local governments, planners, sovereign tribal nations, watershed councils and coastal managers in southern Oregon. Instructors and materials are provided by NOAA.

Participants will learn to recognize the changes and variability in climate and climate's influence on coastal communities; identify opportunities to leverage a range of governance mechanisms to integrate adaptation strategies into their existing efforts; examine methods for conducting hazard, vulnerability, and risk assessment as it relates to climate change; evaluate the strengths and weaknesses of adaptation strategies, and apply climate communication research concepts and findings to enable effective communication with target audiences.

Introducing Green Infrastructure for Coastal Resilience, a one-day workshop, introduces concepts and practices that can play a critical role in making coastal communities more resilient to natural hazards. To keep the instructions relevant to local problems, conditions, and needs, the workshop includes local speakers sharing expertise on local

and regional ecosystems, green infrastructure projects of various scales, and ways in which green infrastructure has been integrated into planning processes.

Through presentations and group discussion, participants will learn about a range of natural assets and green infrastructure approaches that can improve coastal community resilience. Most importantly, participants will make valuable connections with a diverse group of both new and experienced green infrastructure practitioners. The audience for this training is similar to that for Climate Adaptation for Coastal Communities, with subject material oriented more toward managers and decision makers, such as local government officials, than for planners and technical staff.

For many of Oregon's coastal residents, green infrastructure remains an unfamiliar term, although some quickly recognize such structures as storm water retention ponds or bio-swales as examples of green infrastructure. More generally, when people use nature to achieve some type of service usually provided by technological infrastructure, for example, to control flooding or managing excessive heat it is called green infrastructure. (Benedict and McMahon, 1947.)

Climate Adaptation will be presented next fall in collaboration with Oregon's Coastal Management Program, NOAA, and other partners. *Introducing Green Infrastructure* will be presented in partnership with the Oregon Partnership for Disaster Resilience at the University of Oregon next winter.

These workshops are in part designed to complement each other. Providing this training addresses needs expressed by coastal resource managers at the Spring South Coast Planners' Conference sponsored by OCRM in April 2015. The audience for *Coastal Adaptation* will most likely be drawn from south coast communities. The audience for *Green Infrastructure* may emphasize Coos Bay decision makers, depending on interest. Reserve staff are eligible to participate. Workshop dates will be announced in July.

Citation: Benedict, Mark A., and McMahon, Edward. 1947. Green Infrastructure: linking landscapes and communities. In Wikipedia, https://en.wikipedia.org/wiki/Green_infrastructure, accessed 24 June, 2015.

Pacific Marine Estuarine Fish Habitat Partnership.

The CTP coordinator traveled to Long Beach, Washington, in April to participate in the annual steering committee meeting of the Pacific Marine Estuarine Fish Habitat Partnership (PMEP). PMEPE contributes to better-informed decision-making by organizations planning and prioritizing fish habitat restoration in coastal Oregon, California, and Washington. Members are currently developing prioritization scheme for restoring estuarine habitat for juvenile fish.

PMEPE was formed in 2009 to protect, restore and enhance ecological processes and habitats within estuaries and nearshore marine environments to sustain healthy native fish communities and support sustainable human uses that depend on them. It is one of 19 nationally recognized fish habitat partnerships. PMEPE seeks to advance regional and national goals relating to juvenile fish habitat (<http://www.pacificfishhabitat.org>).

In coming months, PMEP will continue to inform decisions about important conservation needs over a large geographic area encompassing estuarine and nearshore marine habitats in coastal communities of California, Oregon, and Washington. People living in and near coastal communities in this region, not to mention the numerous fish and wildlife species that rely on these habitats for all or a portion of their life cycles, will benefit from informed decisions that can lead to improved estuarine and nearshore marine environment health.

Estuaries and nearshore marine environments have been significantly altered and degraded because of human activities, including dredging, hydrologic modifications, urbanization, wastewater disposal, aquaculture practices, dikes, land use conversions, industrial and residential development, invasive species, and wetland drainage. It is estimated that 36% of West Coast estuaries are in poor condition based on water quality, sediment, benthic, and fish tissue contamination indices (Halpern, Kappel, Selkoe *et al.*, 2009). and a significant percentage of habitat within West Coast estuaries has been lost or degraded. Although progress has been made in individual bays, estuaries and near-shore environments, lack of coordination and failure to identify and address stressors at a regional scale will continue to hamper results and demands future integrated planning, investment and coordination to take priority actions. Through key partnerships with community organizations to provide scientific knowledge and technical data to support decisions, PMEP strives to achieve on-the-ground conservation outcomes to improve the health and of Pacific estuaries.

PMEP is chartered under the National Fish Habitat Action Plan. Under the plan, regionally-organized, joint public-private ventures that meet certain requirements are eligible as fish habitat partnerships to recommend funding of habitat restoration projects funds are provided by the U.S. Fish and Wildlife Service.

The CTP coordinator serves as chair of PMEP and on the executive and communications committees. As needed, the coordinator updates West Coast NERRS about PMEP's funding opportunities and activities that may be of interest, and in general, strives to build awareness of opportunities for collaboration between national estuarine research reserves and regional fish habitat partnerships. The PMEP board meets face-to-face at least annually. Most business is conducted by email or conference call.

