

SOUTH SLOUGH RESERVE MANAGEMENT COMMISSION

AGENDA

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

August 29th, 2019

154th REGULAR MEETING 1:00-4:00 P.M.

I. Call-to-Order

II. Introductions

III. Review of Meeting Minutes

1. 153rd regular meeting minutes
2. May 13th special meeting minutes
3. June 4th special meeting minutes

IV. Public Input*

V. Old Business

1. Winchester Creek Coho Spawning Reach (*verbal update*) – Bree
2. Younker Point Easement Application (*verbal update*) – Bree
3. Commercial Activities Permit & Rulemaking – Jonathan/Bree
4. Potential Transfer of Management of South Slough Reserve – Bree/Vicki/FOSS
 - a. FOSS report
 - b. Staff comments by program

VI. New Business

1. Visitor Center Forest Enhancement Plan (*action item*) – Alice

VII. Information Reports

1. Administration/Facilities
2. Education
3. Science
4. Coastal Training Program
5. Friends of South Slough

VIII. 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 Rebecca Muse at 541-888-5558 ext. 134 at least two working days prior to the meeting.

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

South Slough Reserve Interpretive Center Auditorium
Charleston, Oregon

Minutes of the 153rd Regular Meeting
March 21, 2019

Commission members present:

Vicki Walker, Chair	Bob Main
Trent Hatfield	Kris Wall
Chief Warren Brainard	Alan Shanks
Lonne Mays	Bob Cowen

South Slough NERR staff and others present:

Bree Yednock	Rebecca Muse
Eric Dean	Laura Mays
Marjene Brainard	Deborah Rudd
Jonathan Forth	John Bragg
Kathy Andreasen	Jenni Schmitt
Jaime Belanger	Shon Schooler
Alice Yeates	Ed Oswald

The meeting was called to order at 1:17 p.m. by Vicki Walker Director of the Department of State Lands and Chair of the Commission.

INTRODUCTIONS

Everyone introduced themselves.

APPROVAL OF THE MINUTES OF THE PREVIOUS MEETING

Chair Walker asked if there was a motion to approve the minutes of the previous meeting. Commissioner Brainard moved to approve and Commissioner Mays seconded. The motion carried unanimously.

PUBLIC INPUT

There was no public input.

OLD BUSINESS

Potential Transfer of Management of South Slough Reserve

Bree Yednock provided an update referring to a copy of the memo handed out at the meeting from Director Walker to the Land Board regarding the progress made on

evaluating alternative funding and management options for the South Slough Reserve. Chair Walker referenced a meeting she and Bree Yednock attended with the Confederated Tribes earlier in the day. At that meeting Stacy Scott, Cultural Resources Protection Specialist for the Confederated Tribes expressed concern about the University of Oregon's (UO) failure to communicate in a timely way regarding care of cultural resources and artifacts. Commissioner Shanks also voiced some concerns he had regarding tribal issues being addressed by administration on the UO main campus. Chair Walker said she had a conversation recently with Cassandra Moseley of the UO who indicated the University was still interested in managing the Reserve. (Oregon State University (OSU) has indicated they have no funding to manage the Reserve.) Chair Walker asked Commissioner Brainard for his thoughts. Chief Brainard replied that South Slough was important to the Tribe, and they wanted to be involved in the decision process. Chair Walker requested that the Confederated Tribes submit a letter to present to the Land Board at their next meeting. She said she is still working on consulting with the Siletz Tribe.

Ms. Yednock read excerpts from the Coquille Tribe's letter to Vicki Walker where the Tribe states its preference for the Department of State Lands (DSL) to continue its management of the South Slough NERR and for the Reserve to continue to be funded through the state's Common School Fund. Ms. Yednock also mentioned the additional stakeholders who are involved in the future of the Reserve. Ms. Yednock explained that the Friends of South Slough Reserve (FOSS) were currently crafting their strategic plan that will include setting goals for the organization for the next five years. Board members are discussing what the future of the Reserve will be. The FOSS board would like to set up a dedicated meeting with Vicki Walker to discuss the future of the Reserve.

Legal counsel for the DSL has stated that the Reserve's Management Commission "should be weighing in" on the issue of management and funding. Chair Walker said that any transfer of the Reserve would require legislative action. She added that it was preliminary at this time for the Management Commission to issue a formal recommendation, but the recommendation should be added to the November meeting agenda, with staff giving their perspectives to the Commission at the July meeting. Chair Walker asked if there were any comments. Commissioner Cowen asked for a brief summary of the issue. Chair Walker replied that she had been tasked with doing the analysis from the Land Board. She agreed that the pros and cons of a transfer would need to be considered. Commissioner Mays reiterated what was expressed and concurred by Commissioners in the November meeting that a source of stable funding is paramount for the Reserve to carry out its mission. Commissioner Shanks commented that the UO is currently strapped for funds, and it would be good, in the event of a transfer, that appropriations given to the University for the Reserve be ear-

marked especially for that purpose. Commissioner Shanks advised Chair Walker to talk with the faculty at OIMB in Charleston. Chair Walker agreed and said Bree Yednock could help set up the meeting for her.

Winchester Creek Coho Spawning Reach Update

Bree Yednock is working with John Sweet at Coos County to complete the application and agreement for the land trade with the county to protect the Winchester Creek spawning reach. Chair Walker requested that Ms. Yednock email the DSL Bend office and copy her, requesting Bend staff move the application to a top priority status given information the county is anticipating an April timber sale on the property. Chair Walker said she needed to bring the land trade proposal to the April Land Board meeting.

Commissioner Main, in response to a question, stated that the county would stand to net 40K to 50K, per acre, in a timber sale on the property, not including the value of the land. He said that the Coos County Commissioners met and reached an agreement with ODFW for the agency to continue their stream surveys.

Yunker Point Easement Application Update

Bree Yednock said there is currently no update on the status of the application.

Acknowledgment of correspondence:

Ms. Yednock informed the Chair that Amber Ross “*never got an acknowledgement in writing from Mr. Barnhart about the requirement to stop cutting brush. He left me a voicemail prior to surveying the property to inform me that he intended on surveying the property, but that did not include any mention of brush removal*”.

Question of Prescriptive Easement:

Ms. Yednock obtained information on easements from the DOJ Assistant Attorney General:

Adverse use of land can ripen into an easement by prescription. To establish an easement by prescription in the general public, you need use of private property by the general public. The use must be (1) for the prescriptive period (10 years, ORS 12.050); (2) open, notorious, and adverse to the rights of the servient owner (basically, known and without permission); and (3) continuous and uninterrupted according to the nature of the use. For prescriptive easement elements generally, see: Thompson v. Scott, 270 Or 542, 546, 528 P2d 509 (1974); & Feldman v. Knapp, 196 Or 453, 250 P2d 92 (1952).

Jeff Wheeler

Assistant Attorney General

Oregon Department of Justice

Additionally, a neighboring landowner (Jerry Hampel) told Ms. Yednock he has a letter from a previous landowner of Younker Point that states there was never a road out there.

NEW BUSINESS

RV Pad on Reserve

Rebecca Muse introduced this topic. Staff has reached out to state parks in hope of emulating their process for providing volunteers a “host site” to park their RVs while providing volunteer services. The volunteers would serve the Reserve primarily at the front desk/bookstore of the Interpretive Center during the busy season. The site would

also offer 24-hour security to the area. Ms. Muse explained they are looking at a three-month initial commitment. The RV pad would be located at the maintenance compound, in an area that has been previously disturbed. Septic service and water would be provided from the Spruce Ranch house. One RV pad would accommodate a 28' – 30' length RV. Staff will know the status of funding by mid-April.

Commissioner Main recommended the Reserve follow Coos County parks host site protocol and write up a specific scope of work for the volunteers who will be located on the site. Commissioner Main also reiterated Commissioner Brainard's suggestion that staff contact the DEQ, first and foremost, to determine if the existing septic and drain field will legally accommodate the new site.

The Commission voiced approval and support for the project. Commissioner Mays moved that staff go forward with the logistics of installing the RV pad. Commissioner Shanks seconded and the motion was approved by all.

Presentations

Progress on Commercial Activities Permit

Jonathan Forth presented the update with Bree Yednock. Citing an overhead presentation, commercial guiding objectives and crafting a draft permit for the Reserve's Commercial Guiding Plan was discussed. Talk also centered on the composition of the advisory group. Bree Yednock said she didn't want too large of an advisory group. Chair Walker voiced some concern regarding the inclusion of a commercial guide on the advisory group as the DOJ determined that inclusion could be a potential conflict of interest. She said that proceeding with caution would be advised.

Staff are using the State Parks Special Use Permit as a template. Mr. Forth clarified the permit will be intended strictly for commercial guiding purposes which should function as an extension of the Reserve's education program. The Commission discussed policies governing commercial guiding within the South Slough Reserve, and the potential of group impacts on resources.

Bree Yednock asked if the Commission would like to review every commercial guiding application that is received or if they'd like to pass the authority for permitting these activities to SSNERR management. Lonnie Mays said the Commission doesn't meet often enough to review every application and felt Reserve Management should take the role of evaluating and approving permit applications. Vicki Walker agreed.

After deliberation, Chair Walker proposed a motion that staff proceed with completion of the document and Department of Justice review, then distribute the final document to the Commission for review, and the Commission will meet by phone to discuss and approve the final permit.

Commissioner Mays moved to approve the motion and Commissioner Shanks seconded. The motion passed with all in favor.

Chair Walker suggested that preceded by DOJ review, a special public meeting by phone be scheduled by May 1, 2019 for the SSNERR Management Commission to approve the final permit.

The Commission then reviewed the fee structure. Chair Walker suggested staff use the **flat rate** fee to start, and together with the application fee the revenue should help offset costs to the Common School Fund. Commissioners agreed that the % of revenue fee would be too expensive for the Reserve. It was clarified that FOSS will not be involved in the proposed fee structure. Rebecca Muse said the Reserve did not want to issue refunds.

Recent Facility Improvement Projects

Rebecca Muse highlighted the recent past, present and near future facility improvements throughout the Reserve in an overhead presentation. The Commission voiced approval with the many improvements staff has accomplished.

Information Reports

Staff shared highlights and progress within their program areas.

Bree Yednock included a brief report on her trip to Washington, D.C. where she handed out the FY 2020 budget request at Congressional offices. The Reserves anticipate a substantial increase in the federal budget for the national system.

Ms. Yednock said beginning with the July 18 meeting, the Commission briefing packets will include a FOSS update section.

ADJOURNMENT

The meeting was adjourned at 4:05 p.m.

SOUTH SLOUGH RESERVE MANAGEMENT COMMISSION

AGENDA

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

May 13, 2019

SPECIAL MEETING 3:30-4:30 P.M.

Attending by phone: Vicki Walker, Chair; Matt DeVore, Department of Justice; Bob Main, Commissioner; Trent Hatfield, Commissioner; Kris Wall, NOAA, Commissioner; Chief Warren Brainard, Commissioner; Lonne Mays, Commissioner; Dave Kronsteiner, Commissioner

South Slough NERR staff in-person: Bree Yednock, Rebecca Muse, Jonathan Forth

The meeting was called to order at 3:30p.m. by Vicki Walker Director of the Department of State Lands and Chair of the Commission.

INTRODUCTIONS

Chair Walker explained the purpose of the meeting was to discuss the draft Special Use Permit application and instructions, and she introduced Matt DeVore, who was in attendance to discuss legal aspects of the permit.

PUBLIC INPUT

There was no public input.

EXECUTIVE SESSION

The SSNERR Commission entered Executive Session at 3:32p.m. to consider information or records that are exempt by law from public inspection, pursuant to ORS 192.660(2)(f).

Members of the audience may not attend or listen to this portion of the meeting. Designated staff may attend the executive session. Representatives of the news media are also allowed to attend the executive session but are specifically directed not to report on or otherwise disclose any of the deliberations or anything heard during the executive session, except to state the general subject of the session as previously announced.

No decision may be made in executive session. At the end of executive session, we will return to open session and welcome the audience back into the room.

The SSNERR Commission came out of Executive Session at 4:20p.m.

OLD BUSINESS

Review of Commercial Activities Permit Draft

Chair Walker went through the draft permit application and asked for input from the rest of the commissioners on changes they'd like to see.

Commissioner Wall asked about a statement in the application related to the permit criteria requiring consistency with local, state, and federal laws. She clarified that the State of Oregon cannot require or enforce federal law. Matt DeVore clarified that having the language in the permit would allow the reserve to pull a permit if guides violated, for example, the federal Endangered Species Act.

Chair Walker asked where the list of annual fees was kept. Bree Yednock stated that there is no list of annual activity fees because this is the first annual fee associated with the permit. Commissioner Main asked for changes to be made to clarify the fee is from the Reserve and what it covers. Commissioner Wall asked that language be included to explain where other fees could be found.

Chair Walker explained that the insurance limits will be left as stated in the document and asked the Reserve Manager to create a risk assessment process that might allow insurance requirements to be waived or reduced and report back to the Commission at the next meeting in approximately two weeks.

Chair Walker mentioned the importance of the annual report requirement. The report will detail the number of guided trips and clients served, which will allow the Commission to evaluate at a later date if fees should be changed to a certain percentage of a company's profits.

Commissioner Mays asked that the application emphasize the required training will provide guides with accurate and important information about estuaries that they can share with the public. He stressed the importance of the permitting process as an extension of the Reserve's outreach and education and not a way to make money.

Chair Walker stated that it is her job as the agency director to find ways to help the reserve be more financially self-sustaining, and that she appreciates the value of the permit extending education and outreach as well.

Commissioner Main asked that language be added to clarify the annual fee is based on the calendar year.

ADJOURNMENT

After no more changes were requested, Chair Walker adjourned the meeting at 4:42p.m.

SOUTH SLOUGH RESERVE MANAGEMENT COMMISSION

MINUTES

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

June 4, 2019

SPECIAL MEETING 4:00-5:00 P.M.

IX. Call-to-Order at 4:05pm

X. Introductions

- A. **In person:** Jonathan Forth, Staff; Bree Yednock, Staff; Rebecca Muse, Staff
- B. **On conference call:** Vicki Walker, chair; Anne Friend, DSL staff; Dave Kronsteiner, Commissioner; Kris Wall, NOAA, Commissioner; Bob Cowen, Commissioner; Chief Warren Brainard, Commissioner; Lonnie Mays, Commissioner

XI. Public Input – no public in attendance

XII. Old Business

1. Commercial Activities Permit – action item

- a. Permit Revisions: Bree Yednock went over the updates and changes to the wording in the permit that was recommended at the last meeting. Changes included:

- On page 4 under “What are the fees for my Permit” – fees section was updated with wording that included clarification that fees are annual fees based on the calendar year (January – December) and no proration or reduction for partial year will be provided and that fees are charged by the Reserve. Fees amount stayed the same.
- The training requirements were separated out from the “What else do I need to know” section. Clarified that training is required and will include reserve staff and appropriate partners.
- Added clarification in the “what else should I know” section regarding reporting. Added that reporting is due within 30 days of the expiration of the permit.

- b. Insurance updates:

Bree discussed information that she learned in her research on insurance requirements.

Currently the permit includes the Tort limits with the recommendation of DOJ. During Bree’s research she had discussions with the Oregon State Parks staff, including their Safety and Risk Manager, as well as a DAS risk consultant. The DAS risk consultant did not recommend we use the tort limits in place. The only way that they would be applicable would be if the Reserve was negligent in the accident. After thorough research the DAS consultant deemed our risk for the included activities is very low. There is a Risk Assessment Toolkit created by DAS that we can use to make decisions on evaluating risk.

During her discussion with DAS risk management there were 3 recommendations made on how to move forward which included:

1. Do not use tort limits - Use \$1 million per occurrence/\$2 million multiple occurrences. (industry standard)
2. Include Automobile insurance requirements – Commercial automobile insurance coverage of \$1 million.

3. Include the flexibility to reduce but not remove insurance requirements in certain situations that the Reserve manager would decide upon using the DAS risk assessment toolkit and consultation with DAS risk management team as necessary.

After discussion these insurance modifications were approved by the commission included:

Am I required to have insurance?

Yes, the following liability insurance is required for Special Use Permits:

- Commercial general liability insurance of not less than \$1,000,000 per occurrence or \$2,000,000 for multiple occurrences.
- Commercial automobile liability insurance of not less than \$1,000,000 for bodily injury and property damage. This coverage may be written in combination with the commercial general liability insurance (with separate limits for commercial general liability and automobile liability).

Also added to the same section:

There may be some instances where insurance requirements can be reduced. Contact the Reserve Manager to see if you qualify.

The rest of the insurance section stays the same.

Motion from Lonne to approve the updated insurance language. Chief Warren Brainard seconded. All commissioners were in favor.

2. Temporary Rule Language – action item

Anne Friend gave an update on the rulemaking process

In the meeting materials on pages 9 -11 includes existing rule with proposed changes. Updated language on page 10, line 26, is needed to address commercial guiding in reserve, making it prohibited without a permit.

The rule making process must be gone through. Can do a temporary rule that will be in effect immediately, and then move towards permanent rulemaking.

Process for permanent rule making is:

- Create a Rules Advisory Committee to gather public input from stakeholders and citizens groups that could be impacted by the rules.
- Hold public meetings to go overdraft language to make sure that DSL as agency is on the right track so that we are not implementing a rule that will be impossible for the public to abide by.
- Notify public that we have proposed rules and what they are, post in Oregon bulletin, DSL will do a public comment period for a minimum of 30 calendar days. During public comment period we will hold at least 1 public meeting for comments.
- Comments reviewed after public comment period.
- Bring a second draft of rules back to commission that would incorporate any of the comments from public comment period that would be substantive, as for permission from the Management Commission for adoption.
- Once approved for adoption then they would be filed with secretary of state.
- Anne is proposing that the commission approve DSL to file a temporary rule effective immediately. Once temporary rule in place it will be a placeholder for the permanent rule as we go through the permanent rule making process.

