Welcome!
The registration desk will be open Thurs 5:00 - 8:00 pm, Fri-Sat 7:30 am - 6:00 pm, Sun 10:00-1:00. Registration packets will be available at the registration desk for attendees who have pre-registered. Those who have not pre-registered but wish to attend the meeting can pay for membership and registration anytime after 5:00 pm on Thursday ($200 Student/ $350 Regular) at the registration desk. Very limited tickets for the Saturday night buffet dinner will be available at the meeting, but first come - first served because the hotel requires final counts of attendees well in advance. The Attitude Adjustment Hour (AAH) is included in the registration price, so you will only need to show your badge or guest AAH ticket for admittance. WSN T-shirts and other merchandise can be purchased or picked up at the WSN Student Committee table.

Thanks to Student Travel Fund Donors
We are grateful to all of you who made donations to the Student Travel Fund when you registered; those funds are greatly appreciated by our many student members. Thank you!

Thanks to Donors
We are grateful for financial support from California SeaGrant, University of British Columbia Department of Zoology.

Thanks to Volunteers— we appreciate you!
This meeting could not happen without substantial volunteer contributions from many people. The secretariat thanks the student committee, the band, the judges of posters and talks, the Sagarin award committee, the student volunteers, and all those who keep our society going!
Merchandise
Merchandise may be picked up during the following times:

- THURSDAY: 5:00 - 8:00 PM
- FRIDAY: 7:30 - 8 AM and all coffee breaks
- SATURDAY: 7:30 - 8 AM and all coffee breaks
- SUNDAY: 8 - 8:30 AM, 10-10:30 AM

Auction
Proceeds from the silent auction and limited live auction will support the student travel fund. Please take items to the merchandise table for donation. Thank you!

**SILENT AUCTION: Friday 11/9 @ 8 am through Saturday 11/10 @ 5:15 pm.**
Winners must pick up their items by Sunday 11/11 @ 10:30 am. Items not claimed by then will be forfeited to the second-highest bidder.

**LIVE AUCTION: Saturday 11/10 @ 9 pm**
We will host a limited live auction on Saturday 11/10 @ 9:00 pm following the Presidential Address. Please bring items of special personal and historical significance to be auctioned!

Diversity, Equity and Inclusion
WSN is committed to creating and maintaining an environment in which all attendees can participate without harassment, discrimination, or violence of any type. In support of this goal, the society has established a Diversity, Equity, and Inclusion Committee, whose members include Corey Garza (Chair), Jennifer Burnaford, Alexandra Davis, Mike Gil, and Crystal Ng.

**Western Society of Naturalists Meeting Code of Conduct**
The Western Society of Naturalists (WSN) annual meeting is intended to foster the exchange of scientific ideas, provide participants with an opportunity to present research findings, establish and renew collaborations, facilitate recruitment of students and staff to laboratories and institutions, and to learn, teach, and network with an international community of scientists. WSN is committed to creating an environment in which all attendees can participate without harassment, discrimination, or violence of any type. This Code of Conduct applies to all events at the WSN annual meeting, including all meeting-related activities of participants.

All meeting participants must be treated with respect, regardless of race, gender, sexual orientation, gender identity/expression, ethnicity, ability, religion, language, professional status, institution or age. All meeting participants including, but not limited to, members, volunteers, attendees, vendors, exhibitors, contractors, and guests are expected to abide by this WSN Meeting Code of Conduct.

Expected behavior includes (but is not limited to):

- Treating all participants and meeting facilities with respect and consideration.
- Communicating openly with respect for others, critiquing ideas rather than individuals.
- Avoiding personal attacks directed toward others.
- Respecting the rules and policies of the meeting venue, hotels, WSN contracted facility, or any other venue.
Abiding by principles of academic integrity and ethical professional conduct.

Harassment or discrimination by or of any meeting participant or of any type will not be tolerated.

**Unacceptable behavior includes (but is not limited to):**

- Behavior that implies or indicates that someone does not belong at the WSN meeting based on any personal characteristic or identity.
- Any unwanted attention, sexual advances, and comments about appearance.
- Verbal harassment, including comments, epithets, slurs, threats, and negative stereotyping that are offensive, hostile, disrespectful, or unwelcome.
- Non-verbal harassment, including actions or distribution, display, or discussion of any written or graphic material toward an individual or group that ridicules, denigrates, insults, belittles, or shows hostility, aversion, or disrespect.
- Bullying, intimidation, stalking, shaming, and assault.
- Retaliation for reporting harassment.
- Reporting an incident in bad faith.

