COASTAL FUND MINUTES

Associated Students

Tuesday, 02/11/2020, Nati Conference Room

CALL TO ORDER:6:01 , minutes recorded by Carissa

A. ATTENDANCE

Name	Note: absent (excused/not excused) arrived late (time) departed early (time)	Name	Note: absent (excused/not excused) arrived late (time) departed early (time)
Jeremy Francoeur Chair	**present**	**Anushna Patel Outreach Coordinator**	**present**
Mike Martin Co-Chair	**absent**	**Katherine Fukada Outreach Coordinator**	**absent**
Jackie Rigley Undergraduate Rep	**present**	**Sarah Siedschlag Advisor**	**present**
Karen Thornton Undergraduate Rep	**present**	**Carissa Stewart Administrative Assist**	**present**
Ethan Estrada Undergraduate Rep	**present**	**Kevin Sway Senate Liaison**	**absent**
Phoebe Racine Graduate Student Rep	**Absent excused**	**Emma Swanson Senate Liaison**	**absent**
Laura Ingulsrud Graduate Student Rep	**present**		

B. COMMITTEE BUSINESS

1. **Approval of Attendance and Proxies**

MOTION/SECOND: Jeremy/ Karen
Motion language: Motion to approve attendance and proxies.
ACTION:
Additional approval required: YES (Senate)

2. **Approval of Minutes**

MOTION/SECOND: Jeremy/Karen
Motion language: Motion to approve minutes from last week
ACTION: Consent

Additional approval required: YES (Senate)

C. PUBLIC FORUM

(Announcements, appreciations, concerns, requests to have items added to agenda)

- Sierra Club wants to talk to us but probably just wants to make a grant
- Good luck on midterms!

D. REPORTS

1. **Advisor Report: Siedschlag**
    - **i. thinks we should get a microwave**

2. **Chair Report: Francoeur**
    - **i. went to budget hearing and proposed budget**
    - **ii. they had a couple questions but it seems good**

3. Vice Chair Report: Martin
    - **i. absent/excused**

4. **Senate Report: Sway and Swanson**
    - **i. absent**

5. **Administrative Report: Stewart**
    - **i. I finished with the grant minutes for the final meeting and next step would be adding it all to the excel**
    - **ii. there was a person proposing emergency funding but they have yet to send**

6. **Coastal Service Program Report: Stewart**
    - **i. no report**

7. **Outreach and Education Report: Patel and Fukada**
    - **i. this weeks organism is the Garibaldi fish**
    - **ii. need info for when the application is due for Karen's replacement**
    - **iii. Date due is March 1st, 2020**
    - **iv. Co-sponsorship application, asking for less money, for Surfrider concert**

8. **Sub-Committee Reports**
    - **i. Ethan, Karen, and Jeremy on appointing subcommittee**
    - ii. NRS scholarships
        1. haven't met this week but might do that later this week
            a. Karen can probably do Thursday
    - iii. Long-term Funding/ Pre-Screening Application
        1. If you all have questions or suggestions, let me know
        2. might send them out this week
            a. Can be found in the sub-committee tab

E. AGENDA

1. **Approval of Agenda/Additions to Agenda**

MOTION/SECOND: motion to approve agenda and additions to agenda
Motion language: Jeremy/ Laura
ACTION:Consent
Additional approval required: YES (Senate)

F. OLD BUSINESS

G. NEW BUSINESS

MOTION/SECOND: Jeremy/Laura
Motion language: Motion to allocate $120 for a microwave plus tax in the Coastal Fund office
ACTION: Consent
Additional approval required: YES (Senate)

FALL 19-19 Extension Request: Identifying native seeds in the seed bank through DNA and RNA extractions

MOTION/SECOND: Jeremy/Laura
Motion language: Motion to approve extension request for FALL 19-19
ACTION: Consent
Additional approval required: YES (Senate)

FALL 19-19 Reallocation Request: Identifying native seeds in the seed bank through DNA and RNA extractions