- Notification is submitted to Oregon Legislature for 49 days which starts when it gets published in the Oregon Bulletin
- Commission needs to vote to submit the temporary rule and commence permanent rule process.
- Temporary rules are only allowed to be in place for 180 days, not renewable and a placeholder for permanent rule making.
- Permanent rule making process takes approximately 3-6 months depending on advisory meetings.

Anne will file temporary rule by end of next week. The rule will be in effect the day after filing.

Discussion regarding plan to have the permanent rules before the Management Commission in the November meeting.

Motion from Chief Brainard for the commission to approve filing a temporary rule and convene permanent rule making under division 10 chapter 142, restrictions in the Reserve. Second by Lonne Mays. No objections, all in favor. No discussion.

3. New Business

Update from Bree regarding recent timber theft from the Reserve.

Unknown persons have been cutting timber across the street from the Interpretive center in a secluded spot unseen from the road for firewood

Sheriffs have previously been contacted for theft and vandalism issues and said they can't respond without proof. Maintenance put out a game camera and that was stolen promptly.

Bree Yednock, Mike Allman and the Forest Sheriff did a site visit and walked through the affected area. The deputy requested signage to be put up.

Sheriff stated he will put up his own cameras to try and catch them.

Timber theft is in violation of OARs. Bree felt she needed to do something given safety issues at the site. Within her authority, based on OAR # 142-010-0025, she decided to limit access to area. Maintenance added signs on 5/31/2019 stating "No Entry Without Permission", with contact phone number for questions.

This will be coming up for more discussion at next meeting.

4. Adjourn 5:05pm.

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

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DRAFT Summary of Rules Advisory Committee (pending review and approval by the RAC)

In attendance:

Anne Friend	Department of State Lands
Bree Yednock	Department of State Lands/South Slough Reserve
Jonathan Forth	Department of State Lands/South Slough Reserve
Rebecca Muse	Department of State Lands/South Slough Reserve
Fiona Bai	Oregon International Port of Coos Bay
Laura Dorbuck	Public/Neighboring Landowner
Dave Lacey	South Coast Tours
Marty Giles	Wavecrest Discoveries
Larry Qualman	Qualman Oyster Farms
Courtney Krossman	Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians
Stacy Scott	Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians

The Rules Advisory Committee (RAC) met on August 20, 2019, at 9am at the South Slough Reserve Visitor Center. The meeting started with an overview of the rulemaking process by Anne Friend and a summary by Bree Yednock of the Reserve’s governing structure and history related to the development of a special use permit for regulating commercial guiding the reserve.

Input on Proposed Rule Language

The RAC provided input on the proposed rule language, emphasizing the need to clarify terms. For example, the term *noncommercial* is used in the proposed rule language, but it is not included in the Definitions section of OAR 142-010-0010. There was discussion of who would be considered *noncommercial*: examples included community college and noncommercial groups like paddle clubs and 501c(3) non-profit groups that lead naturalist trips at no cost. The Port of Coos Bay would also be considered a noncommercial entity.

It was also recommended that the rule language or permit language include wording to indicate that changes have been made to Oregon statutes and rules relating to cultural artifacts.

Overall, the RAC was in favor of the proposed rule language because it provided flexibility for the Commission and Reserve Manager to modify the permit conditions if needed in the future without having to go through another rule change.

Input on Notice of Proposed Rulemaking Filing Including Statement of Fiscal and Economic Impact

The RAC reviewed the filing document and recommended clarification that commercial guiding has been an existing use for years. It was also recommended that language be added to describe that the annual permit fee could have a significant financial impact on small guiding businesses who choose to apply for a permit.

It was recommended that the required reporting by commercial guides include a comments section for additional information that would be helpful to the Port of Coos Bay, the Tribes, and the Reserve, such

as: launch and take out sites, time spent on the water, the number of other paddlers/public observed at the Port of Coos Bay and Reserve launch sites and on the water, location of any observed looting or impacts to cultural resource sites, and the location of any observed activities the Reserve should be aware of (e.g. illegal camping, vandalism, dumping).

Additional Input

The RAC provided additional information for the Commission to consider related to the permit process and guidelines. The need for an outreach plan was identified to make all potential guides aware of the permit requirement and process. A need was also identified for outreach to local rental companies and the general public about approved paddle launch and rest sites, as well as prohibited areas, as specified in the permit.

Recognizing that the Reserve regularly reviews its fee schedule, it was suggested that a flexible fee range be considered in the future to make permits more accessible to smaller operations that may only be interested in leading a few trips per year.

There was concern that the South Slough could become overcrowded. Bree Yednock and Jonathan Forth provided information on the Reserve's Management and Monitoring Plan (currently in draft form) that will be implemented to assess any potential impacts and adaptively manage this activity.

Moving Forward – steps left to complete rulemaking process

1. Adjust the definitions to include “noncommercial” and make any other changes needed to the proposed language.
2. Submit to the Secretary of State (SOS) by 5 pm on August 29 the proposed permanent rule for the public comment period to be held during the month of September.
3. Send out notices via listserv and interested parties list that the rule will be open for public comment.
4. Hold a public hearing at the South Slough Reserve Visitor Center on September 23 from 4:30 pm to 6:30 pm.
5. Close the comment period and create a summary of all comments received.
6. Send final proposed rule to DOJ for review.
7. Bring to SSNERR Management Commission for final approval to adopt the rules at the November 2019 meeting.
8. File w/SOS the permanent rule to be effective December 1, 2019, before the temporary rule expires.

Potential Transfer of Management of South Slough Reserve

At the meeting of the Management Commission on March 21, 2019, the Commission received an update from Bree Yednock on discussions related to a potential transfer of management of the South Slough Reserve to the University of Oregon. The following action items came out of the meeting:

- 1) Chair Walker requested a letter from the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians. The letter was received July 18th and is included in this packet.
- 2) The Friends of South Slough (FOSS) requested a meeting with Chair Walker. Christine Moffitt (FOSS President) and Todd Buchholz (FOSS Vice President) met with Chair Walker on June 12th. A report from FOSS is included in this packet.
- 3) Chair Walker requested that staff provide their perspectives on the potential transfer at the next Commission meeting. Staff compiled their comments by program area (Science, Education, Coastal Training) and those documents are included in this packet.
- 4) Commissioner Shanks advised Chair Walker to talk with the faculty at the Oregon Institute of Marine Biology (OIMB) in Charleston. A meeting date was set for June 12th, but there was no coordination on behalf of OIMB to bring faculty and staff together, so the meeting didn't happen.
- 5) Chair Walker requested that the Commission be prepared to provide a formal recommendation on this issue at the regular meeting in November.

Evaluation of Proposed State Partners for the Successful Future of South Slough National Estuarine Research Reserve

Prepared 20 August 20, 2019

by Christine Moffitt and Todd Buchholz, Friends of South Slough Board

for review and adoption by FOSS @ 27 August 2019 meeting

Summary Recommendation:

The Friends of South Slough enthusiastically support continuing the existing partnership of the Department of State Lands with NOAA's Office of Coastal Management to continue the important research and educational opportunities at the South Slough National Estuarine Research Reserve.

We further recommend that the DSL increase opportunities to use the skills of the research, educational and the Coastal Training Program staff at SSNEER to meet the mission of the Aquatic Resource Management Department of DSL. Through increased interactions, they and others can test and explore appropriate mitigation, management and planning tools that can assist the state with regulation and management decisions to benefit and protect the public trust.

Background and Sequence of Review Process:

On June 12, Director Vicki Walker met with Friends of South Slough (FOSS) President and Vice President Christine Moffitt and Todd Buchholz to discuss options regarding the role of the ideal state partner for the South Slough National Estuarine Research Reserve. FOSS leaders volunteered to use this opportunity for independent conversations and interviews with SSNERR staff to discuss their concerns, and future visions for the reserve relative to the next 25 years in light of the 50th anniversary planning. We further our efforts to synthesize information about the partnership options and evaluate documents prepared from several sources relative to options for the state partnership. The results of efforts to review the documents, options and future visions is provided in the following document.

This report is provided as part of our review and presentation for the SSNERR Management Commission meeting on August 29. In addition we plan to provide a more comprehensive report on our assessment to the October 22 State Land Board meeting in Salem.

Overview of NERR System:

The National Estuarine Research Reserve System is a network of 29 coastal sites designated to protect and study estuarine systems. Established through the Coastal Zone Management Act, the reserves represent a partnership program between NOAA through its Office for Coastal Management and the coastal states. NOAA provides funding and national guidance, and technical assistance but each site is managed daily by a lead state agency or university with input from local partners. The NERR system is one of four major programs in the Office for Coastal Management. As a scientific organization, NOAA provides access to the science and environmental intelligence communities need for these tasks. Individual reserves are listed in alphabetical order providing location and date established (Table 1).

Table 1. Summary of National Estuarine Research Reserves by name, state and date established.

Name	State	Established	Name	State	Established
ACE Basin	SC	1992	Mission-Aransas	TX	2006
Apalachicola	FL	1979	Narragansett Bay	RI	1980
Chesapeake Bay	MD	1958, 1990	North Carolina	NC	1985, 1991
Chesapeake Bay	VA	1991	North Inlet-Winyah Bay	SC	1992
Delaware	DE	1993	Old Woman Creek	OH	1980
Elkhorn Slough	CA	1979	Padilla Bay	WA	1980
Grand Bay	MS	1999	Rookery Bay	FL	1978
Great Bay	NH	1989	San Francisco Bay	CA	2003
Guana Tolomato Matanzas	FL	1999	Sapelo Island	GA	1976
He'eia	HI	2017	South Slough	OR	1974
Hudson River	NY	1982	Tijuana River	CA	1982
Jacques Cousteau	NJ	1998	Waquoit Bay	MA	1988
Jobos Bay	PR	1981	Weeks Bay	AL	1986
Kachemak Bay	AK	1999	Wells	ME	1984
Lake Superior	WI	2010			

The partnerships with NOAA in each of the NERR locations are diverse in their engagement. A review of the present status for the Pacific Coastal NERRs includes the following.

Alaska:

Kachemak: formerly with Alaska Department of Fish and Game – Sport Fish Division. Since 2017, now with University of Alaska Anchorage Alaska Center for Conservation Science: 372,000 acres

Washington

Padilla Bay, WA: Wash Dept Ecology: 11,966 acres

Oregon:

S. Slough: Oregon Department of State Lands, currently manages approximately 6,000 acres.

California

San Francisco Bay: San Francisco State: 3710 acres

Elkhorn Slough: Cal fish and Game: 1,439 acres

Tijuana River, California State Parks and the U.S. Fish and Wildlife Service, 2,293 acres

Interviews and Gathering of Information from SS Staff:

Our interviews and collection of information were conducted in August using face to face interviews with 7 of the 16 full-time, permanent staff, and by reading written reports prepared by members of each of the three teams that provide leadership and direction for SSNERR programs: Research, Education and Coastal Training Program. Although the timing for many staff was not good as staff were highly engaged with the many public workshops and educational programs SSNERR provides, many were able to take time to articulate their concerns and visions for the future.

The questions for the in-person interviews included information on the individual's familiarity with the proposed plans, and their personal viewpoint about the challenges with the proposals, and their vision for the challenges ahead for the NERR.

1. How long have you been employed at SSNERR?
2. Have you heard about proposals to divest the financial partnership of SSNERR to other entities?
3. What have you heard about these proposals?

Future Visions

1. We are approaching the 50th anniversary of the first ever Estuarine Reserve in the USA, where do you see SSNERR's mission and activities should be focused in the next 25 years?
2. Are there elements of the management that you would like to learn more or participate in?

Summary of Staff Input:

Staff considered their roles at the SSNERR as important and full of rewarding opportunities. They have heard rumors and received vague emails over the past two years regarding potential scenarios to remove SSNERR from the Common School Fund. Everyone interviewed was uncomfortable with the uncertainty and lack of specific alternatives. Each staff member expressed his/her interest in having the opportunity to participate in discussions of future options for the structure and management of the reserve.

The staff had clear visions of the focus needed for the next 25 years. All responses emphasized the clear importance of the need to understand the complexities of climate change on estuary ecosystems. Understanding and preparing for challenges of estuarine management was a key mission and theme of their vision. They articulated the importance of estuarine environments as the intersection of land and water systems and the communities that depend upon those systems. Staff recognized the need to increase public awareness across the State and Region of the important resources that the South Slough NERR provides to all Oregonians, not just those of the immediate Coos Bay area. The educational, research and management opportunities to understand estuarine environments would benefit by increasing and expanding partnerships with agencies, educational institutions, tribes, and NGOs. Many staff expressed a desire to increase their collaborations for interdisciplinary research and educational opportunities. Existing successful collaborations included the University of Oregon, and Oregon State University. They supported interest in continuing and expanding roles for collaborations and internships with community colleges.

Additional documents provided for our review:

1. *UO DSL Discussions and Research* – this document summarizes all the meetings that have occurred to date related to a potential transfer of South Slough Reserve to UO
2. *Memo on Progress of Evaluation Option for South Slough* – this is a memo Director Walker presented to the State Land Board at their February 5th (2019) meeting. It includes similar information to the UO DSL Discussions and Research document.
3. *CRT18222_SSNERR Management letter to DSL* – this is the letter sent to Director Walker from the Coquille Indian Tribe in support of keeping the South Slough Reserve in DSL
4. *SLB resolution about South Slough* – this is the resolution made by the State Land Board on 12/18/2018 calling on the legislature to move funding for the South Slough Reserve away from the Common School Fund. No action has been taken yet by the legislature on South Slough. A bill successfully moved through the 2019 legislative session for the other item in this resolution (moving the Unclaimed Property division from DSL to the State Treasurer's Office).
5. *Strategic Plan Comments* – A document summarizing UO's strategic plan for creating a Coastal Campus in Charleston; managing South Slough Reserve is proposed as part of this plan.

6. *OIMB Strategic Plan Final 21*

7. *2019-07-18 CTCLUSI letter RE South Slough Reserve* – letter sent to Director Walker in support of continued management by the State, as it currently exists.

Existing State Partnership with DSL and DSL Mandates

The Department of State Lands (DSL) is the administrative arm of the State Land Board, Oregon's oldest board. Established by the Oregon Constitution, the State Land Board has been composed of the governor (chair), secretary of state and state treasurer throughout its history.

In 1859, at statehood, the federal government granted Oregon about 3.4 million acres of land for financing public education as it did with other states. Although the total acreage is now smaller, revenues from state owned lands are dedicated to the Common School Fund, a trust fund for kindergarten through grade 12 public schools.

In addition to the State Land Board, the department is charged with protecting public rights to use state-owned waterways for navigation, fishing, commerce and recreation.

Other responsibilities within DSL assigned by the legislature include: the state's unclaimed property program (1957) and also includes money and estates including those dying without will although these programs are transitioning to the State Treasury; protecting state wetlands and waterways (1967: removal-fill law; 1989: wetland conservation law); and serving as the state partner for the South Slough National Estuarine Research Reserve (1974).

According to the Secretary of State webpage, DSL employs just over 100 people and is headquartered in Salem in a building that is an asset of the Common School Fund. The Eastern Region Office is located in Bend, and the South Slough National Estuarine Research Reserve is headquartered in Charleston on the south coast.

According to the web, the DSL is organized in two divisions in addition to the State Land Board and Director's Office: Operations (Aquatic Resource Management and Real Property) and Administration (Business Operations and Support Services, and the South Slough). The Department of Lands' requested programmatic 2-year budget for the 2019-2021 Biennium breaks down into \$66,823,565 for Common School Fund Programs; \$4,585,705 for SSNERR, which includes all of the reserve's funding (Common School Fund, annual federal operations award from NOAA, and all other federal and non-federal grant funding); and \$1,996,518 for the Aquatic Resources/Removal-Fill Program.

The Aquatic Resource Management Program conserves and protects waters of the state and public access to state-owned waterways. The program has four core functions: 1) regulating removal-fill activities in waters of the state; 2) managing mitigation programs, including mitigation banking and payment-in-lieu programs; 3) managing the state's aquatic resource planning program; and 4) issuing authorizations for use of and overseeing navigable waterways to protect public trust rights.

In addition to its department mandates, the Department of State Lands is responsible for providing a facility and administrative support for the meetings of the Oregon Ocean Science Trust, a program the Legislature established in 2013 (ORS 196.565-569). The duties of the Trust are to:

- Promote peer-reviewed, competitive research and monitoring that leads to increased knowledge and understanding of Oregon's ocean and coastal resources.
- Promote innovative, collaborative, community-oriented, multi-institutional approaches to research and monitoring related to Oregon's ocean and coastal resources.
- Enhance the state's capacity for peer-reviewed scientific ocean and coastal research.
- Subject to available funding, establish and execute a competitive grant program to conduct research and monitoring related to Oregon's ocean and coastal resources.

FOSS Conclusion and Synthesis of the Need for Continued and Enhanced Partnerships

Clearly DSL is highly engaged in aquatic land management directly through their Aquatic Resource Management Program and the Ocean Science Trust, as well as their partnership at South Slough. The management partnership for South Slough National Estuarine Reserve provides a presence for the department to partner directly with the NOAA and network with other states to obtain relevant expertise and opportunities only available through this partnership. NOAA provides funding, national guidance, and technical assistance to this partnership.