**Consequences:**
The WSN Secretariat reserves the right to enforce this Code of Conduct in any manner deemed appropriate. Anyone violating the Code of Conduct will first be asked to cease these behaviors. Failure to comply with requests can result in escalating consequences which may include, but are not limited to, (a) expulsion from the meeting, (b) prohibition from future meetings, or (c) revocation of WSN membership.

**Reporting:**
If you are the subject of unacceptable behavior or have witnessed any such behavior, please immediately notify a member of the WSN Secretariat.

Notification can be done by contacting a member of the WSN Secretariat on-site or via e-mail to secretariat@wsn-online.org.

**Lactation Room:** Available from Friday to Sunday, room Studiolo 2 in the main hotel. There is a sink and fridge available for use.
SCHEDULE AT A GLANCE: MAIN EVENTS

THURSDAY, NOVEMBER 8, 2018

1800-2015 STUDENT WORKSHOP (Pavilion BCEF) - open to all
   “Integrating Science and Art”, Art show and panel discussion

2100 STUDENT MIXER. Casual, no-host get together (7 Seas Brewery and Taproom)

FRIDAY, NOVEMBER 9, 2018

0800-1000 STUDENT SYMPOSIUM (Pavilion AGD)
   “Learning from the unexpected”

1030-1040 RAFE SAGARIN FELLOWSHIP RECIPIENTS
1040-1130 NATURALIST OF THE YEAR AWARD
   Andy Lamb: “The Magnificent Sebastes”

1130-1300 LUNCH

1300-1830 CONTRIBUTED PAPERS (Venice 1, Venice 2, Venice 3, Venice 4, Pavilion C, Pavilion EF)

1830-2030 ATTITUDE ADJUSTMENT HOUR (AAH) (Rotunda)

SATURDAY, NOVEMBER 10, 2018

0800-1000 PRESIDENTIAL SYMPOSIUM (Pavilion AGD)
   “Public Participation in Scientific Research: Increasing the Reach of our Science”

1030-1200 CONTRIBUTED PAPERS (Venice 1, Venice 2, Venice 3, Venice 4, Pavilion C, Pavilion EF)

1200-1330 LUNCH

1330-1700 CONTRIBUTED PAPERS (Venice 1, Venice 2, Venice 3, Venice 4, Pavilion C, Pavilion EF)

1730-1900 ANNUAL BUSINESS MEETING. All members are welcome - come help shape the future of our society (Venice 4)

1900-2130 PRESIDENTIAL BUFFET AND ADDRESS: Ginny Eckert (Pavillion)

2100-2400 UNDERSEA GALA: WSN AUCTION, GAMES, MUSIC, and ENTERTAINMENT (Pavillion)
SUNDAY, NOVEMBER 11, 2018

0800-1030  WSN Continental Breakfast (Rotunda)
0830-1000  POSTER SESSION ONE (Rotunda)
1030-1200  POSTER SESSION TWO (Rotunda)
1200-1300  SPECIAL PLENARY SPEAKER (International Ballroom)
            Jennifer Ruesink: “Sailing to South America: natural history and adventure”

SPECIAL TOPICS:
Alongside our usual range of topics, the 2018 meeting will also include sessions of contributed talks focused on four Special Topics. For a summary of these sessions, please see page 40.

CONFERENCE FOOD AND MEALS:
FRIDAY NIGHT AAH: 6:30-8:30 pm. A complimentary buffet and a cash bar will be provided in the Rotunda, including vegetarian options.

SATURDAY NIGHT PRESIDENTIAL BUFFET: 7:30 to 9:30 pm. The Presidential event will include a Southwest buffet served with complimentary wine for ticket holders in the Bicentennial Pavilion. A cash bar will also be available.

SUNDAY MORNING BRUNCH: 8:00 to 10:30 am. A Complimentary Deluxe Continental breakfast/brunch buffet will be available in the Rotunda.

Lunches will be on one’s own.

A NOTE ON PARKING FOR COMMUTING PARTICIPANTS:
Parking at the Hotel Murano is $16 per day for self-parking. There are additional daytime parking lots near the hotel. The easiest way to get free parking is to park at the Tacoma Dome and take the free link train a few minutes downtown and get off at the Marriott stop.
We have become increasingly aware of the importance of communicating science in a clear and digestible manner. However, this is not limited to spoken or written word. Art and technology are powerful platforms for sharing ideas and connecting with diverse audiences. When thoughtfully integrated with science, they can augment our science communication toolboxes and even advance our research in new, creative directions. As researchers, how can we effectively facilitate this fusion between our scientific endeavors and art, and how can we best put these artistic products to use? In this workshop, we will explore why art can work well as a science communication tool as well as how to tell stories and forge connections using art.