MOTION/SECOND: Jeremy/ Laura
Motion language: Motion to approve reallocation request for FALL 19-19
ACTION: Consent
Additional approval required: YES (Senate)

H. DISCUSSION

I. PROJECT REVIEW

Project Title: WIN 20-10 : Soil Amendments in Coastal Grassland Restoration for Carbon Sequestration

Sponsoring Organization: Earth Research Institute
Presenter Name: Jacob Weverka

Summary:

Ecological restoration can potentially stimulate carbon sequestration in order to mitigate climate change, which is a major threat to coastal resources. Therefore, it is important to understand how restoration practices affect soil carbon storage. During the 2017 North Campus Open Space restoration, three coastal grassland experimental plots were established to test the inclusion of organic soil amendments in the soil surface and in deep soils. Three years later, we will use these plots to examine the effects of including amendments in deep soils on belowground microbial activity, rooting depth, soil nutrient dynamics, and carbon storage. This will inform our understanding of how soil amendments influence restoration success and carbon sequestration in coastal grasslands. I am requesting Coastal Fund support for this research in order to fund one undergraduate research assistant position, one graduate student stipend, and laboratory supplies necessary to conduct the proposed analyses.

Presentation Notes:

- Research and meeting is on Chumash lands
- Role in soil in fighting climate change
- 3000 petagrams of carbon held in soil
- Plant and animals holds 500, atmosphere holds 800
- 9-10 carbon released when burning fossil fuels
- Soil is important in Carbon sequestration
- Just starting to look into
- Win-win in terms of productivity, carbon sequestration etc
- How do we get more carbon in ground instead of air
- Make a reference to two organic amendments
- First amendment is compost, partially decomposed matter, direct organic matter
- Hope that it can stimulate carbon drawdown
- Have had promising results up north
- Singe application of compost can show results on decade scale
- Charred soil/ charcoal for this project came from slash
- Give nutrient to soils and prevents them from leeching and provide matrix for soil microbial life
- Bio char would create longer lasting structural aspect of soil
- Propose project at north campus open space
- Moved soil onto upland area
- Allowed amendments to be buried deep
- Gives them opportunity to see the effect of burying the soil
- Allows to see how it is in the deep layer
- Going to measure soil characteristics and properties
- Measure carbon content in mineral particles, can fraction out of organic matter pool that is absorbed or not, get a sense of how stable it is
- Don’t know if different physical factors would affect it
- Measure nutrients and nitrogen in soil
- Measure fertility
- Incubation of different soil layers

- Measure c02 production over time
- Measure root biomass
- Application is studying restoration tool to the coastal habitat
- Can make recommendations for future restoration projects
- If they make good techniques could influence future projects
- Fighting climate change is a huge problem
- Student involvement
- Research assistant will learn all of these techniques and get credit for any papers

Board Questions:

- Will the intern be working with you the whole duration of project
    - Yes that is the plan
- Stipend for only 1 quarter while undergrad was only 2 quarters
    - Asking for summer stipend so he can focus on that
    - Don't need funding for spring because he will be teaching
- How are you going to get deep samples
    - Working with CCBER
    - Will be a core test
    - And sleeve will be added
- What differences do you expect in deep soil vs surface level
    - One foot down, is big difference in temp, moisture, compaction
    - Deep soil could limit processes-wondering that
- Do you expect different species of plants have deeper root growth
    - In plots two perennial grasses have been planted
    - I don't really think one is going to be more deep rooted than the other
- If the study is proved, how can that be implemented?
    - Could be implemented within farms, sites
    - Understanding contexts and uses will help framework on how to answer that question
- University is trying to offset emissions, what do you think about that
    - Once we get data they can talk more about it
- Was the marin county soil deep?
    - No it was surface level
- How deep could you go?
    - Theoretically, if you had that amount of soil, you could bury something five feet deep
- Its rare to suddenly bury area, do you think it would be financially feasible to do carbon sequestration method
    - It is rare, but in the world, people move soil a lot
- How does the carbon sequestration compare to the ocean
    - It is a substantial amount
- How long does biochar last compared to compost
    - Studies that found charcoal lasts on the century to millenium scale
- What are the supplies for
    - They are all to measure things
- How are you planning on measuring microbial activity
    - Measuring microbial biomass- do a chloroform bomb thing
    - In soil incubation, they are taking soil layers and putting it in idealized physical locations