With the unique and historic role of the DSL in wetland and aquatic management and mitigation, we utilize the opportunity of this report to increase the awareness of need for increased proactive partnerships with regulators, and managers of state held and other lands to work to address the needs of the future. The reserve system is dedicated to address National Ocean Service's priorities, including stewardship, recreation, and tourism, preparedness and risk reduction, and safe and efficient transportation and commerce. These mandates mesh well with the DSL's mandates. For example, two objectives of the NERRS 2017-2022 Strategic Plan are as follows:

Objective 1 "Coastal practitioners will enhance resiliency of reserves and their watersheds by improving the protection and function of coastal habitats."

Objective 3: "scientific, management, and educational audiences will know about and effectively use reserve research, data, and products to understand the effects of climate and land-use change on estuaries, ecosystem services, and human well-being."

We urge the DSL to increase interactions with South Slough staff and others to pose important research questions that can be explored that will help DSL managers and regulators of Oregon's wetland and aquatic systems assure that the tools used for management and regulation benefit and protect the public trust. South Slough staff have articulated their goals and interest in increasing collaborations with multiple partners to improve our understanding of ecological processes of estuarine systems to changing habitats and climate challenges.

SSNERR Science Team

comments for potential transfer of reserve management from DSL to the UO

- At University of Oregon, we would have 50% or higher overhead for any grants we bring in. The implication is that we would have less money and therefore get less work done, or we would need to request that much more money, which would likely make us less competitive.
- The type of grants we are able to apply for and/or maintain would change. We have a lot of smaller grants (NANOOS, PMEP, OWEB) that we are able to apply for as a State agency that we would not be able to apply for as a University.
- There are differences in types of research done at OIMB and SSNERR. For example, OIMB faculty primarily conduct basic research while SSNERR does applied research with focus on informing coastal management issues. SSNERR also prioritizes long-term monitoring programs, which OIMB does not generally consider as research. The concern is that the initial support for our differences would eventually disappear and prioritization and support (i.e., funding) for those programs would disappear.
- There would be more uncertainty (short and long-term) with maintaining SSNERR job positions. As expressed above, we're not convinced long-term support for our research and monitoring priorities would be continued.
- Would some positions disappear altogether due to being redundant? E.g., SSNERR manager vs OIMB director?
- How would position descriptions, pay structure, and benefits change?
- Extra job responsibilities – what would our new positions be? Would we be required to publish, teach classes, or bring in a certain amount of grant money annually? Although these are all good things for science and UO, it would greatly reduce the applied work we do.

Would we have 9 or 12 month positions? If we are on 9 month positions how would we support our summer work? For example, full professors at OIMB use grant funding to supplement summer work, since the University doesn't pay them for summer term.

SSNERR Education Team
comments regarding the possible transfer of Reserve management to UO

Fiscal – we worry there will be less money available to the reserve

- UO has not provided evidence of funds that would provide sustained support of Reserve programs & facilities. Currently, the Reserve receives matching funds (~\$300,000) from the state to get our federal funding.
- The Reserve receives federal funding from NOAA (\$774,000 in the last fiscal year) through a non-competitive grant; at present, that money and the matching funds are what support staff salaries, research & education programs, and facilities operations. The Reserve is eligible for other non-competitive funding through PAC awards, science collaboratives, etc. UO administrative fees (47% or higher) will significantly reduce our operating funds and have serious negative impacts on staff and programs.
- Administrative overhead will also have an impact on additional grant money that we apply for to advance programming and capacity. We would need to request more money to do the same work and be less eligible for education-related grants from foundations and organizations because of the size of the overhead.
- The Oregon Institute of Marine Biology, UO's marine biology field station, struggles to receive financial support from the main campus. If SSNERR were incorporated into the coastal campus, we'd be likely to experience similar challenges.

Programmatic – we might have to provide less programming and lower quality education

- SSNERR has been providing estuary education for 45 years. Our goals and vision for education are distinct. UO does not prioritize support for, or implementation of, coastal science programming, including critical issues such as climate change, for K-12 audiences, current K-12 classroom teachers or community members. These are focus areas for the NERRs, which are considered living outdoor classrooms that advance estuary and data literacy and provide meaningful, hands-on educational experiences for adults, children, and teachers. SSNERR currently serves hundreds of teachers and thousands of students each year at NO COST to the schools. Public programs also serve thousands of community members and visitors each year, providing unique learning opportunities in our rural area. These programs are low-cost or free to ensure accessibility to all socio-economic levels. At the initial meetings with UO, there were no questions from the university about education program goals, impacts or value. What would happen to the programs and the people they serve under UO management?
- Currently, SSNERR and OIMB's Charleston Marine Life Center have a strong partnership that increases the capacity of both entities to provide programming. If SSNERR were folded into UO, we may lose that capacity due to staff and funding reductions. There is no clear benefit or gain to either entity under UO management.
- SSNERR's visitor center, trails, and waterways are open to the public. Hiking, paddling, hunting, and foraging are popular activities. Protecting and maintaining the Reserve requires time and funding. Based on care for issues with the OIMB property (i.e. garbage dumping, transient camp,

etc), we wonder if UO can keep up with the management of Reserve lands in a way that is safe and appealing to the public.

- Currently, education staff apply for outside grants as needed but can run core programs with the NOAA operations award. If funding available for programming is reduced, the staff will have to spend more time applying for additional grants, further reducing the time they spend developing and implementing programs.

Administrative – we are concerned SSNERR's identity will be lost

- UO does not currently have a strong record of communication and collaboration. We are concerned about the disconnect we observe between OIMB and UO. Staff and students working at OIMB have shared many of the challenges they face when communicating, receiving funding or support from the main campus.
- We are concerned about the language in the strategic plan drafted by UO referring to the exclusive use of South Slough as an archeological site, which does not seem to align with SSNERR's mission to promote stewardship and understanding of estuaries through research and education.
- Land use issues in and around South Slough are common. UO does not have the same resources as the state to address things like easements, waterways, forest management, etc. We are especially concerned about the main campus understanding coastal land use issues and the dynamics of the rural community we live in.
- Currently, SSNERR is governed by the South Slough Management Commission. We value and respect the decisions of the commission, which is the sole governing body of the Reserve. We are VERY worried about losing their role as SSNERR's governing body. Could we have a binding commitment from UO to maintain the commission?
- There are many regional stakeholder groups with a vested interest in the South Slough, and we are concerned that those voices would be lost under UO management.
- Faculty and students from the main campus do not always respect the proper channels for conducting work within the Reserve, and as a result can do things that damage culturally important sites, research or monitoring projects, programs or overall messaging. We are afraid this kind of event would increase, which impacts our reputation within the local and national communities.

Personnel – we are worried about position & salary loss, increased job duties, reduced benefits

- SSNERR has a strong education team with essential members who work together closely to accomplish an impressive array of education, outreach, and communication about estuaries and coastal watersheds. How would positions, responsibilities, and salaries change with UO management?
- Under DSL management our staff members work 40-hour weeks. We are concerned about mental and physical health issues with increased work responsibilities and lower salaries.
- Reserve staff has been waiting for years to hear about a management decision. The extended uncertainty causes residual stress and trauma. The uncertainty is impacting the life of each

education staff member, causing major concerns in the community and is unfair to current and future partners we work with. UO has not acknowledged the added strain put on staff and the community by extending the decision period and we are concerned about what that indicates for our treatment in the future.

We would like the commission to send their recommendation for the transfer decision to the Land Board if possible.

Comments on UO’s Strategic Plan for their Coastal Campus as it relates to the South Slough Reserve and the NERRS Coastal Training Program

The South Slough National Estuarine Research Reserve (SSNERR) participates in NOAA’s Coastal Training Program (CTP). The goal of coastal training is to increase the use of science-based information by coastal managers and decision makers. The program is fully funded by NOAA to support a full-time Coastal Training Program coordinator. To initially qualify for funding, a reserve must hire a CTP coordinator to conduct a training market analysis, identify target audiences, assess audience’ training needs, form a training advisory group and, with their input, develop a training strategy and marketing plan that meets NOAA approval. Then the reserve must meet minimal yearly performance criteria (i.e., deliver at least five qualified training events) to continue receiving funding.

Under the UO’s proposal the CTP would be jeopardized. The plan makes a vague reference to “life-long learning” (p.28)— but does not address SSNERR’s contractual obligation to NOAA to provide training for decision makers. It offers no vision for either decision-maker outreach or science-to-management transfers of knowledge, skill and technology. The only references in the plan to training are offered in the context of graduate or undergraduate education.

The UO’s proposal does not address the outreach-based mission of the National Estuarine Research Reserve System (“...to practice and promote coastal and estuarine stewardship through innovative research and education, using a system of protected areas”), of the SSNERR (“...to increase the stewardship and understanding of Pacific Northwest estuaries and coastal watersheds”) or of the NERRS Coastal Training Program (“...to increase the use of science-based information by coastal managers and decision makers”).

Instead outreach, as described in the UO’s plan, involves promoting and building brand identity for the UO’s programs and services. A reading of the executive summary of the proposed plan shows the UO is focused on its objectives for growth and expansion, and that it remains largely unaware of the programs, services, priorities and obligations of the SSNERR and of the training needs of Oregon’s coastal management community.

Finally, the UO’s proposal to levy a 47.5% administrative tax on all grants (including, I expect, the dedicated funding provided by NOAA for the CTP) if implemented, would cripple the program and likely reduce the position of the coastal training coordinator to a part-time position or eliminate it altogether.

References

South Slough Management Plan, 2017-2022, https://www.oregon.gov/dsl/SS/Documents/SSNERR_2017-2022_Mgmt_Plan_for_Public_Comment_2_21_2017.pdf

NERRS Strategic Plan, 2017-2022, <https://coast.noaa.gov/data/docs/nerrs/StrategicPlanOnePager.pdf>

Assisting Decision Makers in the Lower Columbia Biogeographic Region: A strategy for coastal training in 2018-2023. Available on request from South Slough NERR. Email john.bragg@state.or.us.



CONFEDERATED TRIBES OF COOS, LOWER UMPQUA & SIUSLAW INDIANS

TRIBAL GOVERNMENT OFFICES

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(541) 888-9577 • 1-888-280-0726 • General Office Fax (541) 888-2853

June 18, 2019

Vicki L. Walker
Oregon Department of State Lands
775 Summer St. NE
Salem, Oregon 97301-1279

Dear Director Walker:

Thank you for your commitment to early and frequent communication with the tribes on a number of different issues. We appreciate that the Oregon Department of State Lands ("DSL") continues to engage the Confederated Tribes of Coos, Lower Umpqua and Siuslaw ("Tribe") on many matters in our ancestral lands. Our Tribe has endured and persevered through many hardships to retain our cultural identity, practice and connection to place. We are dedicated to our role as stewards of our 1.6 million acre homelands on the Oregon coast encompassing the Coastal watersheds of the Coos, Umpqua, and Siuslaw Rivers all which take their name from our heritage.

We hope to continue to work with the DSL to collaborate to protect resources and build opportunities on our lands for future generations of Tribal members.

1. South Slough National Estuary Research Reserve Management

The South Slough National Estuary Research Reserve ("Reserve") is a resource that is highly valued by the Tribe. The Reserve's scientific and outreach priorities are aligned with the Tribal Cultural and Natural Resource missions and we currently work collaboratively to provide outreach to youth and community members, monitor water quality and assess climate change to better understand stressors on our local resources in Coos Bay. While we continue to build a strong relationship to support scientific and traditional knowledge research and work to protect cultural resources with the Reserve and DSL, we have struggled to effectively and meaningfully communicate and consult to protect cultural resources with other organizations, such as universities or local governments.

We have concerns that failure to engage early and often with the Tribe can lead to cultural resources being damaged, burials being inadvertently uncovered, inappropriate handling of Tribal cultural items, and general disrespect of the Tribes culture. Every village site has associated resources such as gathering, hunting, fishing sites, ceremonial sites, and burial sites, which are not mutually exclusive of one another. The Tribe is not typically supportive of archaeological research for research sake and it is opposed to disturbing the ancestors from their final resting locations. The Reserve as it is currently managed has been very understanding of working with the Tribe to ensure these cultural sites are identified and that any future work avoids these areas and that work in proximity to these sites is closely monitored by a Tribal monitor. Recently, however, we have run into issues where there is outside interest in conducting research within the South Slough Reserve and the Tribe has not been at the table.

Vicki L. Walker, Director

June 20, 2019

This is especially concerning when the proposals involve archaeological investigations at known village sites with known burial locations within the South Slough Reserve. If management of South Slough changes hands, we have concerns that cultural research will be valued over protection of those resources. Especially concerning would be increased interest involving archaeological investigations of these village sites without proper consultation with the Tribe. Archaeological research at significant and sensitive cultural sites that would cause irreparable harm to the sites, the Tribe's ancestors, and harm Tribe's beliefs, practices, and identity. Therefore, the Tribe supports the continued management by the State, as it currently exists in order to best protect and preserve the Tribe's cultural resources and identity.

2. SSNERR and Coos County Land Transfer to Protect Spawning

Habitat restoration for species of importance is central to permit cultural continuity for future generations of Tribal members. The management of the South Slough reserve has been aligned with promoting resilience natural resources and natural areas. Our ancestors ate salmon and lamprey and so do tribal members today. ESA-listed Coho are especially important to protect. Winchester Creek is prime habitat Coho and understand the objectives of the SSNERR to protect the reaches for Coho spawning and other water quality and species benefit and support land exchange with Coos County to accomplish this long-term objective.

Similar to our comments about the Reserve, the Tribe is concerned that communication with the Tribe respective to project development, especially early and ongoing engagement, will not occur if this land is exchanged with Coos County. We would appreciate if DSL and Land Board consider how to require communication with resident Tribes when land is transferred. We also have brought this up the case of the Elliott and it is in line with the state's desires to retain public access and conservation on lands in Oregon that were set aside for this purpose.

In conclusion, we appreciate the ongoing communication and consultation on these issues and look forward to future meetings and conversations. If you have questions or would like to discuss more please contact Margaret Corvi at 541-435-7151 or mcorvi@ctclusi.org.

Sincerely



Doc Slyter
Tribal Chair

cc: Land Board

Visitor Center Forest Enhancement Plan

SUBJECT

Request for approval of forest management surrounding the South Slough Reserve visitor center to improve defensible space and increase wildlife habitat. Approximately 2 Acres in Township 26 South, Range 14 West, Sec. 23, Parcel No. 1500.

ISSUE

Whether the Commission should authorize tree removal in the area surrounding the South Slough Reserve visitor center.

AUTHORITY

ORS 273.553; relating to the management policy of the Reserve and the authority of the Management Commission to limit public use

ORS 273.554; relating to the authority of the Management Commission to conduct day-to-day operation and management of the Reserve

OAR 142-010-002(11); relating to tree removal from the Reserve lands with the approval of the Management Commission

SUMMARY

South Slough Reserve has funding to enhance the area around the visitor center. This forest is largely impenetrable, visually restrictive, provides little biological value for wildlife and poses a serious fire risk to the visitor center. The objectives of this management are to reduce fire risk, improve forest health, increasing biological and educational value and re-establish a visual connection with the South Slough estuary.

The work includes removal of trees, planting native ferns, forbs and flowering shrubs, establishing snags (standing dead trees) and installing nesting boxes for wildlife, and removing debris. Tree removal includes 1) thinning of overcrowded forest to improve defensible space and forest health within 200 ft of the visitor center, 2) creation of a forest gap to increase wildlife habitat and 3) increase the visual connection between the visitor center and the South Slough Estuary.

RECOMMENDATION

South Slough Reserve recommends that the Commission authorize the management of the 2 Acre area surrounding the South Slough visitor center in Township 26 South, Range 14 West, Sec. 23, Parcel No. 1500.

APPENDIX

Visitor Center Forest Enhancement Plan



VISITOR CENTER

FOREST ENHANCEMENT PLAN



Alice Yeates

South Slough National Estuarine Research Reserve

August 2019



1 Introduction

The South Slough Visitor Center is a focal point, where over 10,000 visitors access the Reserve annually. Due to its accommodation for all hiking levels and proximity to the visitor center, the ten-minute trail is a highly utilized resource and provides a unique opportunity for visitors to learn about and appreciate South Slough Reserve. Due to past forestry actions, followed by minimal forest management, much of the area surrounding the visitor center and the ten-minute trail is currently dense regrowth conifer forest (approx. 30 years old). This forest is largely impenetrable, visually restrictive, provides little biological value for wildlife and poses a serious fire risk (Fig. 1). When the visitor center was originally built, clear-cut forest enabled a view of the estuary (Fig. 2) and maintaining a viewshed was an important component of the South Slough 1991 Facilities Master Plan (see excerpt in Appendix A). The current improvement plan outlines the management of the area surrounding the visitor center to achieve the following objectives: reduce fire risk to the visitor center, improve forest health, increase biological and educational value and to re-establish a visual connection with the South Slough estuary. This plan outlines the potential management actions; however, we will assess our objectives throughout the project and minimize tree removal where possible.



A single gap in adjacent forest limits connection to the estuary with views blocked by 100% crowns and surrounding forests.

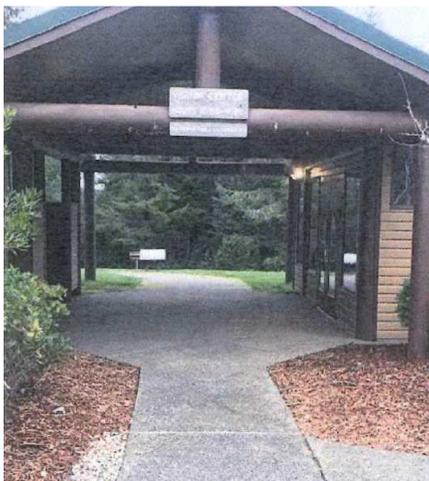


Fuel accumulation and poor defensible space in forests adjacent to the visitor center increases fire risk.