All attendees of WSN, not only students, are encouraged to attend.

1800 ART RECEPTION
Science-inspired art from WSN members and local artists will be on display and for sale.

1900 - 2015 PANEL DISCUSSION

Alex Warneke, M.Sc., National Park Service
Alex resides as a Science Communicator and Marine Ecologist for the National Park Service. As an ecologist and storyteller, she works alongside stakeholders in education, academia, non-profit, and government to translate the most current scientific bodies of work in ways that are accessible and inclusive. Alex obtained her M.Sc. in Ecology from San Diego State University.

Maria Jost, M.Ed., Artist and Science Educator
Maria is a science-inspired artist and science educator living in Tacoma, Washington. As an artist, she creates intricate original illustrations, print series, and public art installations based on organisms and scientific topics. As a teacher at a local public high school, Maria emphasizes experiential learning, partnership with community members and local institutions, and celebration of the cultural and neurological diversity of her students. Maria holds a M.Ed from the University of Washington, Tacoma.

Drew Collins, Photographer and Videographer
Born and raised in the Puget Sound region, Drew volunteers much of his time supporting life sciences and environmentalist activities that directly benefit Puget Sound. He is a founder of 'Made In Puget Sound®, an all-volunteer nonprofit organization, and his presentations and blogs educate, enlighten and inspire residents and visitors to help promote a healthy Puget Sound Underwater.
FRIDAY, NOVEMBER 9, 2018

STUDENT SYMPOSIUM: “LEARNING FROM THE UNEXPECTED” PAVILLION AGD

0800  INTRODUCTION  (Aaron Ninokawa, WSN Student Committee)
0810  Dr. Eric Sanford, University of California Davis
      EMBRACING THE UNEXPECTED: A FIELD ECOLOGIST’S PATH TO DISCOVERY
0830  Alyssa Frederick, University of California Irvine
      THERE AND BACK AGAIN: TURNING FIELD FAILURES INTO SUCCESSES
0850  Dr. Joanie Kleypas, National Center for Atmospheric Research
      TWENTY YEARS OF SURPRISES IN CORAL REEF RESEARCH
0910  Dr. Ellen Prager, Earth2Ocean, Inc.
      OVERCOMING OBSTACLES AND APPRECIATING SCIENCE SURPRISES: FROM
      OCEAN RESEARCH TO ECOTOURISM

0930  PANEL DISCUSSION

1000  COFFEE BREAK

1030  RAFE SAGARIN FELLOWSHIP RECIPIENTS  (presented by Ben Miner)

1040  NATURALIST OF THE YEAR AWARD  (presented by Matt Whalen)
      Andy Lamb: “The Magnificent Sebastes”

1130-1300  LUNCH

1300-1430  CONTRIBUTED PAPERS  (Venice 1, Venice 2, Venice 3, Venice 4, Pavilion C, Pavilion F)

1430-1500  BREAK

1500-1630  CONTRIBUTED PAPERS  (Venice 1, Venice 2, Venice 3, Venice 4, Pavilion C, Pavilion F)

1630-1700  BREAK

1700-1830  CONTRIBUTED PAPERS, INCLUDING SPEED TALKS  (Venice 1, Venice 2, Venice 3, Venice 4)

