



## COASTAL FUND MINUTES

Associated Students

Tuesday, 02/18/2020, Nati Conference Room

**CALL TO ORDER: 6:01 PM**, 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	present	Katherine Fukada Outreach Coordinator	present
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	present	Emma Swanson Senate Liaison	present
Laura Ingulrud 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:** consent

*Additional approval required: YES (Senate)*

#### 2. Approval of Minutes

**MOTION/SECOND:** Jeremy/Laura

*Motion language: Motion to approve minutes from last week*

**ACTION:**

*Additional approval required: YES (Senate)*

### **C. PUBLIC FORUM**

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

### **D. REPORTS**

1. **Advisor Report: Siedschlag**
  - i. ordered microwave
  - ii. usually do pizza for final meeting, need to approve funds for that
  - iii. minor grant deadline is this friday, will talk about how much we will have to cut
  - iv. might throw people off if its mentioned that we are not sure if they have been here before
2. **Chair Report: Francoeur**
  - i. will sign up for quarterly update for senate
3. **Vice Chair Report: Martin**
  - i. no report
4. **Senate Report: Sway and Swanson**
  - i. budget hearings went well
  - ii. passed a couple calpirg resolutions
5. **Administrative Report: Stewart**
  - i. no emails so started reaching out for late final reports
6. **Coastal Service Program Report: Stewart**
  - i. no report
7. **Outreach and Education Report: Patel and Fukuda**
  - i. sent out undergraduate board position to replace karen
  - ii. marine organism of the week is atolla jellyfish
8. **Sub-Committee Reports**
  - i. NRS scholarships
    1. no report
  - ii. Long-term Funding/ Pre-Screening Application
    1. in the current business
  - iii. Board Member Committee
    1. karen, ethan, jeremy, carissa

### **E. AGENDA**

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

*MOTION/SECOND: Jeremy/ Phoebe*

*Motion language: motion to approve agenda and additions to agenda*

*ACTION: consent*

*Additional approval required: YES (Senate)*

## **F. OLD BUSINESS**

## **G. NEW BUSINESS**

*MOTION/SECOND: Jeremy/ Karen*

*Motion language: Motion to approve \$250 for pizza*

*ACTION: Consent*

*Additional approval required: YES (Senate)*

Event Co-Sponsorship Request: IV Surfrider's 21<sup>st</sup> Annual Concert for the Coast

*MOTION/SECOND: Jeremy/Mike*

*Motion language: Motion to table discussion on IV surfrider's 21st Annual Concert for the Coast*

*Co-sponsorship request*

*ACTION: Consent*

*Additional approval required: YES (Senate)*

- Are they seeking out groups to table or just opening it up to everyone
- how will the schedule look, can we have a breakdown or script
- would like to hear more details about the art project/ plastic structure
- Can we see the progress of the art project?
- Who is going to be making announcements--script
- Do you have a banner?
- Do you have an estimate of when you will have confirmation of other funding
- have you heard from finance and business

## **H. DISCUSSION**

## **I. PROJECT REVIEW**

Project Title: WIN 20-07 : Surveys of the Leopard Shark aggregation of Coal Oil Point (Project Renewal)

Sponsoring Organization: UCSB Marine Science Institute

Presenter Name: Mary Nishimoto

Summary:

This request is for funding to support my ongoing observational study of leopard sharks (*Triakis semifasciata*) adjacent to the UC Coal Oil Point Reserve. I have been documenting the

presence and numbers of leopard sharks in shallow waters off the beach between the Reserve and Isla Vista since March 2017. I began this study on my own while I was a student at UCSB; I graduated in June 2018. I have developed aerial data collection protocols with advice from Drs. Mary Nishimoto and Milton Love (UCSB). I have been conducting the drone surveys since August 2018. This past year with support from the AS Coastal Fund, we have been investigating the spatial and temporal patterns of leopard shark abundance to determine if abundance is seasonal and correlated with environmental factors such as temperature and habitat characteristics. We are also investigating size class structure of the population.

I am seeking funding to support my time, equipment, and supplies to continue data collection and for education and outreach to the public. I have been using a drone from Drs. Nishimoto and Love's laboratory at UCSB. Any equipment and supplies that are not consumed during the study will remain in Drs. Nishimoto and Love's laboratory at UCSB.