Dense forest stands have poor diversity and limited resources for wildlife.

Figure 1: Current forest conditions



Current views (2019) blocked by 100% crowns and dense forest



A 1994 image, following clearcut, shows potential view from visitor center

Figure 2: Current and past views through the visitor center covered walkway leadings to the main building entrance (right) and path that leads to education classroom.

2 Management zones

Based on management objectives, the target area is divided into two zones: Inner Zone and Outer Zone (Fig. 3). The Inner Zone is the area extending 100 ft from the visitor center and the primary objectives within this zone are to improve defensible space from wildfires and establish a visual connection with the estuary. A sub-section within this zone (additional management) will undergo additional management in order to meet the latter objective. The Outer Zone extends up to 200 ft from the visitor center and includes the ten-minute trail. The primary objectives of this area are to slow wildfires, increase the biological and educational value along the ten-minute trail and establish a visual connection with the estuary. The Outer Zone is sub-divided into three management sections: North, Ravine and South. A map of the management areas can be found in figure 3.

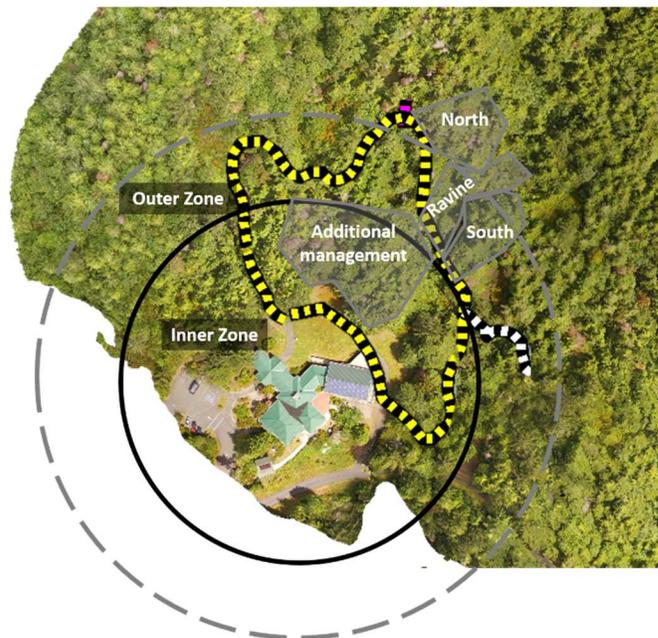


Figure 3: Aerial image of South Slough Visitor Center and adjacent forest. Banded lines show the location of the ten-Minute Trail (yellow/black), and intersections with North Creek Trail (pink/black) and Middle Creek Trail (white/black). Management areas include the Inner Zone (within black circle) with an additional management sub-section and the Outer Zone (within grey dashed circle) with three sub-sections (North, Ravine and South). The north section lies outside the Outer Zone however is associated with it for simplicity.

3 Reduce Fire Risk and Improve Forest Health (Inner Zone)

Management Directive

“management activities will replicate the functions that produce...late successional or old growth forests.”
(Robinson 2009)

The goals for the Inner Zone are to promote development of mature conifer forest (approx. 50 trees/acre) with an open understory which reduces fire risk, enables access and provides a fragmented view of the slough (Fig. 4). Due to the age of trees and the current density (over 360 trees/acre) in this area, thinning forests to this

desired density during a single event

would most likely result in shock of remaining trees and reduce their resilience to disease and wind throw; thinning should therefore be in stages. By following good defensible space practices, we can reduce the risk of fire to the visitor center and provide a demonstration area for defensible space workshops. Oregon State University (OSU) Extension’s guidelines for defensible space and fuel reduction (Bennett et al. 2017) specify that the area surrounding a structure (100 ft on flat ground, 200 ft on steep slopes) should be maintained in the following way:

- *“Remove dead fine vegetation, including dead shrubs, fallen branches, thick accumulations of needles and leaves, etc.*
- *Thin out dense patches of trees and shrubs to create separation between them in order to slow the spread of fire.*
- *Reduce ladder fuels by removing low tree branches and shrubs growing directly under trees.*
- *Remove invasive weeds such as blackberries, cheatgrass, and Scotch broom.”*

Outreach Opportunity

Opportunity for SSNERR Coastal Training Program to partner with OSU Extension

The visitor center sits atop a ridge on a relatively flat shelf. Due to the surrounding topography, forest within 100 ft (Inner Zone) of existing buildings should be managed to reduce fire risk on a regular basis and an additional 100 ft beyond this (Outer Zone) should be managed to slow fire movement (see section 4.1 for details).

3. 1. Inner Zone management actions

The following actions are recommended for forests within the Inner Zone:

- a) Forests will be thinned to the density of 200 trees/acre. Leave trees (i.e. not removed) will be determined by size and health of tree (e.g. larger DBH and larger crowns), spacing between leave trees (approx. 15 ft) and opening of the viewshed. Additional thinning required in 5-10 years to achieve mature forest stem density.
- b) Remove all Port-Orford-cedar (*Chamaecyparis lawsoniana*). This species is currently stressed and are dying off due to the root disease, *Phytophthora lateralis*. We will continue to plant disease resistant individuals throughout the Reserve to replace these trees.
- c) Remove standing dead trees.
- d) Remove accumulated woody material from the ground. Leave any large, biologically important logs in place and clear smaller debris from around them.
- e) Reduce ladder fuels. Prune lower limbs, approximately 10ft above the ground for large trees and up to a third of the live branches at a time for smaller trees. Stagger heights to create a more

“natural” aesthetic and improve view in target areas. Prune conifers in Autumn/Winter (Nov/Dec) and do not damage the branch collar.

- f) Fragment the continuous shrub layer. There is currently a near continuous shrub layer surrounding the visitor center. Up to 80% of the shrubs in this area will be removed and remnants will be disconnected; this will allow for re-growth to occur before maintenance is required. Shrub removal will be targeted to areas under and adjacent to leave trees.

3. 2. Inner Zone (Additional Management Area) management actions

A 0.24-acre sub-section, within the Inner Zone, will receive the following additional management actions:

- a) Thinning of larger trees to 75 trees/acre residual density. This section has approximately 130 small trees (< 10cm DBH) and 87 large trees (37% Sitka spruce, 32% Port-Orford-cedar and 26% western hemlock, 5% other). Thinning to the proposed density will result in 19 large trees remaining in this sub-section, with a mixture of Sitka spruce, Douglas fir and western hemlock.
- b) Removal of all shrubs.
- c) Planting with sword ferns and other native ground cover plants where available. Maintaining an open understory.



Current conditions



Desired conditions

Figure 4: Photographs showing the current (2019) forest conditions within the Inner Zone, additional management area and a reference site showing the desired conditions.

4 Increase biological and educational value (Outer Zone)

Proposed management of forests within the Outer Zone will focus on thinning the forest and creating gaps to slow fire movement and to increase the diversity of community types, wildlife habitats and food plants for biological and educational value. Additional management in the Outer Zone is suggested for three areas (Fig. 3): 1) north of ravine, 2) along ravine and 3) south of ravine.

4.1 Outer Zone management actions

Dense forests will be thinned to 200 trees per acre to slow fire movement and promote development of old growth forests. Leave trees will be characterized by larger stems and crown size, along with their

proximity to other leave trees (approx. 15 ft spacing). Additional thinning in 5 years is recommended for improving forest health and reducing fire risk.

4.2 Northern area management actions

Minimal management is proposed for this section and is limited to the creation of snags (standing dead trees) from the tallest trees. Snags are important wildlife habitat and creation of these will replace the removal of snags within the Inner Zone. Removal of dense foliage in this area will increase the viewshed corridor between the visitor center and South Slough estuary. Up to 10 large trees will be girdled and left standing in place. These trees have been identified from a drone map showing crown elevations likely to restrict views beyond the Inner Zone (Appendix B; created by Earth Design Consultants). Growth of neighboring trees are likely to limit the view to the estuary and future actions may be required to maintain a view corridor; however, due to impacts on tree health and aesthetics topping trees is not recommended.

Educational Opportunity
Look beyond the trail to a biologically important feature in the landscape

4.3 Ravine area management actions

Establishing low growing hardwoods and shrubs in this area will promote a view corridor, by slowing the re-establishment of tall conifer species, and will add diversity for both education and wildlife benefit. Hardwood species naturally occur in riparian areas and currently represent only 2% of the Reserve's forest. Large conifer species and tall hardwoods (e.g. red alder [*Alus rubra*]) in this ravine will be felled and left in place to increase habitat complexity. Sparse plantings of low growing native hardwood species will replace any felled trees within this drainage. A list of suggested species can be found in Appendix C.

4.4 Southern area management actions

Ecological Importance
Forest gaps, with early successional communities, are a naturally occurring and important component of the landscape and are infrequent in forests regenerating after logging. (Hagar 2007)

This 0.17-acre stand is currently a dense, closed canopy forest and blocks the north-easterly view of the Slough (Fig. 5). The area has approximately 80 small trees (<10cm DBH) and about the same number of larger trees, which are predominantly Port-Orford-cedar. Proposed management of this section includes the felling of all conifer trees followed by planting

flowering shrubs. Plantings will target desired native species and serve to increase diversity as surrounding shrubs naturally colonize this area. A list of suitable plant species can be found in Appendix C. This area will become a pollinator and wildlife hotspot and increase the appeal of the adjacent gathering area to visitors and education groups. Installing native bee and bird boxes (e.g. purple

Collaboration Opportunity
Local stakeholders, such as ODFW, citizen science groups and both the education and science teams can work together to establish and monitor purple martin populations.

martin, tree swallow) with small informational signs will increase the biological and educational value of this area. A forest gap adjacent to a ravine, such as this, is suitable habitat for purple martin and other avian species, which require an open area (min. of 40-60 ft to nearest tree; Purple Martin Conservation Association). Purple martin, an Oregon Conservation Strategy Species, experienced a population crash in South Slough following the 1970's and were not present in a 1998 survey (Joe Metzler pers. comm. 7/29/2019). Due to conservation efforts, South Slough currently has 5 nesting pairs, however their current nesting sites (boxes on slough side pilings) is at risk from decay. Purple martin boxes will be placed on the north eastern section of this gap, to utilize the natural opening of the ravine, thus minimizing gap size requirements. In addition to boxes a few large snags will be left in and near the gap to promote natural nesting sites. Snags will be limbed (2-3 ft lengths) and topped for ideal nesting conditions. Establishment of flowering shrubs in this area will mitigate the impacts of removing these species from the Inner Zone.



Current conditions



Desired conditions

Figure 5: Photographs showing the current (2019) forest conditions within the Outer Zone - South and desired conditions (clockwise from top left: evergreen huckleberry, flowering red current, salmonberry and salal).

4. Re-establish visual connection (Inner and Outer Zones)

Due to its location on a ridge top and restricted visibility, a large number of the people who stop at the visitor center never see the slough of South Slough Reserve. By implementing the management actions outlined above, we will maximize the visitors experience and increase the viewshed along three pathways (Fig. 6). In addition to these actions, removing select trees adjacent to the current gap (Fig. 1) will widen this viewing area. Maintaining a viewshed in a growing forest will require long term maintenance; the original facilities master plan (1991) suggests a five-year interval. Maintenance includes limb lopping of lower branches, thinning and restricting shrub re-growth in the Inner Zone, and preventing colonization of conifers in key areas of the Outer Zone.

1991 Facilities Master Plan
"Thinning and cutting should be performed to produce a "natural" appearance, allowing filtered views through small groups or individual trees rather than along sharply defined corridors." p. 27

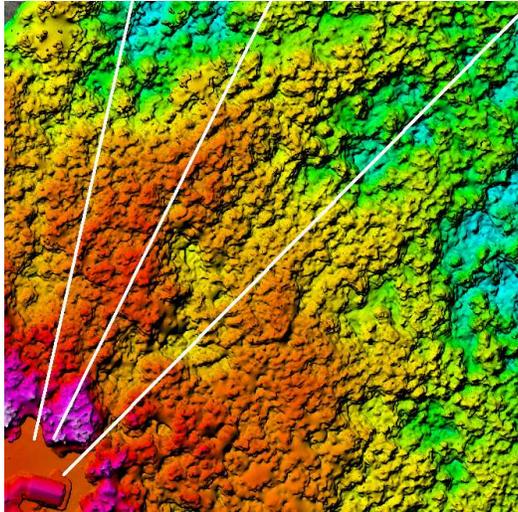


Figure 6: Above - heat map showing elevation of canopy relative to visitor center lawn with approximate view pathways (lines). Right - view pathway lines extended to South Slough. Front page - photograph looking north east at 40 ft above visitor center lawn. Heat map and photograph by Earth Design Consultants.

5. Managing debris from proposed actions

Common forestry practices suggest several potential slash removal methods, which have different restrictions and impacts on a site. After considering the limited access for large machinery (e.g. for mastication), importance of aesthetics, need for fuel reduction (Inner Zone), establishment of desired native species and reduction of negative impacts, such as erosion and invasive species establishment, the following methods are recommended:

Inner Zone: Small stemmed trees and branches of felled trees will be chipped and left in place, while large stems will be cut and removed.

Outer Zone – South: Small stems and branches of felled trees will be chipped and left in place, while many large stems will be left in place to create nurse logs and wildlife habitat. At the outer edge of the gap (away from the trail) small piles of debris will either be left for vegetation to grow over or covered and burnt during the wet season. To increase aesthetics, and reduce material on site, select logs will be cut and removed from the site.

6. Safety precautions

This work has a narrow timeframe, with grant completion by December 2019, however safety is a top priority. Work will be timed to minimize disruption to Reserve programs (e.g. school watershed hikes) and risk to the public. The appropriate section of the ten-minute trail will be closed, and the lawn area will be cordoned off during the work. Teams with appropriate experience and lead by trained

professionals will carry out the work and a Reserve Staff member will be on site throughout project completion.

7. Outreach and signage

Following approval by the commission, staff will:

- advertise and conduct an information session at the visitor center (September/October 2019), and
- post temporary signage prior to management, which will remain in place for one-year post management. These signs will include project objectives, rationale and timeline.

8. Timeline

June 2019: First technical advisory group meeting, attended by: Alice Yeates (SSNERR), Alexa Carleton (Coos Watershed Association), Norma Kline (OSU Extension), Greg Erb (ODF), Tristan Huff (BLM) and Ryan Singleton (DSL).

July 2019: Staff advisory group meeting, attended by: Alice Yeates, Eric Dean and John Bragg. Draft proposal sent to the technical advisory group, Coquille Indian Tribe, Confederated Tribes of the Siletz Indians, the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians and Reserve staff for review.

August 2019: Incorporate comments from the advisory group and staff. Received approval from the Coquille Indian Tribe and Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians to conduct work in this area.

August 29th, 2019: Present proposal to Commission.

September/October 2019: Organize contractors and work crews. Conduct public outreach.

Early November – Inmate work crews cut small trees and remove debris.

Late November/early December 2019 – Contractor fells large trees.

Late December 2019: Inmate work crews to cut small trees, remove debris, prunes lower branches

31st December 2019: Close grant

Resources

Bennett, M., S. Fitzgerald, A. Jones and K. Baylog (2017) A defensible space and fuel reduction guide for homeowners and landowners. Oregon State University.

<https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/em9184.pdf>; accessed May 29th 2019.

Hagar, J. (2007) Wildlife species associated with non-coniferous vegetation in Pacific Northwest conifer forests: A review. *Forest Ecology and Management*, 246(1):108-122.

Purple Martin Conservation Association; <https://www.purplemartin.org/purple-martins/attracting/>; accessed July 14th 2019.

Robinson, J. 2009. Upper Watershed Restoration Action Plan. South Slough national Estuarine Research Reserve, Charleston, OR. 107 pp.

Withrow-Robinson, B. and D. Maguire (2018) Competition and density in woodland stands. Oregon State University Extension Service.

<https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/em9206.pdf>; accessed August 12th 2019.

Appendix A

Page 27 of the 1991 Facilities Master Plan: South Slough National Estuarine Research Reserve

VIEWSHED

Previous logging activity has created viewing opportunities of the estuary from a number of upland locations. An excellent viewshed now exists from the Interpretive Center to South Slough that includes Valino Island.

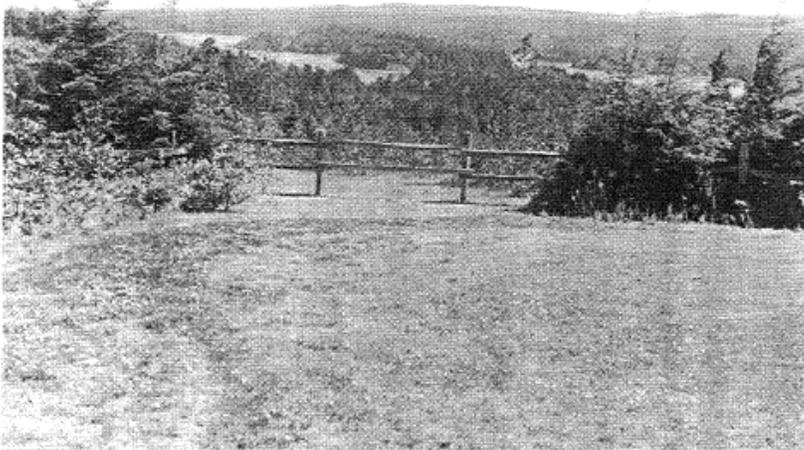
RECOMMENDED ACTION:

The views from the Interpretive Center to South Slough should be preserved through creation and maintenance of view corridors. Viewing alignments accomplished through selective topping, pruning and clearing of trees and major vegetation within these corridors. A more thorough and precise site analysis beyond the scope of this report should be performed to determine the number and character of the view corridor(s).