Because the coordinator may be asked to review and recommend habitat restoration proposals and projects for funding, to avoid a conflict of interest, the coordinator does not participate with SSNERR staff in the development of proposals seeking PMEP funding.

Citation: Halpern, B. S.; C. V. Kappel; K. A. Selkoe; F. Micheli; C. M. Ebert; C. Kontgis; C. Crain; R. Martone; C. Shearer; S. J. Teck. 2009. Mapping cumulative human impacts to California current marine ecosystems. *Conservation Letters*. Vol: 2. Pages 138–148.

Management plan revision

Staff reported to the Commission in March 2015 upon delivering a draft of the 2015-2020 management plan to NOAA for review and comment. Staff received a preliminary summary of comments from NOAA and has begun to revise the plan to incorporate the requested changes. In general, NOAA recommended changes in the outline of the plan to improve readability and clarity; requested a boundary description be included with the plan, and offered suggestions for making stronger links between the goals and objectives for various work priorities and Reserve programs. Reviewers expressed concern that plans for land acquisition, resource protection, and facilities construction did not specify needs to the degree necessary to ensure eligibility for NOAA's construction and acquisition funds that are provided for the Reserve System. Staff is working to strengthen the content of these sub-sections while waiting for further detailed recommendations for improvement.

Staff has also prepared a consistency determination and submitted it to Oregon's Coastal Management Program for review. In order for it to be approved, NOAA requires the Reserve to demonstrate that the management plan is consistent with the Coastal Zone Management Act, federal and state laws governing the Reserve, enforceable policies of Oregon's Coastal Management Program, and Coos County's land use plans and regulations. The Department of Land Conservation and Development must determine the plan's consistency with the NOAA-approved Oregon Coastal Management Program. The state has up to 90 days to complete its review.

SCIENCE PROGRAM UPDATE

March – July 2015

MONITORING

NERRS System-Wide Monitoring Program (SWMP)

Ali Helms (Estuarine Monitoring Coordinator) and Adam DeMarzo (Monitoring Technician) continued to operate the water quality, weather and nutrient components of SWMP.

SWMP Data: Ali & Adam completed monthly field and lab work associated with the water quality, weather, and nutrient long-term monitoring stations. They completed monthly and quarterly data submissions to the NERRS SWMP Centralized Data Management Office (CDMO) on time and completed annual water quality and weather data submissions for 2014 due in March and April 2015. The final data collection for the meteorological station was made on 4/1/15 in its current location on the OIMB campus. The station is being moved due to a wind turbine (see section below on Weather Station Relocation) and data collection will resume following installation this summer. Adam is waiting for nutrient sample processing to be completed by the University of Washington Marine Chemistry laboratory for the nutrient submission and CDMO is aware of the delay. Data submissions include data that have undergone several levels of quality assurance and control (QA/QC) procedures, metadata development, calibration and field logs, and instrument and sensor inventory. System-Wide Monitoring Program data for the South Slough Reserve and all other Reserves are accessible online at <http://cdmo.baruch.sc.edu>.

The water quality instruments at the four SWMP stations have all been switched to the Yellow Springs Instrument (YSI) EXO2 sonde platform from the older version 6600 V2. The EXO sondes are not compatible with the older instruments or sensors and there is a new software package called KOR. The major differences between the EXO and 6600 platforms are wireless communication and smart sensor technology, which allows sensors to automatically be recognized by the sonde for easier calibration and configuration. The sensors can also be batch calibrated and then distributed to individual instruments. The ports allow wet-mateable connections which prevent damage during wet field conditions and allow probes to be swapped easily in the field if needed. The EXO instruments are used for the four core

SWMP stations as well as the four secondary Coos Bay stations from the Partnership for Coastal Watersheds.

Estuary pH Monitoring: Eric Dean (Monitoring Technician) continued to assist with deployment of the Sami $p\text{CO}_2$ and SeapHOx pH monitoring instruments. In March and April 2015, he built deployment tubes to house the sensors, reviewed instrument manuals and programming menus and acquired equipment for calibration of water grab samples. The deployment tubes were installed 4/20/15 on a piling adjacent to the Valino Island SWMP station. The first deployments for both instruments began on 4/27/15. Sensors were pulled out of the water and cleaned of fouling at low tides on 5/8/15, 5/22/15, and 6/16/15 and data were downloaded on 5/22/15 and 6/16/15. Discrete grab samples were collected at high tides on 5/18/15, 5/22/15, 6/2/15, and 6/22/15. The grab samples will be used to check sensor performance and calibrate the data.

The two water quality instruments (Sami $p\text{CO}_2$ and SeapHOx) were acquired through the NOAA Ocean Acidification Program to make measurements related to the carbon dynamics of the South Slough estuary to understand the rising pH (less acidic) trends detected by the YSI 6600 SWMP dataloggers. From 1995-2010, SWMP pH levels indicate an increasing trend (less acidic) while analysis of more recent data 2011-2013 show decreasing (more acidic) pH values; overall the annual mean and median linear regressions indicate an increase in pH with interannual and seasonal variability between years. The Sami $p\text{CO}_2$ sensor is collecting continuous carbon measurements of the partial pressure of carbon dioxide gas ($p\text{CO}_2$). $p\text{CO}_2$ is one of four carbon cycle measurements (pH, Dissolved Inorganic Carbon (DIC), and Total Alkalinity (TA)) that helps to understand ocean acidification processes. $p\text{CO}_2$ can provide information on community respiration, biological productivity, gas exchange, calcification, and cycling of carbon in a system. The second sensor, the SeapHOx, is collecting high resolution pH and also includes oxygen and temperature/conductivity sensors.