- Karen recuses herself
- 3 years ago she discovered the leopard sharks and started to do field surveys
- Would take her over 2 hours, 8 months in she met drone flyers and that started the drone project
- Never found anything like coal oil point reserve
- 98% of the time, the sharks are there
- Has been doing a lot of this work on her own, underestimated how long the work would take her
- Tried working with different AI, but its too complex for certain softwares
- A lot of stuff she's doing manually which takes a long time
- Tried to use the drone information from great white videos but didn't work
- Still don't understand why they are here year-round
- New technology is efficient
- Has been doing a lot of analysis with a lot of different temperatures
- Important to see if the patterns continue over the year, numbers go above 400 in summertime which is more than usual
- Can educate the public on the leopard sharks during the summer
- We need to have something in place to upkeep education on the sharks
- Seen possible mating behaviors
- Seeing newborn sizes
- Able to tell the difference between fish and baby sharks
- Shovel nose guitar fish seen on video and they coexist with the shark
- The shovel nose guitar fish are labeled as endangered in some areas
- Never seen any feeding
- Drone can't fly at night
- Interns are very important because they have to have drone spotter and would like another drone pilot
- Sharks are indicator for what's going on
- Clear pattern of what ecosystem they like, looking at lunar phases
- Working closely with reserve and hoping to really get involved this next year
- Would like to make a display within the center

- None of the signs say anything about the sharks

#### Board Questions:

- Were you looking into interns to help you with the sightings in the video
  - Tried to get other interns to help her with that but it didn't work
  - Complex for some of them
  - Word of mouth for last interns, but think that if she was able to interview interns then she would want to ask interns
- So you have one year of data, do your advisors think you can publish now?
  - In the process of completing a report
  - Looking at summer to finish publishing
  - Want the size class structure done
  - Everything else is done
- Didn't see line item for docents, did you forget that?
  - I thought I would be the docent to begin with along with interns
  - Hoping the docents would be volunteers
- Is there a need to have a docent there to protect the species
  - Most people have a level of respect, but there is some who hurt the sharks
  - Don't know how sharks behavior change with humans
- Do you have plans for the draw up already for the sign
  - Have to work with reserve specifically
  - Would like to have qr code
  - Balance between education and respect
- Why do you want to postpone research?
  - She wants to have brochures at the center
  - Her goal is to have this as a long term program at ucsb
  - Might be able to figure it out in the long term for funding
  - Implementing basis and learning a lot with this process
  - Really important to see if the pattern is the same
- Why is there an increase of sharks or is the drone footage better
  - Wants to figure that out
  - High possibility of mating
  - Trying to figure it out
  - Compared the fall and pretty simple

#### Board Discussion:

- Cool that she has been working with coal oil reserve
- Seems like its all based on her counting
- Feel like it would be good to have two years of data
- Definitely seems like there is a lot of challenges
- Not legally allowed to fly drones at night
- Surprised that they aren't feeding
- Thinks project is really cool, she is so passionate about it
- Don't know how involved her PI's are
- Wonder how much mentorship she has
- Not a lot of guidance
- When she does leave, the work might go away

- If the work is carried on by the coal oil point reserve then it might work
- If she can make this next year really strong, then it would help it to become a continuing program
- It's very unknown, definitely needs to hire comp sci interns
- Tell her to revise and resubmit?
- If there is some way to make it clear to advisor that she needs more help
- We could give her three months of funding and then tell her to reapply
- Thinking the educational stuff is jumping the gun
- Encourage her to do the AI stuff
- Can see why she would be having issues
- Most spatial recognition algorithms would be looking at individual, hard to draw actual boundaries with overlapping fish
- Could see challenge for AI but still might be doable
- Think that would streamline project
- If it doesn't work out, then she will have to say why it didn't work
- Makes her grad application stronger if she develops a methodology
- Funding for a couple of months and then telling her what we would like to see, that would be a good way to go
- Usually get more requests in the spring

*MOTION/SECOND: Jeremy/Laura*

*Motion language: Motion to table discussion on WIN 20-07*

*ACTION: Consent*

*Additional approval required: YES (Senate)*

Project Title: WIN 20-14 : Impact of Natural Disasters on the Native Olympia Oyster in the Santa Barbara Watershed

Sponsoring Organization: UCSB Bren Hall

Presenter Name: Brandon Quintana

Summary:

The Olympia Oyster, *Ostrea lurida*, is the only oyster species native to the West coast of North America. Populations once ranged from British Columbia to Baja California, but have declined dramatically due to coastal development and pollution. Previous studies conducted at the Bren School and Coastal Fund projects surveyed and mapped oysters along the southern California Coast in 2017, finding many in local lagoons and sloughs.