The corridor(s) should be monitored by the SSNERR staff and "managed" on a five-year interval. In addition, consideration should be given to the appearance of the view corridor(s) appearance from the water.

Thinning and cutting should be performed to produce a "natural" appearance, allowing filtered views through small groups or individual trees rather than along sharply defined corridors.

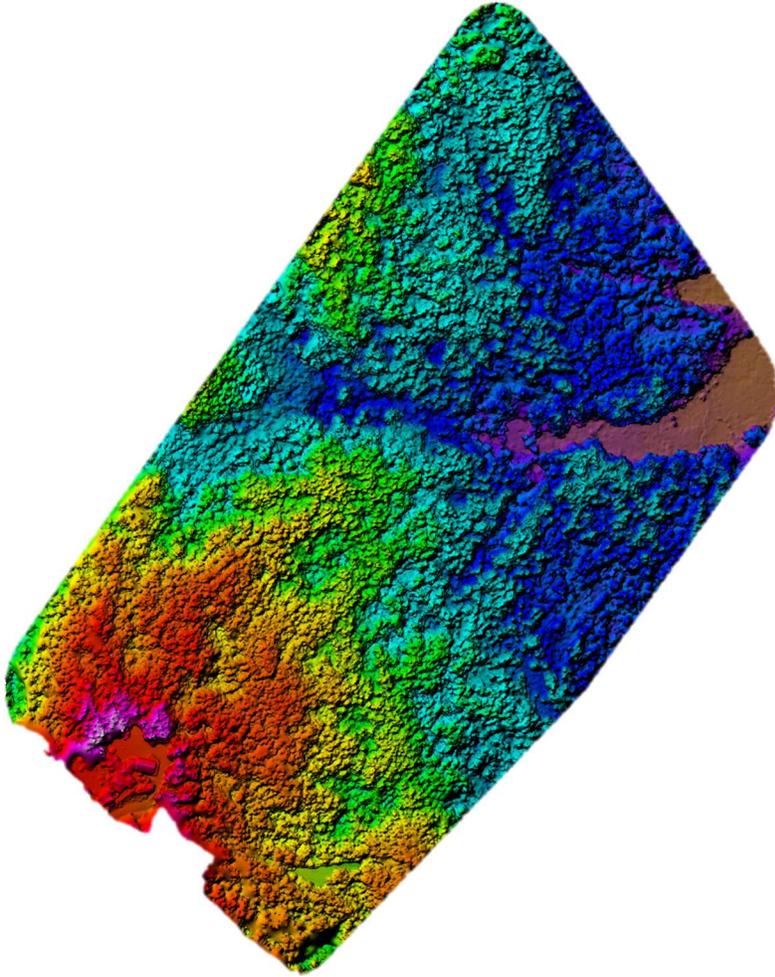
Viewing positions should be obvious and clearly identified through observation sites and discrete signage at the Interpretive Center or along trails.



View of South Slough and Valino Island from Interpretive Center

Appendix B

Digital surface heat map created by Earth Design Consultants from drone imagery showing elevation of upper surfaces (e.g. buildings, canopies, mudflats). Visitor Center is in the lower left corner and Slough Side Pilings Marsh in upper right. Colors indicate elevation relative to launch site (lawn at visitor center), with approximate elevations as follows: orange = 0 ft, red = 30 ft and bright pink = 40 ft above launch site. All other colors have surface elevations below launch site.



Appendix C

Table 1: Lists of plant species including their common name, Latin names and abbreviated Latin names. Lists include tree species currently present in the Inner Zone – additional management sub-section and the ground cover species to establish in this section, and shrub species to be planted or allowed to colonize the Outer Zone – South and Drainage sub-sections. Culturally important species will be incorporated where appropriate.

Common Name	Latin Name	Abbreviated Latin	Notes
Current tree species (Inner Zone – addition management)			
Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	<i>C. lawsoniana</i>	Remove all
Douglas-fir	<i>Pseudotsuga menzeseii</i>	<i>P. menzeseii</i>	
Sitka spruce	<i>Picea sitchensis</i>	<i>P. sitchensis</i>	
Western hemlock	<i>Tsuga heterophylla</i>	<i>T. heterophylla</i>	
Shore (Lodgepole) pine	<i>Pinus contorta</i>	<i>P. contorta</i>	
Potential ground cover species to establish (Inner Zone – additional management)			
Western columbine	<i>Aquilegia formosa</i>	<i>A. formosa</i>	Plant
Western swordfern	<i>Polystichum munitum</i>	<i>P. munitum</i>	Plant
Oregon fawn lily	<i>Erythronium oregonum</i>	<i>E. oregonum</i>	Plant
Western bleeding heart	<i>Dicentra formosa</i>	<i>D. formosa</i>	Plant
Potential shrub species to establish (Outer Zone -South)			
Kinnikinnick	<i>Arctostaphylos uva-ursi</i>	<i>A. uva-ursi</i>	Plant
Coyotebrush	<i>Baccharis pilularis</i>	<i>B. pilularis</i>	Plant
Salal	<i>Gaultheria shallon</i>	<i>G. shallon</i>	Colonizer
Oceanspray	<i>Holodiscus discolor</i>	<i>H. discolor</i>	Plant
Oregon grape (compact)	<i>Mahonia aquifolium</i>	<i>M. aquifolium</i>	Plant
Oregon grape (cascade)	<i>Mahonia nervosa</i>	<i>M. nervosa</i>	Plant
Pacific waxmyrtle	<i>Myrica californica</i>	<i>M. californica</i>	Plant
Red-flowering currant	<i>Ribes sanguineum</i>	<i>R. sanguineum</i>	Plant
Salmonberry	<i>Rubus spectabilis</i>	<i>R. spectabilis</i>	Plant
Trailing blackberry	<i>Rubus ursinus</i>	<i>R. ursinus</i>	Plant
Evergreen huckleberry	<i>Vaccinium ovatum</i>	<i>V. ovatum</i>	Colonizer
Red huckleberry	<i>Vaccinium parvifolium</i>	<i>V. parvifolium</i>	Plant
Shrub species to establish (Outer Zone – Drainage)			
Cascara	<i>Rhamnus purshiana</i>	<i>R. purshiana</i>	Colonizer
Pacific rhododendron	<i>Rhododendron macrophyllum</i>	<i>R. macrophyllum</i>	Plant

Administrative/Facilities Report

Staff: Bree Yednock, Reserve Manager
Rebecca Muse, Operations Manager
Michael Allman, Facilities Lead
Jonathan Forth, Park Ranger Assistant
Patrick Juarez, Procurement/Contract Assistant
Katherine Andreasen, Administrative Assistant
Ed Oswald, Information Systems Technician

Administrative

Attached are the state budget reports for the 2017-19 biennium through May 2019.

In May 2019, SSNERR was awarded the FY19 Land Acquisition and Construction grant (PAC grant/NOAA funding + match: totaling \$220,000), which will fund projects at the Maintenance compound. Projects include expanding the maintenance compound, construction of a pole barn to house paddle crafts, update and replace the siding on the main maintenance building and then add an RV pad adjacent to Maintenance for an on-site volunteer host. This funding started July 1, 2019.

Staff submitted the Reserve's FY19 NOAA Operations Award application in April. The FY19 award started July 1, 2019 which included funding at \$774,133 which is \$84,133 more than FY18. With a portion of this additional money, we will begin to lay the groundwork for the Davidson Fellowship program which is a nationwide NOAA funded fellowship. Also included in this year's operation award is funding for the completion of the deck replacement at the Interpretive Center (specifically the membrane decking over the classroom entrance), a new gate opener for the access road to Big Cedar trailhead, upgrading our weather station the Interpretive Center and adding an HVAC system to the downstairs storage room which houses our IT servers.

The Operations Award monies cover salaries, travel to annual meeting, supplies and special projects.

We have finally hired a new Stewardship Coordinator! Welcome Alice Yeates.

We also hired our new Seasonal Education Specialist position which is a newly authorized position with state funding. This position will support our Spring, Summer and Fall science camp and school programs. Welcome Daniel Dobrosielski! We also received another newly funded position with state funding which will be for a part-time GIS Data Management/Analysis position. Recruitment for this position will start in the late fall due to scheduling.

Facilities

Spring/Summer has been busy for maintenance/facilities staff due to the renovation on Spruce Ranch.

Spruce Ranch work included remodeling the kitchen, full paint job throughout the house, updating HVAC, electrical and then new lighting throughout. Staff picked up most of the supplies in January which included some new appliances, new kitchen cabinets, new lighting for entire house and plumbing fixtures for the kitchen. Pest inspections/exclusions, crawl space cleanup and new insulation in the ceiling was also completed. Spruce Ranch has officially been completed and interns started moving in the first week of June.

In May we were able to contract with a local excavating company to remove 2 derelict buildings – Salal Cabin and the Green “Burbee” building off Seven Devils Road. Both buildings were in bad shape and had become a hazard. All materials were removed from both sites except for a concrete slab on the Burbee site (to not disturb the soils). Both sites will be allowed to go back to nature.

In June, we received our new skiff. This boat was funded with various sources that included NOAA, NANOOS as well as match to the NOAA portion. This was a much-needed upgrade to our old skiff which was very well used and in need of replacement.

In June, the maintenance building roof was also started. This project was funded by NOAA. The old leaking roofing was replaced with metal roofing that also is helping with energy efficiency due to lighter color and reflecting heat. During certain times of the year, the maintenance building would get very hot, almost to the point that staff could only work in certain areas of the building due to the heat. Since the roof has been completed (early July), the temperature in the building has decreased significantly.

Another addition to our fleet of vehicles that support Reserve programs is our newly acquired Nissan 12 passenger van. This was funded by State funds in May 2019. This vehicle will be used to support the education programs which include summer science camp, school programs and interpretive programs, and other program needs in the off-season.

SSNERR Education Program update

Staff: Jaime Belanger, Education Coordinator/Lead
Eric Dean, Education Specialist
Deborah Rudd, Public Involvement Coordinator
Daniel Dobrosielski, Seasonal Education Specialist

March 1, 2019 – July 31, 2019

Reserve education program attendance, outreach and visitation vary seasonally. The March – July reporting period captures the busiest season for the Education sector. During this busy season education staff focus primarily on designing, scheduling and implementing programs. Formal education programs, including field trips to the Reserve, classroom visits by Reserve educators and teacher professional developments, are highly sought after by teachers in the second half of their school year. Summer weather and tourist season increase the need for interpretive programming, information tables at festivals and events and boost visitation numbers to the visitor center. Once the school year ends, the education team delivers 5 weeks of science day camps through the summer for kids ages 5-18, and numerous college and high school students join the Reserve science and education programs for internships. Between March 1 and July 31, the Reserve education program hosted 1 spring and 6 summer interns.

Staff training and innovations

On July 9, 2019 the education team was able to hire Daniel Dobrosielski to the new position of seasonal educator. The seasonal educator will join the education team from mid-March to mid-October each year. Before accepting the position, Daniel had completed an internship with South Slough and was able to transition smoothly into the new position and began immediately contributing to education initiatives. During his spring internship, Daniel designed a new interpretive program that was hosted at a partner site, the Charleston Marine Life Center, and he will continue to work with that partner to schedule future programs. He also began a project that he has expanded this summer called “junior researcher,” which encourages a more in-depth learning experience for children visiting the Interpretive Center outside of schedule programs.

In the spring, South Slough was awarded a \$ 10,000 from the U.S. Forest Service to conduct a citizen science project studying native lamprey species. Deborah Rudd, the Public Involvement Coordinator, worked closely with the Research Coordinator, Shon Schooler, to outline the project and apply for the grant. This summer Deborah and the science team have been developing a network of citizen scientists and testing several techniques for obtaining Environmental DNA (eDNA) samples in targeted areas of the Siuslaw National Forest south to the South Slough Estuary for native lamprey species. Environmental DNA (eDNA) is one technique that can help us obtain species-specific lamprey data to aid in the development of accurate fish distribution maps. If these methods are successful, the reserve is eligible to apply for a second year of funding.

Jaime Belanger, the Education Lead, completed Leadership Coos training in May. Leadership Coos is a 9-month program designed to identify and motivate emerging leaders and develop their potential for community leadership by exposing them to the realities, issues and opportunities of Coos Bay. The program provides important networking and outreach opportunities to promote the Reserve and its programs in the community.

Jaime also completed the interactive hybrid course “Oregon Coast Science Project: Phenomena, Talk and Formative Assessment for Equity.” The 20-hour course sought to build capacity and community for science leadership in Oregon by bringing together educators to engage in the deeper conversation of what it means to teach and learn science as envisioned by the Next Generation Science Standards.

Jaime joined the science team at the Eelgrass Recovery workshop hosted by Ali Helms, the Reserve Estuarine Monitoring Coordinator. Jaime is coordinating the outreach component of the capacity building grant Ali received to investigate South Slough’s eelgrass decline.

Jaime and Eric Dean, the Education Specialist, both participated in the National Estuarine Research Reserve (NERR) Education Sector virtual meeting in March.

In May, Jaime, Eric and Deborah attended the Oregon Outdoor Recreation Summit in Bend, OR. The summit was a unique opportunity for the education team to learn together and share

information from the sessions they attended. The team really appreciated the emphasis on equity, inclusion and diversity.

During this reporting period, Eric Dean attended a Pollinator Conference hosted by OSU Extension in Salem, OR and a workshop about Lichens and Bryophytes in the Opal Creek Wilderness.

Eric also renewed his Wilderness First Responder certification at a 3-day intensive training in the Opal Creek Wilderness in March. The WFR provides advanced wilderness medicine protocols and decision making that increase safety of the field programs Eric leads with school children and adults on trails and on the water.

Deborah and Eric provided 2 in-house kayak training days for summer staff and interns. South Slough provides training in general paddling skills and protocols, as well as self-rescue and assisted rescue for interns who will be using the kayaks during their summer work.

In July, Eric also provided a full-day kayak training for two Reserve partners, the Coquille and Coos watershed associations, who use kayaks to conduct some of their summer fieldwork.

Education Program Totals

Between March and July 2019, 4,031 people attended 94 different Reserve education programs. Those learning sessions resulted in 8,345 contact hours for a range of audiences. In addition to those 277 hours of programming, 203 hours were committed to program planning, development and reflection. These numbers include all types of education, interpretation, training and outreach provided by South Slough education staff.

Incorporating this period's walk-in visitors to the South Slough Interpretive Center, a grand total of 6,012 individuals learned about estuaries and coastal watersheds through Reserve education efforts. Education program data were also submitted to NOAA in July as one of the required performance indicators to the National Estuarine Research Reserve's (NERR) performance measures database.

Visitation and Visitor Services

2,277 visitors were counted entering the Interpretive Center during the spring and early summer of 2019. The building was open to the public from 10:00am – 4:00pm, Tuesday through Saturday for 108 days, with an average of 21 visitors each day. The Reserve does not have the capacity to track visitors outside of building hours, or those who use the trails without entering the building. Visitor numbers are consistent with the prior years' visitation during previous reporting periods. Visitation is highest during the summer season, while tourists are traveling along the coast and children are out of school.

Formal Education & Training

The Reserve classifies education program areas based on audiences and learning goals. Formal education includes any program provided to school children, undergraduates, graduate students or teachers and preservice teachers. Forty-six of these programs were delivered to 1,754 participants between March 1 and July 31. Students and teachers spent a total of 6,022 contact hours with Reserve educators, who committed an additional 67 hours to program preparation and conclusion. Programs were carried out on-site within the reserve, at field sites adjacent to estuary as well as at schools and classrooms in Coos Bay and North Bend. Lessons and trainings were taught by South Slough education staff, science staff, volunteers and partners.

Formal education audiences during this period ranged from pre-K to undergraduate college students, teachers and informal educators. The largest audience were elementary classes visiting the Reserve for field trips. Many of those classes were also visited by a South Slough educator prior to the field trip. Elementary students made up 93% of the 1,736 school children served this spring. Often schoolteachers prefer to bring their students out of the classroom for fieldtrips in the spring when they have finished state testing. This reporting period also includes the beginning of summer, when teachers are out of school and often more available to participate in professional development. The sustained dedication of education volunteers enables the Reserve to provide an extensive number of field programs for visiting school groups throughout the spring.

The Reserve offered a 3-day professional development opportunity for 9 teachers in mid-June. Teachers On The Estuary (TOTE) workshops are multi-day in-depth learning opportunities for classroom, pre-service and non-formal teachers that are offered at reserves around the nation. The summer workshop used the phenomenon of sea level rise to engage teachers in the factors driving climate change as well as methods for teaching about climate change in their classrooms. Educators from a variety of backgrounds and regions were in attendance. The Reserve is required to complete this task (TOTE) annually as a part of the NOAA grant funding and reported the data in the performance measures database. A representative from the NOAA office of Coastal Management joined the workshop to hear more about teachers' needs when talking with their students about sea level rise and other climate change issues. Evaluations indicate that the teachers were very satisfied with the professional development opportunity and look forward to future trainings. Follow-up evaluations are sent 6-months after TOTEs to capture information about how the materials and training have influenced teachers or students. Reviews from the February 2019 workshop show that teachers are very satisfied and are using some of the material delivered in that training.

The Reserve also joined the Coquille Watershed Association, OSU Extension and ODFW to deliver a Project WILD Aquatic training at the Coquille Elementary School in April. Teachers received training about watershed stewardship and salmon habitat restoration, a curriculum of hands-on, interactive lessons and water quality testing demonstrations.