Real-Time Data: As a participant in the US Integrated Coastal Ocean Observing System (IOOS)/Northwest Association of Networked Ocean Observing System (NANOOS), we operate telemetry systems at all four of the core SWMP water quality stations and the weather station to provide real-time data available at www.nerrsdata.org.

Data Management: The CDMO is an eight member team dedicated to data management activities associated with NERRS SWMP. Recent activities of the CDMO include data processing and database changes to accompany the newer YSI EXO water quality sondes, modification of the Data Export System and Real Time Data Application for adding SWMP station type designations, optional parameters, and

vegetation monitoring applications. They released a new SWMP compliance log tool on 6/11/15 to track and formalize requests for excused missing data, late data submissions, and station moves/relocations. There are now server downtime messages that alert data users when database functions and services will be affected by maintenance. Additionally, the CDMO is upgrading the main database server, CDMO Manual, and Standard Operating Procedures related to EXO water quality instruments, telemetry, and streamlining data uploading processes.

The CDMO now provides data hosting for SWMP stations that are established and maintained in addition to the required 4 water quality and 1 weather station, and these are known as Secondary SWMP stations. The SWMP database has a new designation column for all stations (isSWMP column) for distinguishing Primary or Secondary stations. Reserves can upload raw data from secondary SWMP stations and the CDMO will provide web services if the station is telemetered. Data must be collected for one year at the station and the stations must follow all SWMP protocols and be reserve run in every respect. South Slough has four water quality stations eligible for secondary SWMP status as part of the Partnership for Coastal Watersheds inventory project that staff are currently working on to establish as secondary hosted stations.

Weather Station Relocation: Science staff are in the process of relocating the long-term SWMP weather station, currently located on the campus of the Oregon Institute of Marine Biology (OIMB), due to a 140 foot wind turbine installed by OIMB in December 2014. The turbine is approximately 80 feet from the weather station and may interfere with data collection of ambient weather conditions. Adam DeMarzo worked with the NERRS SWMP Oversight and Data Management Committees to obtain approval for a new location that meets the required specifications for a SWMP weather station.

In March 2015, science staff completed field reconnaissance by reviewing six potential sites and determined Tom's Creek Marsh was the optimal location due to its relatively open area, southern exposure, accessibility by foot and boat, and because it is a representative salt marsh in South Slough and serves as a reference marsh for research and monitoring. In April and May, science staff began removing the datalogger and sensors from the tower, which need to be recalibrated for the new station. In June, science staff identified and flagged two areas at Tom's Marsh that are candidates for the weather tower and station installation. Staff are continuing to work on taking down the old station infrastructure and plan to reuse parts that are still in decent condition for the new station.

Other Monitoring Projects

Bacteria Monitoring: We continued monthly monitoring of fecal indicator bacteria at the SWMP nutrient monitoring stations. The bacteria data are of interest to the Partnership for Coastal Watersheds project, Oregon Department of Environmental Quality (DEQ) for Total Maximum Daily Load (TMDL) standards and to Oregon Department of Agriculture (DOA) as they conduct commercial and recreational shellfish bacteria assessments. Volunteers from the Surfrider Foundation continued to use the ECOS (Estuarine and Coastal Ocean Sciences) lab for their monthly monitoring of fecal indicator bacteria at local beaches.

SeagrassNet Monitoring: Science staff completed quarterly eelgrass sampling at Valino Island on 4/21/15 using the SeagrassNet sampling protocol. SeagrassNet is an international monitoring program established to document the status and health of seagrasses. Preliminary data analysis at our Oregon monitoring site (Valino) showed eelgrass spatial cover and density were increasing slightly.

Northwest Association of Networked Ocean Observing Systems (NANOOS): South Slough is a participant in a partnership project that provides real-time water quality data for shellfish growers in Oregon, Washington, and Alaska through the NANOOS Visualization System (NVS); <http://nvs.nanoos.org/ShellfishGrowers>.

Science staff submitted two Letters of Interest to NANOOS for the next 5 year award 2016-2020 on 4/20/15. The first project submitted was to continue to maintain the existing network of real-time South Slough SWMP water quality stations and Boathouse station near the mouth of Coos Bay; funds were requested per guidance as a modular budget with three levels if NANOOS is funded at 1.5M, 2.5 M (existing level), or 4M. Total funds requested at each level were \$18K/year, \$30K/year, and \$48K/year. The second project requested new funds to add real-time capability to the four Coos Bay water quality stations that were installed in 2013 as part of the Partnership for Coastal Watersheds as well as part time salary for a technician. Total funds requested were \$30-\$35K/year.

Progress reports for NANOOS FY2015 were submitted on 6/10/15. The letter of intent, budget justification and statement of work for the final year of the current NANOOS five year award (2011-2015) was submitted 6/15/14. South Slough will continue to use these funds to support the SWMP program and real-time station components.