The Carpinteria Salt Marsh, a UC Natural Reserve managed by UCSB, was once home to

one of the largest natural populations of Olympia oysters in Southern California. Many oysters were found in 2017 but the fires and subsequent mudslides in early 2018 covered the marsh with mud and debris, killing most of the Olympia oysters and modifying their habitat. The research question this study seeks to answer is: what is the impact of 2018 debris flow on Olympia oyster populations in Carpinteria Slough, and what are the restoration bottlenecks limiting their recovery?

Presentation Notes:

- Phoebe recuses herself
- Currently funding prjct
- Investigating the impact from the fire and debris flow on the oysters
- 70% decrease right after fire and flow
- 90% decrease currently
- Can see what has been surveyed by master students
- In the middle we have main channels that is filled full of mud and debris
- There is an important survey point from two channels, one that was dredged for mud, one that was not
- Four locations at mouth of the marsh, pvc pipe will be put down in the marsh to see the recruitment
- To see range of invasive oyster compared to olympic one and blue mussels
- Learned technical skills, constructing gis map of species abundance
- Will train volunteers
- Will be more competitive for opportunities
- Will attend ORCA slam and will attend conferences
- Will conduct research full time, will help him apply to graduate school
- Grant will allow him to fully immerse himself in project
- Olympia oysters will peak in summer, will try to maximize the opportunity to see recruitment of oysters
- Been working with director of carpinteria salt marsh, approved methods, all of it will be able to get it done over the summer
- Professor from cal state fullerton will collaborate with him on the project
- Lead scientist of sustainable fisheries in Bren
- He was interested in developing model to bring oyster population to normal
- In fishery models that he has he is learning to account for climate change
- Important to bring back population before next natural disaster hits

Board Questions:

- What are the differences with the new recruitment experiment
  - The csu fullerton professor told them that the substrate did not work
  - The new method will be better and it will hopefully help in low level population recruitment
- Are there specific types of substrates
  - Would like to have natural substrates, they like big boulder substrates
  - Going more with artificial substrates to get better results
- What experience did you have going into this and what are your interests
  - Has worked on invertebrate, fish, barnacle projects
  - Would love to do surveys, quadrats,

- Hoping to apply skills that he knows
- Will utilize what he has learned through major
- All skills will be used for it
- How many hours would you be putting in
  - Over the summer he would be working full time
  - The proposal is to fund last summer months
- Can you describe the bottleneck limitation
  - Lack of appropriate substrate
  - Pollution
  - What can we do to help these populations
- Can you talk about the differences between last quarter and this quarter
  - They are changing overall methods, and not taking in account all of the environmental components
  - The time would not have worked
- Is the professor going to be giving you the rest of supplies
  - Its just buying pvc pipes and terra cotta
- Could you talk about the underwater camera
  - The camera would get used for this project
  - The housing would be to protect from sand
  - The camera and housing can be used for other projects
  - It will be used in later projects
- Will you use camera to gauge substrates
  - Will be taking pictures for proof and gps
  - Will be able to use it for an accurate gis map

Board Discussion:

- I don't get how he said he could get along with that amount of money, and the now he is asking for that money
- Feel the skepticism but do want this project to succeed
- Just copied and pasted his first project
- What would happen if we don't fund this
- Seemed like they have a good amount of stuff
- Data from last summer was inconclusive
- Why would the first project only fund through june
- Did he already spend the money
- Wonder if they just funded the remainder of the previous project if that would be enough
- At first it was kind out of desperation, now he realizes that he can't finish with the money given
- Said he would be applying for more funding if he didn't get enough
- Realized that things would cost more money

*MOTION/SECOND: Jeremy/Ethan*

*Motion language: Motion to table discussion for WIN 20-14*

*ACTION: Consent*

*Additional approval required: YES (Senate)*



Project Title: WIN 20-15 : Assessing connectivity and genetic diversity of sandy beach indicator species on mainland and Channel Island beaches

Sponsoring Organization: UCSB Marine Science Institute

Presenter Name: Kyle Emery

#### Summary:

Coastal ecosystems are dynamic environments that provide numerous ecosystem functions. Climate change and other anthropogenic effects are leading to increased disturbance and isolation. Sandy beaches face numerous threats from rising sea levels and human management practices. Food and habitat availability (dry upper beach) strongly control patterns in beach biodiversity and ecosystem function. Climate change projections indicate loss of the upper beach zone due to sea level rise. I propose to explore patterns in diversity by analyzing the genetic diversity of populations six upper beach invertebrate species on mainland and Channel Island beaches. I will determine the level of connectivity across beaches for each species and if isolation due to loss of habitat and/or sea level rise affects some species more than others. The combined intra- and interspecific diversity patterns I identify will have large implications for conservation and management of these threatened coastal ecosystems.