Community Education, Interpretive & Outreach Activities

Interpretive programs were once again well-attended by community members. New, diverse programs continue to be added. During programs education staff make every effort to satisfy customer needs. Regular interpretive programs are offered, generally once a week on Saturdays, and provide exceptional ways for a variety of people from children to seniors to connect with South Slough. Forty-eight interpretive and outreach programs occurred during the spring and first half of summer. During the reporting period, 1981 people participated in activities ranging from plankton design challenges at the watershed festival to day and evening guided paddle tours

on the slough. A first-time oyster dissection program was offered targeting 6-10 year-old children and families in partnership with the U of O's Charleston Marine Life Center. Programs and activities were led on site at the Reserve, in other nearby natural habitats, and at event locations in nearby towns. There were 2,398 hours of contact time with customers and 136 hours of preparation time related to these activities.

The Friends of South Slough continues to use the website *Eventbrite* to facilitate program registration and payment for the interpretive programs not funded by the Reserve. This continues to save time and energy for Reserve staff, improve organization of the registration process and facilitate with data collection. The Reserve has added some questions to the registration that will help identify which advertising techniques are reaching people best. *Eventbrite* has also helped ensure that classes do not over-fill, leaving class participants without space or materials, and manage a waitlist for popular events.

At the end of June, the Reserve was able to purchase 4 sturdy sit-on-top kayaks for the public paddling programs. Starting in the summer of 2019, these kayaks will be available as rentals for people who want to attend a guided kayak tour on South Slough but do not have their own gear. This will help to meet a regular request from Reserve customers and allow the education staff to serve a wider audience; there are currently no other places in the region that rent kayaks, so the program was not accessible to everyone.

Public Involvement

Volunteers/Internships

An average of 31 South Slough Reserve volunteers logged 2,720 hours valued at \$67,157 between March 1 and July 31, 2019. The program category breakdown included 1,148 education, 1,407 research/stewardship, and 165 administration hours.

This spring the Reserve hosted one education intern funded through FOSS. Daniel Dobrosielski completed an Education Internship. Daniel has a B.A. in Theatre with a minor in Russian Language. He has experience working as both a substitute teacher and education instructor at various environmental and nature facilities.

During the summer, the Reserve was able to recruit both high school and college interns in both the science and education departments: 4 high school students and 2 college students are participating in education internships with the Reserve. Abbie Kirby, Preston Mosely and Kayla LaPlante are high school interns working with the summer science camp programs. Hannah Sinclair is a Sea Grant Summer Scholar in Oregon State University's Sea Grant funded internship program. Hannah is a college student from Brooklyn, NY who is working on an outreach project to enhance the Reserve's photo and video library. Hannah will produce at least one video story about current research being conducted by South Slough scientists. Ada Meyer is a NOAA College-Supported Intern, which is a program run by the National Centers for Coastal Ocean Science. Ada is studying at Carleton College in Minnesota and is working on developing and enhancing educational resources at the Reserve. She has worked on climate activities for teachers, several eel grass lessons and crafts, designed information cards for the Interpretive Center and contributed to all program areas. Both Hannah and Ada have also had opportunities to join the research and monitoring staff who are conducting summer fieldwork in the estuary. Three of the science interns, Madison Bowe, June Cho and Renee Heller have worked with summer education programs at various times during the summer. Madison Bowe created a new lesson plan for classroom teachers about sentinel site biomonitoring and measuring sediment accretion in the marsh using surface elevation tables.

Internships are available through the Friends of South Slough Reserve, Inc. (FOSS). The Reserve's Public Involvement Coordinator and FOSS volunteers are presently seeking funding sources for the 2019 internship season. Several fundraising events, corporate sponsorships and grants are the key means through which funds are being sought.

Friends of South Slough (FOSS) Board of Directors

FOSS will be presenting at upcoming Commission Meetings and have been sharing their concerns regarding the potential shifting management of the Reserve from the DSL. Otherwise, the FOSS Board is meeting only to conduct immediate business and day to day needs of the bookstore during the summer months. FOSS plans to continue moving forward with the strategic plan this fall.

The FOSS Board meets every fourth Tuesday in Charleston at the Port of Coos Bay Marina RV park facility from 3-4:30 pm. South Slough Reserve staff program leads also often attend the meetings to facilitate communication with our 501C3 FOSS partner.

Outreach/Marketing

A citizen science website is being developed for the Lamprey project that will host volunteer blog posts, photos, results and more. The site should be going live in the next few weeks. Social media and the online newsletter/calendar continue to be the primary sources people are hearing about Reserve programs. The bi-monthly newsletter schedule highlights Reserve projects and volunteers of the month.

Other means of outreach include radio and local publications. Fliers and event calendars are distributed throughout the community. Oregon Coast Magazine also publishes dates and times of Reserve Events. Bicoastal Media continues to host a free spot monthly on their “Hooked on Oregon” program. KCBY hosts the Public Involvement Coordinator for the “News at Noon” segments.

On August 20 an Expedia photographer will visit the reserve to capture images for their upcoming “Trips” page on their website. Public Involvement, with help from other staff, FOSS and/or volunteers also conducted outreach efforts like: art opening receptions featuring local artists, multiple intern and volunteer gatherings, and frequent attendance at the Coos Bay farmer’s market.

SCIENCE PROGRAM UPDATE

March 1, 2019 – August 29, 2019

Staff: Dr. Shon Schooler, Research Coordinator

Alicia Helms, Estuarine Monitoring Coordinator

Jenni Schmitt, Monitoring Coordinator

Adam DeMarzo, Monitoring Technician

Dr. Alice Yeates, Stewardship Coordinator

MONITORING

NERRS System-Wide Monitoring Program (SWMP)

Ali Helms and Adam DeMarzo continued to operate the water quality, weather, and nutrient components of SWMP.

SWMP Data: Science staff completed monthly field and lab work associated with the water quality, meteorological and nutrient long-term primary monitoring stations. This included monthly and quarterly station maintenance, data uploads, instrument cleanings and calibrations, and data submissions to the NERRS SWMP Centralized Data Management Office (CDMO) on time. Quarterly submissions for water quality and meteorological data from 2019 were submitted in May and August 2019 and annual submissions for water quality, meteorological, and nutrient were completed April, May, and June 2019. Data submissions include data that have undergone several levels of quality assurance and quality control (QA/QC) procedures, metadata development, calibration and field logs, and instrument and sensor inventories. Data reviews for 2017 water quality data were completed in April 2019 and those data are authenticated, having undergone tertiary review and are now available as final authoritative data. System-Wide Monitoring Program data for the SSNERR and all other Reserves are accessible online at <http://cdmo.baruch.sc.edu>.

The science staff completed monthly weather station maintenance, data downloads, and field logs for March - August 2019 at Tom's Creek marsh. The SWMP weather station (sostcmet) data are available at <http://cdmo.baruch.sc.edu/get/realTime.cfm>.

Science staff relocated the Charleston Bridge SWMP station in April/May 2019 due to the failing pier infrastructure. The new site is a nearby piling with boat access only. Deployments at the station resumed May 2019.

The science staff completed monthly collection, processing, and analysis for Total Suspended Solids (TSS), a nutrient parameter added to the routine SWMP nutrient dataset, for a NERRS Science Collaborative Sediment Hydrodynamic Model project.

The science staff completed monthly field deployments, retrievals, and calibrations for three Coos estuary SWMP water quality stations, and data were uploaded using the non-SWMP tool provided by the CDMO.

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.nvs.nanoos.org/Explorer.

CDMO Data Management: The Centralized Data Management Office (CDMO) is the technical support team dedicated to data management activities associated with the SWMP data collected at the 29 reserves. Recent activities of the CDMO include supporting the NERRS Science Collaborative data management activities, prioritizing SWMP data reviews, recapitalization for aging telemetry equipment by providing reserves with telemetry package options, updating the real time applications and improving data graphing and export systems.

The CDMO provides data hosting for secondary SWMP stations that are established and maintained in addition to the core primary 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, the station must be planned for long term monitoring (at least 5 years), and the station must follow all SWMP protocols and be reserve run in every respect. SSNERR has three water quality stations that may be eligible for secondary SWMP status in the future. Science staff currently utilize the non-

SWMP data upload service tool for the Coos estuary water quality stations to provide automated quality control and formatting for the monthly data files.

SWMP Status Reports: A NERRS national project to provide Annual Status Reports on water quality, nutrient, and weather summaries for each Reserve was completed. The CDMO will provide the R software package for download and will update files annually.

Estuary pH Monitoring: Ali Helms and Adam DeMarzo continued instrument cleanings, data downloads, and maintenance of the Sami $p\text{CO}_2$ and SeapHOx pH monitoring equipment near the Valino Island SWMP station. The CO_2 and pH sensors were retrieved from the water, cleaned of fouling, and data were downloaded monthly. Clean instruments were programmed and deployed the following day unless other maintenance issues interfered with redeployment. Discrete water grab samples were collected monthly at low and high tides, concurrent with SWMP nutrient sampling. Seawater table grab samples are also collected monthly to help with SeapHOx pH data calibration and data analysis. The grab samples are used to check sensor performance and calibrate the pH data. Grab samples are delivered to Oregon State University, Burke Hales lab for analysis of carbonate chemistry parameters.

Bacteria Monitoring: Staff continued monthly monitoring of fecal indicator bacteria (total Coliforms and *Escherichia coli*) at the four SWMP nutrient monitoring stations. The bacteria data are of interest for the Coos Bay Estuary Data Source, 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 SSNERR science lab for their monthly monitoring of fecal indicator bacteria (*Enterococcus sp.*) at four local beach sites (Bastendorff Beach, Lighthouse Beach, and two Sunset Bay locations: Big Creek and Sunset Bay proper).

Climate Reference Network: The NOAA Climate Reference Network station at Frederickson Marsh continued hourly data transmissions and staff completed maintenance for the station rain gauges. Data are available for this station (OR Coos Bay 8 SW) at <https://www.ncdc.noaa.gov/crn/current-observations>.

SeagrassNet Monitoring: SSNERR science staff completed quarterly eelgrass sampling at Valino Island in April and July 2019 using the SeagrassNet sampling protocol. SeagrassNet is an international monitoring program established to document the status and health of seagrasses. Eelgrass has been declining at these permanent monitoring plots since 2016 and science staff are working with an Eelgrass Advisory

Group established through the NERRS Science Collaborative Capacity Building project to understand factors that may be contributing to the declines in eelgrass in South Slough.

Northwest Association of Networked Ocean Observing Systems (NANOOS): The SSNERR 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>.

Ali Helms completed and submitted a progress report in June 2019 and a presentation for the annual Governing Council and PI meeting in August 2019.

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 sonde station in lower Coos Bay. The data are available to end-users through the NANOOS Visualization System (<http://nvs.nanoos.org>).

NERRS Sentinel Sites Monitoring: The NERRS Sentinel Sites program pairs the long-term water quality and water level data collected at SSNERR's SWMP sites with data quantifying other factors (e.g., marsh elevation, plant community, vertical accretion, soil salinity, groundwater level) to help interpret long term changes in emergent marsh plant communities and eelgrass beds.

Science staff completed summer 2019 field collection of biomonitoring and sediment dynamics components at six of nine Sentinel Site marsh sites and four eelgrass sites. Water level and temperature loggers were deployed in January 2019 at the six Sentinel Sites where summer marsh monitoring occurred, and data has been downloaded quarterly.

Jenni Schmitt continues to collaborate with several other Reserves who are analyzing effects of crabs in marshes based on data collected at our Sentinel Sites last summer. This is part of a comparative study in collaboration with 15 other NERRs to characterize crab distributions, abundance, and community composition across different regions and latitudes. A manuscript was accepted by the journal *Ecology* in June 2019.

A water level sensor will be deployed in Winchester Creek, near the Hidden Creek marsh sentinel station to collect high-precision (mm) water level data to meet requirements of the South Slough's Reserve Sentinel Sites project goals. The water level logger will be directly correlated with elevation using the Global Navigation Satellite System (GNSS) network by surveying it to five deep rod benchmarks, following Center for Operational Oceanographic Products and Services (CO-OPS) guidelines. Science staff are working with Wes Sessoms at AquaTrak Corporation to exchange the original sensor (Model 6102) for a different model (5002) to accommodate telemetry equipment for future data management and incorporation in the NANOOS Visualization System. The Reserve is working with Chris Mitchell (Hudson River NERR, NY) and Nina Garfield (NOAA Office for Coastal Management) for the tide gauge installation support in October 2019.

Wasson Watershed Monitoring: Science staff have nearly completed baseline monitoring of the Wasson Creek lowlands, in preparation for anticipated restoration work. Science staff are scheduling elevation surveys of approximately 20 groundwater wells at Wasson and nearby Tom's Creek (which serves as a reference site) in fall 2019. Staff deployed water level data loggers into eight groundwater wells at Wasson and Tom's Creek in May 2019. As funding becomes available, staff will continue to purchase depth and temperature loggers to place inside each well for hydrology information.

Indian Point Monitoring: Science staff and interns completed the 3rd annual population survey of the endangered western lily. They also collected biomonitoring data on tree, shrub and herbaceous plant plots in both the control and treatment sites in June 2019. Staff continue to collect water level and temperature groundwater data at the site in order to gauge how tree thinning affected groundwater levels in the treatment area. Groundwater data are retrieved quarterly.

Lamprey Monitoring: South Slough watershed hosts at least two native species of lamprey; however, we do not have adequate data to evaluate the status of lamprey anywhere in the Coos watershed. Beginning in 2016, science staff began to collect data to understand which streams in the South Slough watershed contained lamprey using lamprey electro-shocking units. Staff surveyed all the major freshwater tributaries of Winchester Creek, providing a general understanding of presence/absence for each tributary. In summer of 2018, staff and partners set up permanent plots at three locations on Winchester Creek to help determine status and long-term population trends of each species. Staff also completed range limit extent surveys on the four major arms in Winchester Creek. Staff revisited the permanent plots August 2019.

In addition, SSNERR staff are using eDNA techniques to look at upland range extent of lamprey on West Fork Winchester and Wasson Creeks and gain a better understanding of how that technique works for

lamprey (juvenile lamprey burrow into stream sediments and therefore eDNA might not be sensitive enough to capture lamprey signals). Water samples were collected in June and July 2019 and were sent to the USDA-USFS National Genomics lab in Missoula, Montana. Results indicate; 1) Pacific and western brook lamprey are present in most of West Fork Winchester and Wasson Creeks, and 2) the results from this method agree with results from previous surveys. Therefore, this technique works expected and the Reserve is leading a citizen science project (funded from a USDA-USFS grant) that will start to map lamprey species distributions in south coast Oregon watersheds. Lead Scientist Shon Schooler presented the Reserve's most current lamprey findings at the American Fisheries Society's Oregon Chapter meeting in early March and Jenni Schmitt presented to the Pacific Estuarine Research Society in April 2019. Schooler and Schmitt are part of a statewide Lamprey Technical Workgroup.

RESEARCH

SSNERR Projects

Invasive European Green Crabs in the Coos Estuary: This year marks the fourth year of research on European green crabs in the Coos Estuary, including South Slough. The overall goals of the work are to: 1) compare the relative abundance of green crabs in the estuary across years and locations, 2) examine linkages between environmental conditions and green crab abundance, 3) study the potential impacts of green crabs on native crab species, 4) better understand the life-cycle of green crabs in Oregon estuaries, and 5) generally reduce green crab abundance through consistent and repeated sampling. This June through August, Dr. Shon Schooler and student interns (Renee Heller, Luke Donaldson, Liam Hunt) sampled over 60 sites in South Slough and around the Coos Estuary. Over 750 green crabs were trapped, measured, and removed. As a part of this project we are testing prey preference of red-rock crabs in sea-water tables at OIMB, to determine whether they prefer the native Dungeness crabs or invasive green crabs. Preliminary results indicate a preference for Dungeness crabs over green crabs using pairwise tests of same size (carapace width) prey crabs. Partners for this on-going work include Oregon Sea Grant, Oregon State University, University of Oregon, Oregon Department of Fish and Wildlife, Pacific States Marine Fisheries Commission, and Friends of South Slough Reserve.

European Green Crab Control Methods: Reserve staff continue to collaborate with researchers at Oregon State University and the University of Hull (U.K.) to test the use of sex pheromones as a novel tool for green crab control. Species-specific pheromone "bait" has been tested in multiple Oregon estuaries, including the Coos, and is showing promising results in targeting green crabs when pH and water temperatures are favorable. Shon Schooler and collaborators have submitted a proposal to Oregon Sea Grant to continue this work in 2019-2022, however this proposal was not funded. We are currently searching for other funding opportunities.

DNA Methods to Monitor Invasive Species and Biodiversity in Estuarine Systems: The Reserve is partnering on a research project funded through the NERRS Science Collaborative to use DNA collected from environmental samples (known as eDNA) to characterize fish biodiversity in estuaries. The project includes researchers from University of New Hampshire and from the Great Bay (NH), Apalachicola (FL), He'eia (HI), Hudson (NY), and Wells (ME) NERRs. We tested methods in 2018. In 2019 we created a sample design to look at the most effective method to use eDNA to annually monitor South Slough fish diversity. This design examines water volume and the effect of sampling through space and time on the effectiveness of fish diversity measurement using eDNA. Using external grant funding we have hired a technician (Ian Rodger) assist with sampling through October 2019. Ian is also collecting DNA from regional fish species to ensure all species are included in the eDNA database.

Indian Point Western Lily Deer Exclusion Experiment: During population sampling of the western lily at Indian Point in 2018, SSNERR staff noted significant deer browsing on flowers and seed capsules. Therefore, we decided to test some deer repellent methods. In May 2019, we started an experiment that examines the effect fencing and an organic deer repellent (Plantskyyd (pig blood)) on deer browsing damage. We randomly assigned three treatments (control, fence, repellent) to 12 plots (2m diameter) with a focal lily at the center (4 replicates of each treatment). Preliminary results indicate deer browsing on the control plants (50% of focal plants damaged by July 22), but no damage to the fenced or repellent-applied plants.