Changes were made to the existing SWMP water quality data collection platforms to accommodate telemetry with the new EXO sonde instruments, including changes to the Satlink transmission programs, a signal output adapter to convert the EXO sonde output so the sensor measurements can be transmitted, and an EXO field cable. All changes have been made to the Charleston, Valino Island, and Winchester Creek stations and Elliot Creek will be completed soon.

We partner with one of the local tribes, Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians (CTCLUSI) to provide telemetry equipment for their North Spit BLM Boat Launch sonde station in lower Coos Bay. The data are available to end users through the NANOOS Visualization System (<http://nvs.nanoos.org>).

Sentinel Sites Monitoring: We previously reported on SSNERR science program's marsh soil coring efforts designed to quantify the rate of Carbon sequestration in Coos estuary's tidal wetlands, including SSNERR's "sentinel sites". These efforts, which add a very useful functional perspective to SSNERR's sentinel site data collection, are facilitated by EPA staff based in Newport, OR – they've provided staff time for soil core processing and follow-up fieldwork (core site elevation surveys), and funding for soil core analyses. SSNERR staff is still waiting to receive the lab results and have in the meantime worked with EPA staff to collect elevation data at several of the coring sites; marsh surface elevation at the coring site being key for interpreting results. Unfortunately, the hovercraft which EPA staff uses to efficiently access otherwise relatively difficult to reach sites, malfunctioned during two field days so the remaining coring sites will need to be surveyed later in summer or early fall 2015.

SSNERR science staff has contributed baseline data from our primary sentinel site, Hidden Creek marsh, to research staff at other Reserve sites who have developed methods to evaluate the sea level rise resiliency of tidal marshes at multiple Reserves (so called, "marsh sustainability report cards"). Additional work needs to be done to ensure the results reflect reality, but initially at least, SSNERR's primary sentinel site scores high on the sustainability scale. Stand by for more about this sea level rise resiliency assessment. As previously reported, the sentinel sites project pairs the long term water quality and water level data collected at SSNERR's System-Wide Monitoring Program (SWMP) sites with data quantifying other controlling factors (e.g., marsh elevation, plant community, vertical accretion, soil salinity, groundwater level) to help interpret long term changes in wetland emergent marsh plant communities and eelgrass beds. Tidal wetlands offer many ecosystem services including carbon sequestration through accumulation and burial of organic material referred to as "blue carbon."

Finally, this coming late summer/early fall SSNERR science staff, assisted by one or more science program interns, will purchase and permanently deploy a dedicated high-precision water level data

logger near the Reserve's Hidden Creek marsh, install groundwater wells at all vegetation transects, and collect and analyze vegetation and sediment dynamics data. The dedicated water level data logger, which will be considered part of the SWMP network of permanently deployed data loggers, is needed because the water level data collected with SWMP's multi-parameter loggers cannot be practically collected with high enough precision to meet the data analysis requirements of the Sentinel Sites project. Groundwater wells will enable SSNERR science staff to directly track changes in average daily or monthly tidal inundation period for Hidden Creek marsh root zone and marsh surface, key controlling factors influencing plant community dynamics in tidal wetland. Vegetation and marsh dynamics data will be compared with baseline data collected in 2010 and evaluated for any significant change/early suggestion of any trends (we should note that no significant changes are expected after just five years into the implementation of such a long term monitoring project).

RESEARCH

SSNERR Projects

NERRS Science Collaborative Native Oyster Transfer Project: Ali Helms and Bree Yednock completed a meta-analysis of oyster and water quality data for the Coos estuary and South Slough to be included in the *Oyster Restoration Guide* (led by Kerstin Wasson, Research Coordinator, at Elkhorn Slough NERR). The *Guide* includes a comparison of native oyster population attributes from central California, Southern California, and Coos estuary/South Slough. It also includes detailed information on the restoration and conservation potential of oyster populations in each region.

Fish Assemblages of South Slough and Coos Estuary: The science team was awarded \$59,176 from the United States Fish and Wildlife Service (USFWS) for a research project to examine fish assemblages in South Slough and the Coos estuary. The grant proposal was submitted in November 2014 to the Pacific Marine and Estuarine Fish Habitat Partnership (PMEP) and their recommendation for funding was passed onto the USFWS. Friends of South Slough will be administering the grant for SSNERR. The project will involve monthly seining at seven locations in South Slough, five of which were last sampled in the 1980s. In addition, the project will include fyke netting at the Kunz Marsh restoration project site (last sampled in the 1990s). Data from this project will be used to examine long-term changes in fish assemblages in South Slough. In addition, this project includes a collaborative component to study long term changes in fish assemblages in the upper Coos estuary with a team of researchers at the US Forest Service and Oregon State University who have been seining in the upper Coos estuary and who are analyzing a long-term fish data set compiled by the Oregon Department of Fish and Wildlife. Eric Dean

(Monitoring Technician), Livier Enciso (SSNERR intern), and Bree Yednock have already begun preliminary fieldwork and preparations for the project.