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<td>†Smith, J.G. GOLDEN GONADS IN SEA OTTER COUNTRY: HOW SEA-URCHIN CONDITION INFLUENCES PATCH SELECTION BY SEA-OTTERS</td>
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<td>†Hainey, M.A.H. BEHAVIOR AND FUNCTIONAL MORPHOLOGY OF RESPIRATION IN THE BASKET STAR GORGONOCEPHALUS EUKNEMIS</td>
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<td>†Beheshti, K.M. EXPERIMENTAL SEAGRASS RESTORATION SUCCESS IN ELKHORN SLOUGH</td>
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Community Ecology 2  
Chair: Yeager, M.E. | Session 8: VENICE 2  
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Physiological Ecology 2  
Chair: Miller, L.P. | Session 10: VENICE 4  
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LOCAL AND REGIONAL CONTROLS OF COMMUNITY STABILITY | †Horn, D.A.  
IMPACTS OF ENVIRONMENTALLY-RELEVANT CONCENTRATIONS OF POLYETHYLENE ROPE ON PACIFIC MOLE CRAB (E. ANALOGA) DEVELOPMENT AND LIFESPAN | | †Traiger, S.B.  
KELP VERSUS PHYTOPLANKTON: HOW DOES PRIMARY PRODUCTION AFFECT CARBON CHEMISTRY IN THE NEARSHORE ENVIRONMENT OF MONTEREY BAY? |
| 1515  | †Walker, J.K.  
PLANT TISSUE, SPECIES, AND POPULATION INFLUENCE PALATABILITY FOR A SALT MARSH BURROWING CRAB | †Baechler, Britta R.  
EXAMINING MICROPLASTIC CONCENTRATIONS IN OREGON'S PACIFIC OYSTERS | †Venkataraman, Y.R.  
ADULT LOW PH EXPOSURE INFLUENCES LARVAL ABUNDANCE IN PACIFIC OYSTERS (CRASSOSTREA GIGAS) | †Howard, M.E.  
EFFECTS OF PAIRED OLYMPIA OYSTER AND EELGRASS RESTORATION ON FISH AND INFANAL COMMUNITIES IN NEWPORT BAY, CALIFORNIA |
| 1530  | †Wallingford, P.D.  
PREDICTING PREDATOR-PREY RESPONSES TO CLIMATE CHANGE USING A COMMUNITY REGULATION MODEL | †Miller, M.R.  
TRENDS OF MARINE DEBRIS ACCUMULATION ON CALIFORNIA'S CHANNEL ISLANDS | Miller, L.P.  
ESTABLISHMENT OF INTERNAL BODY TEMPERATURE GRADIENTS IN MYTILUS CALIFORNIANUS DURING EMERSION | Ricart, A.M.  
NATURAL PH VARIABILITY DRIVEN BY SEAGRASSES AFFECTS OYSTER GROWTH: INSIGHTS INTO POTENTIAL MITIGATION OF OCEAN ACIDIFICATION |
| 1545  | †Ryznar, E.R.  
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TESTING THE WATERS: A FIELD INVESTIGATION OF EMERGING CONTAMINANTS IN TRANSPLANTED PACIFIC OYSTERS | †Bedgood, S.A.  
DIFFERENCES IN PHOTOSYNTHETIC EFFICIENCY, SYMBIONT DENSITY, AND CHLOROPHYLL CONTENT WITHIN AND BETWEEN SEA ANEMONE SPECIES | Nickols, K.J.  
A TALE OF TRANSITION: PHYSICAL AND CHEMICAL CONDITIONS OF KELP FORESTS AND URCHIN BARRENS WITHIN A MARINE PROTECTED AREA |
| 1600  | †Beatty, D.S.  
HISTORICAL EFFECTS AND ACCLIMATIZATION IN CORAL CHEMICAL DEFENSE TO RAPID SHIFTS IN REEF STATE | Welsh, L.E.  
ATMOSPHERIC MICROPLASTICS | †Moyen, N.E.  
HEATING RATE AFFECTS THERMAL TOLERANCE IN INTERTIDAL MUSSELS | †De La Cruz, E.  
KELP FORESTS ECOLOGICAL SUCCESSION AFTER AN EXTREME WARMING EVENT NEAR ITS SOUTHERN DISTRIBUTION LIMIT. |
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<td>1745</td>
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<td>Bell, T.W. SEPARATING POTENTIAL GLOBAL CHANGE TRENDS FROM LOW FREQUENCY CLIMATE OSCILLATIONS IN NE PACIFIC KELP FORESTS</td>
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<td>1800</td>
<td>†Ninokawa, A.</td>
<td>INVESTIGATING THE SELF-LIMITATION OF BIOLOGICAL PROCESSES IN THE ECOSYSTEM ENGINEER, MYTILUS CALIFORNIANUS</td>
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### SPEED TALKS (1700-1800)

**VENICE 4**

**CHAIR: M. GIL**

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<td>Gil, M.A.</td>
<td>How Fish Social Networks Can Shape Ecosystem Resilience</td>
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SATURDAY, NOVEMBER 10, 2018

PRESIDENTIAL SYMPOSIUM (0800-1000) Pavilion AGD

“PUBLIC PARTICIPATION IN SCIENTIFIC RESEARCH: INCREASING THE REACH OF OUR SCIENCE”

0800 INTRODUCTION (Dr. Ginny Eckert)

0810 Jennifer Shirk, Cornell University
Going Deep: Citizen Science Infrastructure for Impact

0830 Jan Freiwald, Reef Check
Diving for Science: Citizen Science Data for California’s Marine Protected Area Network

0850 Julia Parrish, University of Washington
Advancing Science with Citizen Science: How and Why Involving the Public Makes Science Better