    - Can give a sense of how much substrates have changed
- Is biodiversity something that would be of interest to you
    - Nobody really understand what to do with information, a lot of bacteria in soul, don't know how to interpret that infor
    - This project is more about learning ecosystem function

Board Discussion:

- Different than a lot of ones we have seen
- One of the new things that hasn't been done
- Like how they already have gone out to test methods
- Was a good speaker, clarified questions
- Seems passionate
- Looking at a lot of questions
- Seems like he is prepared to answer all in depth
- Whipped out plant names
- Stoked for undergrad intern
- Seems like a good communicator
- Excited that intern would be involved in paper

MOTION/SECOND: Jeremy/ Laura
Motion language: Motion to table discussion on WIN 20-10
ACTION: Consent
Additional approval required: YES (Senate)

Project Title: WIN 20-11 : Measuring Cliff Base Erosion in Isla Vista

Sponsoring Organization: UCSB Earth Science Department
Presenter Name: Kevin Raver

Summary:

The goal of this project is to collect and interpret seacliff data along the coast of Isla Vista, California. Data collection includes conducting drone surveys along the cliffs, making measurements of the height of the waves crashing into the cliffs, beach elevations, the locations and sizes of beach cobbles, and installing erosion pins at the bottom of the cliff face. The drone surveys will be used to measure fine-scale (5 cm) erosion rates and patterns. The erosion pins will measure sub-centimeter erosion. The wave and beach measurements will be used to create an empirical relationship between offshore buoy data and wave run up. The measurements and data collected in this study will be used to further understand how waves erode the cliff base as well as validate a model that is being developed that aims to forecast the processes of erosion acting on the

coastal cliffs of Isla Vista. We will be processing existing drone surveys collected by Sydney Maguire last winter, who also received a minor grant from the coastal fund in 2019, and continue to conduct and analyze drone surveys through the spring of 2021. We are seeking funding to compensate three undergraduate research assistants who will collect data during winter and spring of 2020 and then analyze the data through the winter of 2021. Undergraduate students will be conducting drone surveys and making measurements of the waves, cobble sizes, and erosion around pins that we will be placing in the cliffs. Additionally, we seek funding to purchase supplies necessary for collecting the data.

Presentation Notes:

- Jeremy recuses himself
- Continuation of sea cliff erosion in IV
- Many undergrads working under him
- Goal is to try and figure out how cliffs are eroding in iv
- Taking drone surveys to monitor rate of erosion
- Using this to create a model in how that changes over time
- Taking data on wave action to see how amount of force effects sands and coitals
- Over short time scales, all parts of cliff are eroding at the same time
- If we figure out how bottom erodes than we can figure out how the whole cliff will erode
- We need drones, time series for sand levels
- Have pillars marked to see how much the waves are coming up
- To determine on hourly time scale, how hight the wave is hitting
- If we know how to convert buoy data, we can come up with imperial data to see the measurements of erosion
- This is how much material is present, how much force is a the bottom, then play with theoretical equations

Board Questions:

- Are you going to take into account cane tides
    - We only have a couple of measurements for that
    - We don't have exact affect, mostly depends on waterlevel plus wave energy
- Are you taking into account other data models
    - The longterm stuff as of right now the usgs has a digital surveys and lifeguard-errors
    - The rates used form 2016 are used
    - Usgs has sea level rise modeling
    - Taken wave energy in previous projects but now how strong the rock is or how the waves are eroding hte base of the cliff
    - If we increase sea level this is the amount of time it will effect the erosion
    - By doing this, we can get a process based approahc
    - If sea levels rise but it covers all of sand, how would that affect
    - Beach width affects erosion
    - Water and sand is like sound paper
    - If the beaches disappear a little, it would be really bad, but if it covers the sand entirely it might actually cause less erosion
    - Trying to take old aerial imagery from 1930-2016 but not orthorectified