Partner Projects

Partnership for Coastal Watersheds (PCW): As previously reported, the PCW continues to move forward, mainly now in the form of the Coos Estuary Inventory Project which includes the Coos Estuary Monitoring Tools Project (expansion of the SWMP water quality monitoring network to include the Coos estuary and facilitating the development of a Coos estuary hydrodynamic model). The Coos Estuary Inventory Project is guided by a subcommittee that includes representatives of the Coos County Planning Department, City of Coos Bay (planning and city council), South Coast Development Corporation, Stuntzner Engineering (planning), Department of Land Conservation and Development, Southwest Oregon Community College, Sterling Media Northwest, and the Coquille Indian Tribe. The Coos Estuary Monitoring Tools Project is guided by the same subcommittee and an ad-hoc group of technical advisors from state and federal agencies, local tribes, and academic institutions.

Project highlights:

- Project coordinator and assistant coordinator, Craig Cornu and Jenni Schmitt (SSNERR), continue to work with SSNERR staff (Colleen Burch Johnson and Erik Larsen) and a growing number of temporary staff to complete the environmental chapters of the Inventory. Other SSNERR staff members, including Lead Scientist, Bree Yednock, Estuarine Monitoring Coordinator, Ali Helms, and Stewardship Coordinator, Hannah McDonald, are contributing to the development of Inventory chapters.
- Coos Watershed Association's Jon Souder continues to work on the Inventory's socioeconomic status and trends section.
- Unfortunately, after submitting what we thought was a very compelling position description for a 2015-16 Sea Grant fellow whose scope of work would include refining and correcting the new Coos estuary habitat classification scheme developed in 2014 by Department of Land Conservation and Development, did not ultimately attract a candidate willing to come work with us at the SSNERR. All is not lost, however, since this work, which will make the new habitat classification scheme more useful for site-scale planning- including a revision of the Coos Bay Estuary Management Plan, a fundamental goal of the Partnership for Coastal Watersheds' Coos Estuary Inventory Project, will now be undertaken in fall 2015-16 supported by a NOAA grant recently received from the Department of Land Conservation and Development in which SSNERR has been named a subcontractor. The protocol that SSNERR science program staff member, Colleen Burch Johnson, developed for "ground-truthing" the classification scheme will be use by a grant-supported contractor or temporary SSNERR staff member to refine the Coos estuary habitat classification scheme.

- University of Oregon's Dave Sutherland continues to develop a circulation (hydrodynamic) model for the Coos estuary and SSNERR staff continues to provide field data to help refine (or "validate") the model (continuous data including water temperature, salinity, depth, current speed, current direction...etc.). We anticipate the model will be only partially completed by the end of the current Partnership for Coastal Watersheds grant (July 21, 2015). Additional grant funds are being pursued to complete the model, including an opportunity to partner with the Lower Columbia Estuary Partnership in a NOAA Regional Coastal Resilience Grant Program proposal due July 24. If successful, the project would include the development of hydrodynamic models for the Columbia, Tillamook, and Coos estuaries to model the effects of sea level rise on tidal wetlands (will current or future rates of vertical accretion allow tidal wetlands to keep pace with sea level rise, or will coastal land managers need to find inland areas these wetlands can migrate into?). Since Dave Sutherland has already almost completed the first phase of a hydrodynamic model for the Coos estuary, grant funds would be requested to support a postdoctoral position in Dave's lab to complete the current model and to develop the important sediment transport module for the model which will enable users to understand sediment dynamics in the Coos estuary, including rates of marsh accretion. One important hurdle project partners face is the daunting prospect of coming up with the 50% cash or in-kind match the NOAA Regional Coastal Resilience Grant Program requires.
- Unfortunately, the \$750K NERRS Science Collaborative pre-proposal SSNERR staff developed with the Partnership for Coastal Watersheds stakeholders to facilitate the revision of Coos County's Coos Bay Estuary Management Plan and for filling specific data gaps highlighted by the Inventory was not selected for funding. Another other proposal which seeks \$45,000 for improving online access and usability of the Inventory for target audiences (local decision makers and other stakeholders...etc.), as well as the outreach needed to inform those audiences about the Inventory and its potential is still under review by the NERRS Science Collaborative grantors and reviewers. News of project awards are expected mid-July.

Northwest Climate Science Center-USGS Sea-level rise project: South Slough Reserve continues to be a partner in the Northwest Climate Science Center (NWCSC) Sea-Level Rise Project - *Marshes to mudflats: climate change effects along a latitudinal gradient in the Pacific Northwest* - led by John Takekawa, USGS Western Ecological Research Center, Vallejo, CA. The project objectives are to: (1) measure morphological and ecological characteristics (e.g., elevation, tidal range, vegetation) along transects crossing the habitat continuum of tidal marsh, intertidal mudflat, and subtidal shoals; (2) model vulnerability of these nearshore habitats and dependent avian indicator species to projected climate change effects; and (3) examine spatial variability of these projected changes along the latitudinal gradient of the Oregon and Washington coasts. Coos Bay is one of eight study sites. SSNERR staff (Cornu) assists the project by downloading data from water level and conductivity loggers at two locations near Bull Island in the upper portion of the Coos estuary. We download and re-launch the loggers during low tide, and send data, photos and field notes to USGS about every four months. The next download of data from the loggers will be July 2015.