South Slough Habitat Mapping and Change Classification: Using NERRS standardized methods to resolve high-resolution land cover data (wetland, aquatic, and upland habitats), the SSNERR science staff completed 2016 habitat maps for the South Slough Estuary and surrounding watershed. The package, which includes GIS data and supporting products, were submitted to NOAA and approved June 2019.

Building capacity to respond to an eelgrass (*Zostera sp.*) decline in the South Slough estuary, OR: The Reserve is working on a NERRS Science Collaborative project to develop a restoration and recovery plan to understand the eelgrass habitat declines in the South Slough estuary. Helms organized an Eelgrass Advisory Committee with eelgrass experts from the West Coast to participate in the project, with quarterly webinars that were coordinated in December and February to discuss the project and a workshop was held in March 2019 where the Committee convened at the University of Oregon, Eugene, OR campus to focus on abiotic and biotic eelgrass stressors, ecosystem functions, mapping, and restoration efforts from Washington and California estuaries.

Using UAVs to annually map eelgrass cover in South Slough: The Reserve funded a pilot project to determine the feasibility of using UAVs to conduct regular eelgrass mapping in South Slough. We contracted Earth Design Consultants, who have over 20 years of experience using remote sensing to map eelgrass in PNW estuaries, to conduct the trials (with assistant from South Slough staff to reduce costs). The project was completed in July 2019. The final report is available for any who want more details. We found that infra-red sensors are capable of distinguishing eelgrass from macroalgae and can map eelgrass at high resolution throughout the estuary. The product for these surveys would also include georeferenced high-resolution photo-imagery, which will be useful for many other projects. However, the cost, estimated at \$125,000 to \$200,000, is likely too high to consider for annual mapping. We will be looking for external sources to fund this mapping at regular intervals.

Partner Projects

Partnership for Coastal Watersheds (PCW): The PCW is a local group of civic-minded community members that includes representatives of the Coos County Planning Department, Cities of Coos Bay and North Bend (planning and city council), Coquille Indian Tribe, Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians, South Coast Development Council, Stuntzner Engineering (planning), Coos Watershed Association, Department of Land Conservation and Development, Southwestern Oregon Community College, Oregon Department of Fish and Wildlife, US Fish and Wildlife Service, International Port of Coos Bay, Oregon Department of Environmental Quality, and citizens at large. Currently the group is focused on the Coos Bay Estuary land use analysis project.

The PCW meets monthly and highlights since the last commission meeting include:

- The PCW is still working to find funding to build a dedicated website for the Data Source. Currently it is housed on the PCW website at: <http://www.partnershipforcoastalwatersheds.org/lands-waterways-data-source/>
- University of Oregon's Institute for Policy Research and Engagement completed a framework to outline how PCW products such as the Coos Estuary map Atlas, Communities, Lands & Waterways: Data Source, and Focus Group Recommendations can be legally incorporated into an updated Coos Bay Estuary Management Plan. A workgroup formed to steer this work and included planners from both cities, the county, both tribes, and the Port.
- Coos Watershed Association and Institute for Applied Ecology developed a framework and initial geodatabase for a Coos estuary restoration inventory. A workgroup formed to discuss goals, outcomes, project boundaries, and searchable quantifiable criteria to include in the database.
- Project outreach continued for this project with a presentation by Jenni Schmitt (SSNERR), Jill Rolfe (Coos County Planning) and the University of Oregon's Institute for Policy Research and Engagement

team to Coos County Commissioners, North Bend and Coos Bay City Councilors, and Coos Bay, North Bend, and Coos County Planning Commissioners on June 5th, 6th and 25th.

- Technical reviews of the final report for the project, including the Coos estuary map atlas, and option scenarios were received and incorporated from four reviewers (one each with expertise in economic development, natural resource protection, socio-cultural interests, and Oregon planning policy).
- As Coos County is the first local government in Oregon to make large strides in a full estuary management plan revision, a Lessons Learned Guide was developed to help other coastal communities learn from our process. This provides detail on beginning steps, best practices, and overview of benefits, costs and other considerations for the process described here. The guide was presented to planners from other Oregon coastal jurisdictions in April.
- For more on the PCW and its current work, visit their website:
<http://www.partnershipforcoastalwatersheds.org/>

Coos Estuary Land Use and Zoning Integrated Assessment: The Partnership for Coastal Watershed (PCW), in collaboration with Coos County and South Slough Reserve, received \$246,000 from the NERR Science Collaborative to assist the County's Planning Department to update environmental and community data related to the Coos Bay Estuary Management Plan (CBEMP). Some parts of the CBEMP have not been updated for 40 years. The Coos Estuary Land Use Analysis Project will provide the County with up to date information to improve the CBEMP's permitting and resource protection processes; data that will also be critical to the County's future revision of the CBEMP. Data will include current land ownerships, designated land uses, regulatory policies, natural hazards, and physical features and resources. For more on this project, see "Partnership for Coastal Watersheds (PCW)" above.

Ocean Acidification/ pH monitoring, and effects on eelgrass: The SSNERR is providing assistance to Oregon State University scientists Francis Chan, Sally Hacker, and Caitlin Magel (PhD graduate student). Caitlin is deploying a SAMI CO₂ sensor and a SeaFet pH sensor near the Charleston SWMP station to collect time-series partial pressure carbon dioxide and high-resolution pH monitoring data. She exchanges sensors monthly, and science staff coordinate with her for field site access by boat. Caitlin is also investigating the role of eelgrass in mitigating OA stress, and surveys eelgrass, macroalgae, and epiphytes monthly in April, June-September, and November at three sites in Coos estuary: Barview, Valino Island, and Danger Point. She is also working on eelgrass/OA research in three additional estuaries in OR (Netarts Bay, Yaquina Bay) and WA (Willapa Bay). In June 2019, the PEW Charitable Trust visited the Reserve, took photos of eelgrass sampling at Barview, and wrote an article about Caitlin's research at the Reserve which was featured on their website in mid July 2019:

<https://www.pewtrusts.org/en/research-and-analysis/articles/2019/07/16/oregons-eelgrass-is-disappearing-with-potentially-big-impacts>.

Tillamook Bay Ocean Acidification and Hypoxia (OAH) Monitoring: Oregon Watershed Enhancement Board (OWEB) funded a project to establish baseline information on carbonate chemistry and spatiotemporal patterns of OAH in Tillamook Bay, OR. Collaborative partners include Tillamook Estuaries Partnership (TEP), Oregon State University, Environmental Protection Agency, Oregon Department of Fish and Wildlife, and the South Slough Reserve. York Johnson (TEP and DEQ) established monitoring sites for SeaFet pH sensors in Tillamook Bay with field deployments beginning Summer 2019.

Hydrodynamic Model of Coos Estuary: The project is led by David Sutherland (University of Oregon) and David Ralston (Woods Hole Oceanographic Institution). This project has resulted in a hydrodynamic model for the Coos estuary to characterize present-day sediment distribution, surface and bottom salinity, monitor sediment fluxes to the estuary, and model how circulation and sediment patterns in the estuary will respond to change. SSNERR is involved in collecting sediment data, providing data from water quality stations and Sentinel Site stations, and facilitating end-user discussions between the project team, end-users (i.e., Coos County, Oregon Department of Fish and Wildlife, Oregon Department of Environmental Quality, Oregon Institute of Marine Biology, SSNERR) and other stakeholders (i.e., Partnership for Coastal Watersheds). This project has already created a much-needed bathymetry spatial layer for the Coos estuary. Other products include areas of potential eelgrass habitat modeled for the Coos estuary based on depth (i.e., light attenuation in the Coos estuary), and salinity; summer-steady and winter-steady salinity profiles (depth-averaged, surface, and bottom); and, results from model runs comparing present day Coos Bay at different river discharge values with historic bathymetry, and future proposed channel deepening and widening bathymetry.

In April 2019, Sutherland, Ralston, several graduate students and Jenni Schmitt submitted a paper to the journal *Estuaries and Coasts* entitled “Impacts of 150 years of shoreline and bathymetric change in the Coos Estuary, Oregon, USA”. The paper describes results from model runs comparing present day Coos Bay at different river discharge values with historic bathymetry, and future proposed channel deepening and widening bathymetry.

Blue Carbon Stocks Assessment of Pacific Northwest: The SSNERR is partnering on two projects with the Pacific Northwest Coastal Blue Carbon Working Group. The goals of the first project are to characterize blue carbon stocks and environmental drivers that influence carbon sequestration in estuarine tidal wetland habitats across the Pacific Northwest, and to develop a database to house data from the project and other blue carbon projects in the Pacific Northwest (PNW). The second project

builds on the first by demonstrating the feasibility of connecting carbon finance to the restoration of tidal wetlands in the PNW. This project will: provide a clear roadmap for delivering carbon finance projects in the PNW; identify previously unrecognized data gaps at regional or site scales (and approaches for filling those gaps) that need to be addressed to ensure project feasibility; assess projects' economic viability; and identify and engage local organizations as proponents of blue carbon restoration project development. Both projects are led by Craig Cornu (Institute for Applied Ecology) and funded by the NERRS Science Collaborative. Shon Schooler is the South Slough representative for this project. Slough Slough hosted a workshop in January 2019 to discuss potential projects with members of the expert panel. There will be a final workshop on October 29, 2019 to discuss results.

Is marsh surface tracking sea level change? Developing tools and visualizations

for NERRS Sentinel Site data: This project is led by Kim Cressman (Grand Bay NERR, MS) in collaboration with team members at Padilla Bay NERR (WA), Mission-Aransas NERR (TX), Delaware NERR, Waquoit Bay NERR, and South Slough NERR. This project will create standardized tools to quality-check Surface Elevation Table (SET) data, perform trend analyses, and produce informative visualizations for varied audiences. The technical team (represented by Jenni Schmitt for SSNERR) will focus on creating quality-control (QC) and analysis tools. Final products will include site-specific trend analyses, visualizations, and a national synthesis of surface elevation change vs. sea level trends. The project team meets monthly. To date the project team has decided on a standard template for SET data, flag codes, analysis products, outlined best practices for collecting future data, and begun to discuss outreach and education products. The technical team met in person for the final time in July 2019 at Chesapeake Bay Virginia NERR. This project is funded by the NERRS Science Collaborative.

Building a coastwide Olympia oyster network to improve restoration outcomes and enhance community engagement: This NERRS Science Collaborative catalyst project is led by Kerstin Wasson (Elkhorn Slough NERR) in collaboration with other West Coast NERRs, tribes, and research institutions involved in restoration projects related to the native oyster (*Ostrea lurida*). The project is conducting a synthesis of success of past restoration projects to share lessons learned and to identify the practices and environmental conditions that predict the best outcomes. The project will create a website and story map featuring the restoration projects. It will also result in an experimental design for a replicated restoration experiment to be conducted at ten or more sites along the coast, and the creation of outreach materials to convey the integral role of native oysters in healthy coastal ecosystems. Ali Helms participated in the project Steering Committee meetings in April and June 2019.

Effect of the lined shore crab (*Pachygrapsus crassipes*) on intertidal snail populations: We are working with Dr. Sylvia Yamada (OSU) and Dr. Liz Boulding (University of Guelph, Ontario) on a project looking at the range expansion of the lined shore crab and the potential effect on the marine snails, *Littorina*

sitkana and *L. scutulata*. In July and August we tested the predation of the crab (native to Coos Bay, but expanding its range northward into Canada) on the two different snail species in our new ECOS seawater tables to determine the potential effect of the range expansion on snail population along the west coast of Canada. We do not have the final results at the time of writing this report.

GRANT PROPOSALS

Dr. Schooler collaborated with Dr. Sylvia Yamada (OSU) and Dr. Jorg Hardege (University of Hull, UK) to develop a proposal to further test green crab sex pheromones as a tool to management green crabs in oyster beds and restoration projects. The preproposal was approved but the full proposal was not funded. We are currently looking for more funding opportunities for this project.

Dr. Schooler is collaborating with Dr. Richard Emlet and Dr. Maya Wolf (UO-OIMB), providing materials for a renewal of the NSF REU program grant. This program will continue to assist Reserve science goals by providing two university interns each year for a period of 4 years (2020-2024).

VISITING RESEARCH SUPPORT

The NOAA Margaret Davidson Fellowship program has officially been announced. As a start to the program, the SSNERR has the opportunity to partly fund 2-3 graduate students from September 2019 to June 2020. Staff have selected graduate students at UO and OSU who are currently working on projects that forward SSNERR objectives. In late 2019, graduate students will have the opportunity to apply for a full Fellowship, starting fall 2020. Currently NERR staff are getting the word out to potential students, professors, and universities.

The SSNERR staff are helping graduate student Caitlin Magel (OSU) recover and deploy pH and $p\text{CO}_2$ sensors in South Slough estuary near the Charleston SWMP station and access and survey eelgrass sampling sites for her research continuing in 2019.

The SSNERR continues to serve as a field site for graduate student Matthew Schultz and his advisor Dr. Scott Bridgham (UO) who is studying carbon cycling along an estuary gradient. Dr. Bridgham is also on the PNW Blue Carbon Working Group.

The SSNERR continues to serve as a field site for Vanessa Petro (OSU), who is conducting a study on a collared black bear tracked to a den in SSNERR managed lands.

The SSNERR is a field location for Oregon Department of Fish and Wildlife's adult mosquito abundance trapping program, to be used as a reference comparison to restored marshes in the Coquille valley. Trapping began in June 2018 and is expected to continue through 2022. ODFW staff have also agreed to sample Wasson Creek for the SSNERR restoration project at SSNERR staff request. This sampling will help us understand the effect of marsh restoration projects on mosquito populations.

The SSNERR is a field site for graduate student Riley Anderson (UO) who is studying methods to use UAVs to monitor eelgrass in South Slough, specifically low density eelgrass.

INTERNSHIPS

Alexa Buckner completed a SWMP water quality internship through Friends of South Slough (FOSS) this Spring from January 2019 – April 2019. She worked with Ali Helms and Adam DeMarzo on the NERRS water quality, nutrient, and meteorological monitoring projects and assisted with the OA monitoring and eelgrass decline projects.

Madison Bowe was the summer 2019 NOAA Hollings Scholar at the South Slough working on the Sentinel Site Project with Jenni Schmitt. Her project entitled “Elucidating Factors of Variable Marsh Accretion Rates in South Slough Estuary” looked at a suite of variables that could be causing relatively low accretion rates at Hidden Creek marsh compared to other Sentinel Sites in the estuary. She presented her project to NOAA staff and other Hollings Scholars in August 2019.

Joeun “June” Cho came from Smith College as part of the 2019 NOAA College-Sponsored Internship Program. June primarily worked with Jenni Schmitt on the Sentinel Site project and restoration effectiveness monitoring projects.

Renee Heller was a REU intern (Research Experience for Undergraduates Program, NSF) with the SSNERR from June-August 2019. She studied the prey preference of red-rock crabs to determine if they prefer Dungeness or green crabs. Preliminary results suggest that, for prey crabs of the same size, red-rock crabs prefer Dungeness over green crabs. This behavior may exacerbate population growth and the associated negative impacts of green crabs. She presented her work on OIMB campus on August 16.

Sofia Suesue (Windward Community College Kaneohe, HI) was an REU intern working with Ali Helms on mapping and understanding habitat characteristics of the endangered bird’s beak salt marsh plant in the South Slough estuary. She presented her work on OIMB campus on August 16.

Luke Donaldson was a Coquille High School intern from June-August 2019. He assisted with crab monitoring and used minnow traps to examine the age structure of young green crabs. He was looking

for evidence that suggested a bi-modal size distribution, which would indicate local population recruitment in the Coos Estuary.

Liam Hunt was a high school intern in July 2019. He assisted with crab trapping and education programs.

STEWARDSHIP

Stewardship Coordinator Position: The Stewardship Coordinator position was vacant from September 15, 2018 to April 30th 2019. Dr. Alice Yeates was awarded the position and started May 1st 2019.

Wasson:

Dr. Yeates is working on identifying and securing funding for implementation of the Wasson Creek Watershed Restoration project. She is working with the Coos Watershed Association, who have identified an interest in submitting funding in the April 2020 Oregon Watershed Enhancement Board (OWEB) funding round.

Indian Point:

Monitoring of the Indian Point Restoration Project continues and deer browsing exclusion areas have been added. Staff compiled information on the western lily restoration project and submitted it to the NERRS story map; a NOAA initiative to highlight nationwide restoration projects.

Invasive Species Projects:

The Reserve continues to be involved in various invasive species management projects. The Reserve continues to collaborate with the USFS Dorena Genetic Research Lab to monitor Port Orford cedar root rot disease (*Phytophthora lateralis*) and serves as a research site. Alice attended the South Coast Cooperative Weed Management meeting on June 5th in Bandon. The Reserve celebrated Oregon Invasive Species Awareness Week (May 19-25th) by conducting a Stewardship Day community weed removal program, targeting biddy-biddy (*Acaena novae-zelandiae*) and English ivy (*Hedera sp.*), and a week-long social media campaign to bring awareness to locally invasive species. In order to guide an invasive species management plan, Alice, with the assistance of interns, has created an invasive species

reference library. This library focuses on species known to be present within the region and those that potentially threaten South Slough. Reserve staff have been opportunistically mapping invasive plants within the Reserve and trialing different mapping methods (Trimble GPS, smart phone photos with Avenza Map app, EDDMaps WEST and iMapApp). Alice and the education team worked with high school students (9-12th grade) during the Summer Camp Program to map invasive plants and old logging roads within the Reserve. Summer campers also pulled the invasive scotch broom (*Cytisus scoparius*) from the ECOS parking lot gardens.