    - Need someone to go over them and place them correctly and flatten them
    - If we take short term measurements we can maybe look at long term
    - Never produced the project of the orthorectified aerial images
    - This project is short term, then use long term to test the data
    - Need to get a hold of images
    - Might have to modify budget- would need it before the end of February
- After you find all this data, how are you going to tell the people in IV
    - Important to let them know
    - Haven't spent too much time considering how to do that yet
    - See people lying under the cliffs
    - Think its important to make it public
    - An easy way to do that is to give it to the school newspaper
    - There are signs now about the cliffs and rock fall, not in IV
    - Over long term, we have erosion rates in iv from late 60s to now
    - They presented poster on that
    - Not sure of how to let people know about it
    - The university doesn't take responsibility to IV
    - Published a paper on some of this
    - Takes time for people to see a paper and then want to do an article on this
    - If you keep telling people the info gets through
- Is this work going to be included in the eemb conference
    - Its included under the large majority of cliff erosion
- Are you taking into consideration the seismic activity
    - Wave flexes slightly from the dancing but it is not a driving model
- Can you elaborate more on erosion pins
    - At the base of the cliff, will take a pin with a proxy, glue them into cliff and when the cliff starts clearing away, they can measure the erosion to the centimeter scale
    - Will use drone flight and pins to check each
- Do you differentiate baseline of erosion vs when there's storms
    - If you have a week in between scans, can look at hourly buoy data to find wave data
    - The bottom of cliff is set for long term
    - Reducing every variable is too much, but taking info at bottom, translates to the top
- How does the drone correlate to cis
    - Program stitches all of images together
    - Look at bolt on balcony
    - Gis has one elevation point, only one elevation point there
    - Made a 3d model, can start looking at height and base of cliff
    - Looking at rock walls coming off of base
    - See how cliff edge moved
    - Mostly using 3d print models
    - Can see how much cliff changed in a certain direction
    - Long term would be seeing how aerieal cliff edge retreated over time
    - The rate of cliff erosion here is very fast so they know that as soon as bottom erodes it takes a couple of years for top to move
    - Can use to test short term measurements and long term measurements to test model

Board Discussion:

- Relevant because we are living in iv
- Most of the houses might collapse soon all over iv, us, and world
- Curious to see how much data they will need to get accuracy
- They do have both the short and long term data which will help
- Working to see how old data might be useful
- Sad that they aren't doing anything with cane tides
- His project works on getting linked with different partnerships
- 3d model of cliffs sounds like a really cool idea
- Like how he brought undergrad with him

MOTION/SECOND: Karen/ Laura
Motion language: Motion to table discussion on WIN 20-11
ACTION: Consent
Additional approval required: YES (Senate)

Project Title: WIN 20-18 : A multivariate spatial approach to identifying unprecedented shifts in phytoplankton functional groups and other ecologically important taxa in the Santa Barbara Channel during regional SST anomalies and perturbations during localized natural disasters.

Sponsoring Organization: Santa Barbara HAB Monitoring NETwork
Presenter Name: Sarah Amiri

Summary:

For the Winter 2020 funding cycle, SBC HAB Monitoring NETwork seeks funding to better understand how the onset of the new warm water temperature anomaly that formed in September 2019 and persisted in to 2020 will affect phytoplankton diversity, bloom phenology and spatial distribution across the SBC. Attached in the supplemental materials folder is a NOAA figure that models the pattern of the 2014/2015 SST anomaly along the West Coast that resulted in a 2-5°C increase across the Santa Barbara Channel and pairs that with a current model on the newly emerging marine heatwave of 2019/2020.

Concomitant to our goals to gain spatial coverage across the SBC to monitor the new emerging marine heatwave, our project is also actively working towards better understanding the effects of the recent 2019 Cave Fire and its contributions of ash deposition, ash leachate, and particulate matter on Goleta Bay and Goleta Slough over time.