As part of the same project, SSNERR staff is facilitating a marsh plant leaf litter decomposition study whose objectives are: 1) assessing rates of marsh plant litter decomposition across the

Pacific coast climatic gradient; 2) testing for differences in decomposition rates between high and low tidal marsh; 3) determining if there are species-level differences in decomposition rates at select sites in the Pacific Northwest; 4) testing whether litter size affects decomposition rates; and 5) evaluating the duration of litter decay over the growing season at two sites (Siletz and Petaluma). In April, SSNERR staff deployed litter bags in Metcalf marsh (an easily accessible “least-disturbed” tidal marsh in the north part of South Slough) following guidance provided by Chris Janousek (OSU/USGS), project leader. Project results will shed light on the range of contributions by different tidal wetland plant communities on carbon sequestration in west coast tidal wetlands.

Effects of Eutrophication on Eelgrass and Grazing Invertebrates: SSNERR is included as a partnering agency on an Oregon State Sea Grant proposal submitted by Fiona Thomas-Nash (Oregon State University). The proposed two year project would study the effects of nutrient enhancements and grazer removal on eelgrass growth and density. This project also has a stewardship and outreach component to educate the public on the importance of eelgrass along the Oregon Coast. Staff time on this project would involve Bree Yednock (and science interns) to assist with experimental set-up and monitoring and Joy Tally (and education staff) to include eelgrass monitoring in an educational activity for school groups.

Plankton Monitoring: SSNERR is included as a partnering agency in a Letter of Intent that was submitted to the Northwest Association of Networked Ocean Observing Systems (NANOOS) to monitor the seasonality and diversity of plankton in the Coos estuary. The proposed project is led by Tawnya Peterson at Oregon Health and Science University.

Visiting Researchers

SSNERR continues to assist Fiona Thomas Nash’s field crew with eelgrass fieldwork in the Barview area. We provided lab space and housing at Spruce Ranch this spring and summer.

Science team staff (Bree Yednock, Craig Cornu, and Jenni Schmitt) assisted a visiting PhD student (Elena Tuttle) from OSU who is working on a project to understand phenotypic variation in the marsh plant *Schoenoplectus pungens*. She visited SSNERR in June to identify field sites in the area that will be surveyed in August.

Intern activities

From April – June, SSNERR intern Livier Enciso assisted with various projects, including deploying and retrieving water quality sondes at the proposed restoration project area of Winchester Creek and at SWMP stations, eelgrass monitoring, preparation of a fish identification guide and site reconnaissance for the fish assemblage study, lab work associated with SWMP, and assisted with the aquaria displays at the interpretive center.

STEWARDSHIP

Invasive Species Monitoring and Control: South Slough continues to be actively involved with the Gorse Action Group (GAG). Since March, the stewardship coordinator has participated in all GAG meetings and conference calls. Support has also been provided in the form of outreach material design and in proposal review seeking gorse treatment funding. South Slough is also partnered with the Coos Watershed Association on an Oregon State Weed Board grant to do early detection and rapid response of noxious weeds on Reserve property. This project includes mapping and control of purple loosestrife, among other invasive species, and will go through April of 2016. Since March, South Slough has been working with USDA Wildlife Services contractors, who have been hired to treat invasive nutria within and around South Slough. Through June 2015, over 120 hours were spent treating nutria. The stewardship coordinator has also been involved in a community-wide working group coordinating a regional effort to control nutria. In June, a Coos Forest Protective Agency inmate crew of nine spent 18 hours removing over .75 miles of scotch broom on Indian Point. The crew cleared the invasive off of trails, roadways, and throughout the uplands to improve recreation access and habitat. The stewardship coordinator has also begun to build a relationship with the Go Native nursery in Bandon, to develop educational opportunities and potential projects related to cultivating native plants for restoration work in the Reserve.

Restoration: In spring of 2015, a technical assistance grant to plan restoration work for the Wasson creek watershed ridge-top to estuary restoration project was awarded by the Oregon Watershed Enhancement Board (through the Coos Watershed Association). The Reserve stewardship coordinator will be the project lead on this effort. Work began with a kickoff meeting on June 9th to introduce the project proposal to advisory team members and stakeholders. The technical assistance grant will be used to plan a 450+ acre restoration project in the Wasson creek drainage. The plan will include a cultural resource component, a lowland restoration component, including a creek remeander, and an upland restoration plan, which will include stand specific silvicultural prescriptions. The salary funds used to hire a temporary restoration technician this spring have been used to begin forest inventory in the Wasson drainage. The technician is halfway complete with the 150+ measurement plots for upland stand quantification and modeling. The data collected through this effort will inform the Wasson creek restoration plan. The technical assistant grant will go through summer of 2016. Monitoring and implementation grants will be applied for after the technical assistant grant is complete.

The Winchester creek spawning habitat restoration project was not funded this spring, but a technical assistance grant for the project was submitted in April through the Coos County Forestry Department. If the Winchester technical assistance grant is funded, work will begin to complete a design of spawning

habitat restoration. SSNERR staff (Eric Dean and Jenni Schmitt) and interns have been collecting baseline water quality monitoring data in Winchester creek since winter 2014.

Stewardship staff has begun participating in the Coos Watershed Association's restoration team meetings. The Reserve also received a donation of ~100 root wads from a nearby logging outfit which are now stock-piled for use in future restoration efforts.