Endangered Species Projects:

In addition to the western lily work, Reserve staff have focused on the endangered species, Point Reyes bird's beak (*Chloropyron maritimum ssp. palustre*). Coos Bay has the largest known population in Oregon and Ali Helms has directed efforts to map South Slough's population in June and July 2019. One of the most southern populations in the Reserve occurs on Valino Island, a popular place for visitors to land their watercrafts and explore. Protecting populations in this area provides a corridor for range expansion with rising sea levels. To limit impacts on southern populations within the Reserve staff have identified an alternative landing site, on Long Island Point, to attract visitors away from Valino Island. Staff are assessing this site for accessibility and suitability for both kayak programs and commercial activities. Those obtaining a commercial activity permit in 2019 will be requested to avoid Valino Island and directed to Long Island Point; in future years the Reserve may restrict commercial access on Valino island in order to protect this population. Long Island Point will be highlighted on maps and suggested to visitors as a destination within the Reserve and monitoring of impacts at this site have been included in the commercial activities plan. The Reserve also celebrated Endangered Species Day on May 17th, via social media posts highlighting the species we protect in the Reserve.

Visitor Center Forest Enhancement:

A proposal has been developed for the improvement of the natural areas surrounding the Visitor Center (VC). This proposal is included in the Commission report and focuses on improving the defensible space, enhancing the biological and educational value around the VC and re-establishing a viewshed that provides a connection between the VC and the South Slough Estuary. The Technical Advisory Team for the VC forest improvement project includes: Bureau of Land Management (Tristan Huff), Oregon State University Extension (Norma Kline), Oregon Department of Forestry (Greg Erb), Coos Watershed Association (Alexa Carleton), and Department of State Lands (Ryan Singleton). The Coquille Indian Tribe, Confederated Tribes of the Coos, and Lower Umpqua, & Siuslaw Indians reviewed and approved the plan. The Confederated Tribes of Siletz Indians have been sent the proposal. Numerous Reserve staff members have also reviewed and commented on the plan with no objections. To guide this project, Alice worked with Earth Design Consultants, who used drone technology to photograph and create an elevation map of the viewshed area.

OTHER SCIENCE PROGRAM ACTIVITIES

Committees and Workgroups

SWMP Guidance Committee: Ali Helms serves on the SWMP Guidance Committee (current members: Marie Bundy, Dwight Trueblood, Mary Culver, Suzanne Shull, Chris Kinkade, Jennifer Harper, Joan Muller, Matt Ferner, Ali Helms, Robin Weber, and Steve Baird) formed in 2010 to provide strategic planning and oversight of the SWMP program. The SGC met via conference call (March 2019) and worked on revising the SWMP Plan for 2019 with the final draft submitted to the NERRS Data Management Committee on 4/19/19.

SWMP Oversight Committee: Shon Schooler continues to serve on the SWMP Oversight Committee. This committee provides oversight of SWMP plans and can intervene if SWMP protocols are not being met by individual Reserves.

NERR Science Collaborative Advisory Committee: Shon Schooler continues to serve on the NERR Science Collaborative advisory committee along with a large national group of members. This group advises the NERR Science Collaborative team currently based at the University of Michigan.

Bivalve Working Group: Shon Schooler has taken Bree Yednock's place on the NERRS Bivalve Working Group with Brandon Puckett, North Carolina NERR; Nikki Dix, Guana Tolomato NERR; Kerstin Wasson, Elkhorn Slough NERR; and Jeff Crooks, Tijuana NERR.

Sentinel Site Application Module (SSAM-1) Oversight Committee: Jenni Schmitt and Ali Helms are on this NERRS committee, which was formed to develop SSAM-1 outreach strategies, review outreach products from the Marsh Resilience (MARS) report card, integrate remote sensing/habitat mapping into Sentinel sites, review Sentinel Site plans, develop CDMO data templates for sediment data, and manage inventory of SSAM-1 equipment, capacity building and data acquisition. The group met virtually in May to discuss next steps for the SSAM-1 program.

Sentinel Site Biomonitoring Workgroup: Jenni Schmitt is part of this workgroup, which develops and oversees implementation of national vegetation monitoring protocols and reviews vegetation monitoring datasets submitted to the Centralized Data Management Office. In May 2019, this group amended the NERR Vegetation Monitoring Protocol and data template.

Habitat Mapping and Change Classification Review Team: Jenni Schmitt is part of this team to apply a three-tiered review system for habitat mapping products submitted by each reserve. Habitat maps standardize the way high-resolution land cover data (wetland, aquatic, and upland habitats) are classified within the NERRS.

Mid-Atlantic Pilot Project Advisory Committee: Jenni Schmitt continues to participate on this advisory committee, which provides feedback for a pilot project that is developing a road map for how regional networks of reserves can apply Sentinel Site findings to regional issues.

Lamprey Technical Workgroup

Shon Schooler and Jenni Schmitt sit on this advisory committee of the Conservation Agreement for Pacific lamprey in Oregon.

South Coast Lamprey Working Group

Jenni Schmitt sits on the workgroup to help identify key information for lamprey management at regional, state and local scales and identify opportunities for future work.

Pacific and Estuarine Research Society (PERS) Board: Jenni Schmitt has been elected the Oregon representative for PERS. PERS is the regional chapter of the Coastal and Estuarine Research Federation

NERRS Annual Meeting Planning Committee – Stewardship/GIS Sector

Jenni Schmitt is part of this planning committee, developing agendas and sessions for the November 2019 NERRS Annual Meeting.

MEETINGS / PRESENTATIONS / TRAININGS

Lead Scientist/Research Coordinator, Shon Schooler

Presentations

March 2019 - Assessing the distribution of lamprey species along the southern Oregon Coast using eDNA sampling methods. American Fisheries Society, Oregon Chapter, March 4-8, Bend, OR.

March 2019 - European Green Crab impacts on eelgrass: Implications for eelgrass restoration in Coos Bay. Eelgrass Recovery Workshop, University of Oregon, March 26, 2019, Eugene, OR.

April 2019 - A Brief Environmental History of Coos Bay. Oregon Society of Soil Scientists Annual Workshop, South Slough Interpretive Center, April 19, 2019, Charleston, OR.

July 2019 - Use of eDNA to map lamprey species distributions along the Oregon Coast. Citizen Science Workshop, South Slough Interpretive Center, July 10, 2019, Charleston, OR.

Meetings

March-August 2019 – Convened SSNERR science staff fortnightly staff meetings.

March-August 2019 – Participated in DSL monthly staff meetings.

March-August 2019 – Participated in monthly eDNA research partner teleconferences and webinars.

March-August 2019 – Participated in project team calls for the green crab west coast database project.

March-August 2019 – Participated in regular calls for Lamprey eDNA citizen science project.

March-August 2019 – Participated in regular calls for eelgrass restoration advisory committee.

March 2019 – Attended and presented at the Oregon Chapter of American Fisheries Society in Bend, OR

March 2019 – Attended and presented at an all-day Eelgrass Recovery workshop in Eugene and led the abiotic stressors breakout group.

May 2019 – Participated in NERR Research Coordinator virtual meeting.

June 2019 – Introduced Reserve to DSL Water Resources new staff members.

August 2019 – Participated in Coos Watershed Association Technical Team meeting

Watershed Monitoring Coordinator, Jenni Schmitt:

March 2019 – August 2019 - Convened monthly meetings with the Partnership for Coastal Watersheds (PCW) to report on progress and receive input on the Coos Estuary Land Use Analysis project.

March 2019 – June 2019 – Convened approximately monthly meetings with several subgroups of the PCW including a Framework Development workgroup, and a Restoration Inventory workgroup.

March 2019 – June 2019 – Convened regular calls with University of Oregon’s Institute for Policy Research and Engagement (formerly Community Service Center) and Coos County Planning Department to strategize Coos Estuary Land Use Analysis project.

March 2019 – June 2019 – Convened regular check-in calls with GIS technicians who were working remotely on the Coos Estuary Land Use Analysis and SSNERR Habitat Mapping and Change projects.

March 2019 – August 2019 – Participated in monthly project team calls for the SET tools and visualizations project.

March 2019 – Attended an all-day Eelgrass Recovery workshop in Eugene and led the GIS breakout group.

April 2019 – Served on Coos Watershed Association’s semi-annual technical advisory team.

April 2019 – Gave an introduction/overview presentation for the Oregon Society of Soil Scientist workshop, which was hosted by South Slough.

April 2019 – Attended and presented at the Pacific Estuarine Research Society in Anacortes WA.

April 2019 – Attended the South Coast Pacific Lamprey Regional Management Unit meeting.

April 2019 – Attended the NERRS Stewardship Coordinator/GIS virtual meeting.

April 2019 – Attended a governor’s reception in Salem as a Public Service Ambassador.

May 2019 – Participated in a NERRS Science Collaborative webinar entitled “Human and Environmental Well-being in Alaska’s Kachemak Bay Watershed”

May 2019 – Discussed the feasibility and data requirement needs for NOAA’s Coastal Change Analysis Program to provide high-resolution land coverage data to coastal Oregon with NOAA and representatives from other Oregon state agencies.

May 2019 – Provided an informational tour to representatives from Department of State Lands, Salem office.

June 2019 – Coordinated and presented Coos Estuary Land Use Analysis project at joint decision-makers meetings to the planning commissioners, County Commissioners, and City Councilors from Coos Bay, North Bend and Coos County.

June 2019 – Demonstrated Sentinel Site protocols and data collection techniques at a teacher training workshop hosted by South Slough.

July 2019 – Attended a South Coast Lamprey Workgroup discussion to bring a larval lamprey identification workshop to the southern Oregon coast in spring of 2020.

July 2019 – Attended NERRS Annual Meeting Stewardship Coordinator/GIS planning calls to help develop agenda and sessions.

July 2019 – Attended an in-person workshop for the marsh surface elevation technical advisory committee in Chesapeake Bay, VA.

Estuarine Monitoring Coordinator, Ali Helms:

Presentations

March 2019 - Eelgrass Declines in the South Slough estuary, OR. Eelgrass Recovery Workshop, March 26, 2019, Eugene, OR.

April 2019 - Eelgrass Declines in the South Slough estuary, Coos Bay, OR. Pacific Estuarine Research Society, April 25-27, 2019, Anacortes, WA.

Meetings

March 2019 – Participated in Oregon Ocean Acidification and Hypoxia Monitoring workgroup conference call focused on updates about the Oregon OAH council and the Tillamook Bay monitoring project

March 2019 – Attended the annual Technician Training Workshop and R statistical training in Myrtle Beach, SC

March 2019 – Coordinated an Eelgrass Recovery Workshop at University of Oregon, Eugene, OR for the NERRS Science Collaborative Capacity Building project

March/April 2019 – Participated in SWMP Guidance Committee to edit final draft of the revised SWMP Plan

April 2019 – Participated in water quality job shadow for two Crow high school, OR exchange students

April 2019 – Coordinated South Slough Reserve’s participation in Girls Rock STEM fair

April 2019 – Attended and presented at the Pacific Estuarine Research Society in Anacortes, WA

April, June 2019 – Participated in Steering Committee meetings for the coastwide Olympia oyster network project

May 2019 – Contributed letter of support for Oregon State University faculty (David Hill) and graduate student (Elizabeth Holzenthal) for Oregon Sea Grant project grant application on eelgrass habitat response to climate change and ecosystem services

May 2019 – Contributed letter of support for Oregon State University faculty (Ryan Mueller, Fiona Tomas Nash) for Oregon Sea Grant project grant application on the role of microbiomes in eelgrass disease

May 2019 – Organized and led quarterly Eelgrass Recovery Advisory Committee meeting for the NERRS Science Collaborative Capacity Building project

May 2019 – Participated in discussions of product utility for Coastal Change Analysis Program (C-CAP) for Reserve and stakeholder use led by Nate Harold (NOAA)

June 2019 – Gave overview of Reserve projects on SWMP, eelgrass, and ocean acidification to Department of State Lands visiting employees

June 2019 – Participated in NERRS Science Collaborative webinar on ecosystem services conceptual model

June, August 2019 – Completed NANOOS grant progress report for estuarine observations and submitted presentation for annual Governing Council and PI meeting

June – Co-taught vegetation sampling methods at Teachers on the Estuary workshop for sea-level rise and climate change at Hidden Creek Education Sentinel Site

June – August 2019 – Mentored and coordinated Research Experience for Undergraduate intern Sofia Suesue on a mapping and habitat project for the endangered salt marsh plant bird's beak

Stewardship Coordinator, Alice Yeates (started May 1st 2019)

Presentations

April 2019 – Presentation: Forest Restoration and the South Slough Reserve. Student Watershed Symposium, April 30th, Charleston.

Meetings

May 2019 – Attended the NERRS Stewardship Coordinator/GIS virtual meeting.

May 2019 – Participated in the ASWM-NRCS Wetland Training Webinar: Dealing with Changing Weather Patterns in Wetland Restoration Planning

June 2019 – Lead initial discussions with Technical Advisory Team members to develop a draft management plan for the IC forest improvement project, which was then completed and submitted to the entire Technical Advisory Team for comment on July 17th 2019

June 2019 – Participated in the ASWM-EPA Region 10 Tribal Wetlands Webinar: Economic Development & Resource Protection

June 2019 – Attended the South Coast Cooperative Weed Management meeting

June 2019 - Attended a Coos Watershed Association Restoration, Science and Monitoring team meeting

June 2019 - Attended Elliott State Forest Listening session

Data analyst/ Technician (part-time temporary, grant funded), Alice Yeates (ended April 30, 2019)

Presentations

March 2019 - Presentation: New Technology for old problems – a pilot project to develop DNA methods to monitor fish assemblages in estuarine systems. Oregon Chapter of American Fisheries Society, Oregon Chapter, March 4-8, Bend, OR.

April 2019 - Presentation: New Technology for old problems – Developing eDNA methods to monitor fish assemblages in estuarine systems. Pacific Estuarine Research Society, April 25-27, Anacortes, WA.

Meetings

November-March 2019 – Participated in monthly eDNA research partner webinars.

March 2019 – Attended and presented at the Oregon Chapter of American Fisheries Society in Bend, OR

March 2019 – Attended and presented at an all-day Eelgrass Recovery workshop in Eugene and led the abiotic stressors breakout group.

April 2019 – Attended and presented at the Pacific Estuarine Research Society in Anacortes, WA

Coastal Training Program

Staff: John Bragg, Coastal Training Coordinator

The Coastal Training Program satisfactorily completed all planned training workshops and events for FY 2018, with the presentation of Coastal Zone Management 101 (CZM-101), a primer for local officials, planners, agency staff, tribes and involved citizens, May 14 at the visitors center and May 17 in Cannon Beach. The workshops introduced many facets of Oregon’s networked coastal management program. The audience included many who were either new to Oregon, or unfamiliar with how Oregon’s coastal zone is regulated. Unlike all other coastal programs in the U.S., the Oregon Coastal Management Program (OCMP) works closely with local governing bodies and key state agencies to plan, conserve, and develop coastal lands and resources comprehensively. Unlike other coastal states, which define their coastal zones as a thin strip of land at the intersection of land and sea, Oregon’s coastal zone begins at the crest of the Coast Range Mountains and extends westward to the three-mile limit of the Territorial Sea. Thus CZM-101 introduces the state’s role in preparing for and managing many activities, from city and county planning, coastal hazard mitigation, shorefront protection, tsunami response, estuary planning, and ocean planning—as well as ensuring the **actions of the federal government are consistent with Oregon’s coastal plan**—in the context of the public’s role in coastal zone decision making.

The workshop was presented at south and north coast venues to ensure broad availability. Training was developed with the assistance of OCMP staff. Most presentations were made by OCMP staff.

We will work with OCMP staff to repeat this workshop in 2020, given continuing interest.

The CTP coordinator attended the board retreat for ORURISA (the Oregon and Southwest Washington Urban and Regional Information Systems Association) May 3 in Salem, representing the South Coast GIS Users Group, and summarized training needs of geographic information systems (GIS) professionals that were identified in a pair of coastal training needs assessment conducted in Fall 2018. ORURISA is the Oregon Chapter of Urban Regional Information Systems Association. The CTP works with the South Coast GIS User group and ORURISA to provide training in computer mapping techniques because the highly detailed maps they create can help to inform coastal decisions. In part as a result of that work, the chapter is now exploring more opportunities to provide training and outreach to meet members’ professional needs.

The CTP coordinator attended the mid-summer meeting of PMEP (the Pacific Marine Estuarine Fish Habitat Partnership) July 23 in Portland. PMEP is a nationally recognized partnership that seeks to advance regional and national goals relating to juvenile fish habitat. With the assistance of the Pacific States Marine Fishery Commission, PMEP developed two tools—the West Coast Estuary Viewer and the West Coast Estuary Explorer—that can be used to explore 303 estuaries along the West Coast. In June NOAA announced it was adding the West Coast Estuary Explorer to its Digital Coast and Marine Cadastre webpages. CTP is exploring opportunities to provide training in their use for interested partners including other NERRS and National Estuary Programs along the West Coast.

PMEP is a consortium of organizations focused on West Coast fish habitat in the region's estuaries and nearshore marine waters including local, state, tribal, and federal governments and non-governmental and private organizations in California, Oregon, and Washington.

As a heads-up for the commission, the CTP Coordinator, John Bragg, announces his retirement from the SSNERR effective Jan. 31, 2020. The CTP began at South Slough as the Coastal Training Initiative in 2002. John arrived in 2003 and completed the development of the training strategy. The program was approved by NOAA in 2004 and has operated continuously since then.