Presentation Notes:

- Interested in phytoplankton and diversity
- Produce have of our oxygen
- What really interests us is effect on
- Where are the phytoplankton blooms
- Spatially cover about 22 field sites-wide net and array
- Through ecological disasters how do phytoplankton react
- How is their diversity affected
- Sea temperature event several times
- Sbc have collected accross channel all along different time points
- Try to asses what has happened to these organisms
- This heat wave is hugging the coast like in 2015
- In the last heat wave in 2015, huge lack of diversity
- Diatoms go really abundant and diverse in fire
- From mud we saw different effects, bonding to mud
- Diversity of channels has to do with cooling effects
- With heating there is a sink in diversity
- Weird species rebound in thomas fire
- Saw tropical phytoplankton, during the heat wave during 2014
- Getting those again for this new heat wave
- Using a cool algorithm, can find shape of phytoplankton
- Its important to reach out to community about importance of phytoplankton
- Few interns

Board Questions:

- Can you talk more about internships
    - Weird cylce for internships
    - Last cycle we had two interns going to field sites, and enumerating
    - Enumerating failure is 60%
    - Wanted to get interns in field as much as possible
    - Use gis training for the machine learning and stat knowledge
    - Less lab work more field work
- Will there be multiple interns with multiple skills or one with a lot of skills would they be working with nasa
    - Wanted to get a lot of students involved
    - Long term interns would be for coastal dynamics
    - Mappin internships would be longer
    - Got a lot of good maps but not as good as they need
    - They would be working with her but also with nasa scientists
    - Close partnership with island people to do sampling there
- How do you pick new interns
    - Interns are usually scared at interviews
    - So she asks them why they care and bring them into lab
    - If they are doing it for credit, they usually don't make it past the interview
    - Skill sets- some of the kids are why they are using machine learning
- Could you talk about algorithm

    - Ocean science meeting is in 5 days,
    - Believe in interns identifying, but its faster and more efficient to use algorithm
    - Camera take s1000 images per minute
    - Through python and open source, the robot can count about 80% of sample
    - Code classifies plankton
    - Functional root can be seen very well
- Are there already data sets for plankton
    - Yes at mit they have a lot of algorithms, but this algorithm works for them
    - Employs for greater accuracy
- Are there other groups of people working with similar algorithms
    - They got the algorithms from scripps
    - They can see phytoplankton in really clear images
    - All answer how phytoplankton affect santa barbara channels
- Are you sampling different layers in the ocean and regions
    - 0-400 meters for sampling
    - Whole water sampling
    - Net can take the smallest sample
    - Nasa data can show species from space
- Could you walk us through a day of getting a sample
    - Wake up at 6 am
    - Go to harbor gate number 6
    - Take a nap
    - Get to santa rosa shelf-right near island
    - Take first sample,which takes an hour
    - Filter water, help prep,
    - Collecting seawater, looking at dimolic acid in air
    - Learn everything form oceanography, atmospheric science, etc
    - Lots of collecting and filtering water
    - Island sampling, imaging
- Do you have a special lends
    - Can buy microscope for your phone
- How are you fundraising through crowdsourcing
    - Going on change.org
    - In the process of creating a logo and app for fundraising
    - People care in the community

Board Discussion:

- Passionate
- Lot less scary for interns than it seems
- Really cares about interns
- Tries to support interns as much as possible
- Seems like a great mentor
- Useful for gis interns and implementing this in the greater public
- The nasa stuff is really interesting
- An undergrad having that opportunity is great

- Forgot to ask the different effects between fire and warming anomaly
- Not sure about overlap between two events

MOTION/SECOND: Jeremy/Ethan
Motion language: Motion to table discussion on WIN 20-18
ACTION: Consent
Additional approval required: YES (Senate)

ADJOURNMENT AT (time)
MOTION/SECOND: Karen/Ethan
Motion language: Motion to adjourn at 8:50
ACTION: Consent
Additional approval required: NO