Land Acquisition: Work continues to finalize the Indian Point land acquisition through the US Fish & Wildlife Service Coastal Wetland Conservation Grant. An appraisal of the match tidelands was completed in June of 2015, as was the appraisal review by the Department of State Lands. Unfortunately, the appraised value of the tidelands came in substantially lower than the estimated proposed value. South Slough staff is currently in discussion with the USFW Service to determine how to compensate for the difference. The USFWS approved an amendment to use remaining grant funds for the purchase of Younker's Point, a 10.76 acre parcel listed for sale and adjacent to the project area. The pursuit of purchase was approved during the June State Land Board meeting, but unfortunately approval came too late. The sale of Younker's Point is now under contract with another buyer and South Slough has likely missed its chance to acquire the Reserve-locked parcel. If the contract with the outside buyer falls through, the Reserve will continue to pursue a purchase of Younker's Point. An interim report for the Indian Point land acquisition grant will be completed this summer. The official grant period for the award does not end until summer of 2016.

Concerning the proposed exchange of Reserve or state owned land for a county-owned parcel known as the Elwin Deal estate, there has been no movement. The Reserve does not have any land or funds to exchange for the parcels at this time so the pursuit of the exchange is not a Reserve priority as of yet.

Port Orford cedar Monitoring: Monitoring of *P. lateralis* resistant Port Orford cedar saplings was completed this spring. Two stewardship interns, Tait Miller and Jase Fuller, measured the ~1,000 Port Orford cedar sapling trials planted as part of a logging road restoration project (off Salal Road). The 2015 data was added to the ongoing monitoring effort.

Interns: The stewardship program oversaw two interns this spring. Tait Miller and Jase Fuller measured ~1,000 Port Orford cedar sapling trials and assessed mortality. They also helped remove invasive species on Indian Point, guided the SWOCC recreation management class on a tour of Indian Point, helped remove a log jam in the pathway of the paddle trail, assisted in the water quality monitoring project along Winchester creek, and completed an upland stand inventory with the assistance of the temporary

forest restoration technician in the Wasson creek drainage. Their contribution to the work of the Reserve is greatly appreciated and will help support ongoing restoration efforts.

Western Bog Lily monitoring: Stewardship staff continues to work with the USFW Service to monitor, map and protect the population of endangered W. Bog lily growing on Reserve managed lands. Mapping efforts will continue this summer while restoration planning for the population will be an ongoing priority for the Reserve.

OTHER SCIENCE PROGRAM ACTIVITIES, including cross-sector cooperation

Disaster Response and Preparedness Plan/Safety Plan: The Disaster Response and Preparedness plan was completed and approved by NOAA in early June. The finalized plan was sent to stakeholders and is now posted on the Reserve website. The contract for the plan was closed out in June 2015. South Slough staff completed an earthquake training to implement the plan on March 25th.

Coastal Blue Carbon: Unfortunately, the \$750K NERRS Science Collaborative research proposal developed by the Pacific Northwest Coastal Blue Carbon Working Group, a partnership among researchers, policy makers, and land managers, and organized by the Coordinator of Monitoring Programs (Cornu), did not get selected for funding. As previously reported, Cornu convened Pacific Northwest biophysical researchers and policy makers in December 2014, decided on a collaborative approach to biophysical coastal blue carbon research (quantifying carbon budgets/sequestration potential for Pacific Northwest tidal wetland types) and developed the proposal in response to the NERRS Science Collaborative RFP issued in January 2015. The proposal requested three years of funding to quantify carbon stocks, carbon sequestration rates, and greenhouse gas emissions in a suite of current and former tidal marshes in South Slough and the Coos estuary.

BLM MOU: A Memorandum of Understanding between SSNERR and the Bureau of Land Management Coos Bay District Office was finalized in April of 2015. The agreement will be good through March of 2020. The agreement has already been utilized to share intern time between the agencies, which has increased volunteer capacity.

NERRS Committees and Projects

SWMP Guidance Committee: In May/June 2015, the SWMP Guidance Committee members (Marie Bundy, Dwight Trueblood, Willy Reay, Ed Buskey, Matt Ferner, Sandra Erdle, Ali Helms, Shon Schooler, Robin Weber, Joan Muller, and Lindsay Spurrier) held conference calls to discuss several topics including, national SWMP syntheses and data products, restructuring the Sentinel Sites Coordinating Committee into the Sentinel Site Application Module 1 (SSAM1) Workgroup, modifying nutrient protocol hold times, and exploring the addition of a nutrient parameter, total suspended solids (TSS), to the required SWMP nutrient measurements.

Bivalve Working Group: Bree Yednock worked with Brandon Puckett, Research Coordinator at North Carolina NERR, to develop a survey to gather information on bivalve-related research currently being done by the NERRS. The survey will be distributed to the NERRS with the goal of identifying areas in which reserves could collaborate on bivalve-related projects and perhaps develop a standardized monitoring protocol that could be implemented and facilitate comparisons of bivalve populations across reserves.

Meetings / Presentations / Trainings

South Slough NERR Coordinator of Monitoring Programs, Craig Cornu:

April-June 2015 – Convened with Jenni Schmitt several meetings of the Coos Estuary Inventory Project subcommittee to report on progress in the development of Inventory chapters and discuss next steps for the Partnership for Coastal Watersheds.