#### Presentation Notes:

- Connectivity between kelp forest and beaches
- Looking at how kelp is transported, how it affects ecosystem while on beach
- Expanding on beach research in general
- Most research is super local
- Project proposal is additional,
- Very little research on beach ecology
- Very little genetic research on beach organisms
- Surprising number of species only found on beaches
- Number of spiders, isopods, beetles, etc that are only found on beaches
- Intertidal environment
- Lower beach crabs are the same as other crabs
- If you move up the beach, they do not have a water dispersal for offspring
- If you wanted to find juvenile offspring, the mother is holding it on their underside and then they are released on that beach
- Beaches can be separated and this limits the potential to colonize beaches
- This is a concern that restricts upper beach habitat
- This reduces colonization of beach
- We don't know how these organisms make it from one beach to another
- If kelp floats from one beach to another, that might help with dispersal

- Will collect organisms from a number of beaches
- Will use a mitochondrial gene marker
- Will give good understanding of the connectivity
- If results show that the species look the same, that's good because that could mean there is not good dispersal
- Looking at beach hopper species, better ability to disperse
- They are air-breathing with gills, can live in water for a week
- Isopod does not have that so it cannot travel
- Hopefully will have high dispersal organisms and low dispersal
- Both live in the same area
- Will use four islands and 3 main land sites to test
- Have already collected samples from 4 islands, just need funding for mainland sites

#### Board Questions:

- There is good dna work going on at the reserve, could projects collaborate
  - Their group is doing edna but this hasn't been developed well enough
  - Having genetic info on these three species will be beneficial
  - Dna extractions will give lots of samples for future studies
  - Starting with COI but lots of options
- How can this inform?
  - Coastal management is really bad right now
  - A cleaned up beach, stops a main food source for a lot of animals
  - If we can establish that beaches are well-connected, then we can determine that grooming isn't harmful, but if it's not, then it would eliminate diversity
  - Genetic side is very unexplored
  - An isolated population will not be able to respond well to a disturbance
  - Adding kelp to the beach helps the beach maintain biodiversity
- Will you disturb yourself
  - The island beaches are super pristine, with little to no impact
  - Will look at natural distance gradient
  - The middle part of isla vista the waves crash there, can use that as a disturbance
- Can you talk about undergrad lab assistant
  - Have 10-15 undergrads assisting
  - Advertise within their lab first
  - Recruit through blast email
  - Not looking yet for intern because wouldn't be able to do the project without the funding
  - Would be working with him to do analysis
  - Aiming to do work over summer
- Are you going to use mmds plot or anything

- Will look at groupings
- Will be able to evaluate connectivity at a bunch of different scales
- Will be able to look at differences across sites
- Enova is the most common way of approaching this
- Will be able to use stts from another project to help with this one
- Could you talk about specific gene and genetic variance
  - Using COI, mitochondrial gene, because it's passed on through offspring
  - Its not going to have differentiation based on breeding
  - Its most common one used for invertebrates
  - primers is the cheapest part
  - Part of initial work will be seeing what kind of dna they will be getting from the extractions
  - Ease of doing it
  - If it would become a failure, they would switch do a different gene but there should not be a reason for that
- How will you be analyzing diversity of species
  - This will be the first that the genes will be sequenced
  - Molecular anova in statistics here they will be getting sequences and it will make the sequences the numbers
  - In theory spatial distance will be the greatest diversity
  - The other way to look at that would be mnnds, would use that with output from one of these
  - Will give visual representation of groupings

#### Board notes

- Karen's favorite project
- Why is this a side project
- Fits into his phd
- Seems to know what he is doing
- An undergrad working with him would have a good experience
- Would like to pay them more for intern
- Not asking for that much

*MOTION/SECOND: Jeremy/ Laura*

*Motion language: Motion to table discussion on WIN 20-15*

*ACTION: Consent*

*Additional approval required: YES (Senate)*

#### **ADJOURNMENT AT 8:57 PM**

*MOTION/SECOND: Jeremy/ Laura*

*Motion language: Motion to adjourn at 8:57 PM*

*ACTION: Consent*

*Additional approval required: NO*