South Slough NERR Estuarine Monitoring Coordinator, Ali Helms:

March 2015 – Participated in IOOS State of the Science Estuarine Acidification Webinar presented by Wei-Jun Cai, University of Delaware

March 2015 – Attended Coos Estuary Research Science meeting organized by Coos Watershed Association

March 2015 – Participated in California Current Acidification Network (C-CAN) Ocean Acidification Roundtable Best Practices for use of Durafet autonomous pH sensors with Todd Martz (UC Scripps) and Benoit Eudeline (Taylor Shellfish)

April 2015 – Participated in the West Coast Ocean Acidification and Hypoxia Science Panel at Oregon Department of Fish and Wildlife headquarters in Salem, OR

April/May 2015 – Participated in NERRS Research Coordinator Virtual Meeting sessions related to SWMP and Sentinel Sites

May 2015 – Participated in IOOS Pacific Anomalies Science and Technology Workshop Webcast focused on temperature/climate patterns

May 2015 – Assisted, with Craig Cornu, BYU undergraduate students Rachel Merenda and Eileen Crawford with project set up and data collection protocols for individual research projects, focused on vegetation transects and channel measurements at Dalton and Tom's Creek marshes

May 2015 – Co-hosted South Slough site visit and research tour for NOAA Office of Coastal Management staff Dr. Jeff Payne, Acting Director, and Rebecca Smyth, West Coast Regional Director

May 2015 – Participated in meeting organized for University of Oregon Vice President of Research and Finance and Administration staff to understand the reserve operations and explore the university as a potential state partner

May 2015 – Co-facilitated a Marine Biology station at the Science Technology Engineering and Math Workshop for 4-5th grade girls hosted by Zonta International along with other SSNERR and OIMB staff

May/June 2015 – Participated in SWMP Guidance Committee calls and discussions

South Slough NERR Lead Scientist/Research Coordinator, Bree Yednock:

April 2015 – Participated in Hike Leader Training for SSNERR to assist with school groups

April 2015 – With John Bragg, met with the Mayor of Coos Bay and Coos Bay planning staff to discuss storm water runoff issues in the Coos estuary and identify possible areas for restoring urban shorelines.

April 2015 – Co-led a workshop with Tom Gaskill and Eric Dean for the Shoreline Education for Awareness (SEA) program to education volunteers working with regional natural resources organizations.

April 2015 – Co-led with Eric Dean a fieldtrip for high school students focused on blue carbon, watersheds, and estuaries.

April 2015 – Co-led fieldtrip for elementary school students to teach them about watersheds, marshes, eelgrass beds, plankton, and SSNERR.

April 2015 – Delivered webinar presentation to Oregon teachers on the oyster restoration efforts of Coos Bay and highlighted how SWMP data are used to better understand oyster restoration potential of different locations in the estuary.

April/May 2015 – Participated in NERRS Research Coordinator webinar meetings.

April/May 2015 – Attended Leadership Coos (second Tuesday of each month) and co-led a presentation at SSNERR in April to highlight recreational opportunities in the Coos Bay Area.

May 2015 – Met with City of Coos Bay planner and Waste Water Engineer to tour shoreline of Coos Bay and identify areas for potential restoration projects.

May 2015 – Co-led tour of SSNERR for Jeff Payne, Director, and Rebecca Smyth, the West Coast Regional Director, for the NOAA Office for Coastal Management.

May 2015 – Participated in informational sharing session/meeting with visiting University of Oregon staff and administrators

May 2015 – Co-represented SSNERR at the Science, Technology, Engineering, and Math (STEM) workshop for girls at the Boys and Girls Club in Coos Bay

May/June – Attended Friends of South Slough meetings.

June 2015 – Attended meeting at the Coquille Tribal Office led by Hannah McDonald to kick start the Wasson Creek Watershed Restoration Project

South Slough NERR Stewardship Coordinator, Hannah McDonald:

March 2015 – Attended an Invasive Species & Noxious Weed workshop in Stevenson, WA.

March 2015 – Coordinated an earthquake drill to implement the new Reserve Safety Plan and Disaster Response Plan.

March 2015 – Began attending community-based nutria task force meetings and coordinated the contracting of USDA Wildlife Services to treat invasive nutria within and adjacent to the Reserve.

April 2015 - Trained and oversaw interns Jase Fuller and Tait Miller in Port Orford cedar mortality monitoring and forest inventory work.

April 2015 –Began the forest inventory component of the Wasson Creek Watershed Restoration Project Plan, overseeing Jake Robinson’s field protocol and data collection efforts.

April 2015 – Finalized the BLM MOU and established a joint internship time sharing effort.

May 2015 – Co-designed and lead a Native Plant Workshop with the Native Plant Society of Oregon.

May 2015 – Guided the Indian Point match tideland appraisal site visit with contracted appraiser.

May 2015 – Helped lead the invasive species service learning project for North Bend High School.

June 2015 – Coordinated with Coos County Roads department to improve, gravel, and grade Hinch Road.

June 2015 – Facilitated a meeting with the Oregon Watershed Enhancement Board’s regional representative to improve communication between our agencies.

June 2015 – Attended the Wild River Coast Forest Collaborative meeting in Gold Beach.

June 2015 – Lead the kick off meeting for the advisory groups and stakeholders involved in the Wasson Creek Watershed Restoration Project Plan.