0910 Elizabeth Ellwood, La Brea Tar Pits & Museum
Museum-based Citizen Science Across Local and Global Scales: Examples from the Natural History Museum of Los Angeles County and WeDigBio

0930 PANEL DISCUSSION

1000 COFFEE BREAK

1030-1200 CONTRIBUTED PAPERS (Venice 1, Venice 2, Venice 3, Venice 4, Pavilion C, Pavilion F)

1200-1330 LUNCH

1330-1500 CONTRIBUTED PAPERS (Venice 1, Venice 2, Venice 3, Venice 4, Pavilion C, Pavilion F)

1500-1530 BREAK

1530-1700 CONTRIBUTED PAPERS (Venice 1, Venice 2, Venice 3, Venice 4, Pavilion C, Pavilion F)

1730-1900 ANNUAL BUSINESS MEETING (Venice 4)

1930-2130 WSN DINNER BUFFET AND PRESIDENTIAL ADDRESS: Ginny Eckert (Pavilion)

2130-2400 UNDERSEA GALA: WSN AUCTION, GAMES, MUSIC, and ENTERTAINMENT (Pavilion)
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### Session 26: PAVILION C
**Special Topic: Taking the Long View 2**
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**1330**
**Cavanaugh, K.C.** **SPATIAL VARIABILITY IN THE RESISTANCE AND RESILIENCE OF GIANT KELP FORESTS TO A MARINE HEATWAVE**

**1345**
**Selgrath, J.C.** **RECONSTRUCTING ECOSYSTEM CHANGE IN MONTEREY BAY, CALIFORNIA**

**1400**
**Watson, J.C.** **LONG-TERM CHANGES IN LONG-LIVED KELP FORESTS; THE ROLE OF HISTORY AND THE ENVIRONMENT**

**1415**
**Fiorenza, E.A.** **IT'S A WORMY WORLD: META-ANALYSIS REVEALS LONG TERM CHANGE IN THE ABUNDANCE OF ANISAKID NEMATODE PARASITES OF MARINE FISHES**

**1430**
**Slade, E.M.** **ESTIMATING HISTORIC BASELINES IN RELATIVE SEA OTTER PREVALENCE: INTEGRATING ARCHAEOLOGICAL AND CONTEMPORARY MUSSEL SIZE STRUCTURE**

### Session 27: PAVILION F
**Ecosystem Assessment**
**Chair:** L. Rogers-Bennett

**1330**
**Huber, S.R.** **WILL COMPROMISED CALCIFICATION INCREASE CORALLINE SUSCEPTIBILITY TO HERBIVORY: IMPLICATIONS FOR AN ACIDIFIED OCEAN**

**1345**
**Moore, T.N.** **ANTHROPOGENIC DISTURBANCES ENHANCE NUTRIENT-DRIVEN ACIDIFICATION**

**1400**
**Spector, P.** **SPEAKING FOR THE UNDERSTORY: QUANTIFYING THE LOSS OF BENTHIC PRODUCTION IN KELP FORESTS**

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SUNDAY, NOVEMBER 11, 2018

WSN POSTERS AND PLENARY PRESENTATION (0800-1330) Rotunda

0800-1030  WSN CONTINENTAL BREAKFAST (Rotunda)

0800-0830  POSTER SET UP: POSTER SESSION ONE* (Rotunda; poster numbers 1-78)
            *Presenters please have your poster on display by no later than 0815

0830-1000  WSN POSTER SESSION ONE (Rotunda)

1000-1030  POSTER SET UP: POSTER SESSION TWO* (Rotunda; poster numbers 79-155)
            *Presenters please have your poster on display by no later than 1015

1030-1200  WSN POSTER SESSION TWO (Rotunda)

1200-1300  PLENARY SPEAKER (Pavilion AGD)

            Dr. Jen Ruesink, University of Washington
            “SAILING TO SOUTH AMERICA: NATURAL HISTORY AND ADVENTURE”

1330      MEETING ADJOURNS
POSTER TITLES
*presenting author
† eligibility for Best Student Paper/Poster Award
Posters will be displayed by number in the Rotunda.

Poster Session One
Poster numbers 1-77

Poster Session Two
Poster numbers 78-153

Presenters: Please have your poster on display at the correct station number no later than 15 minutes prior to the start of your session.

1. Behrens, M. D.*, Troyer, S.
POPULATION SIZE STRUCTURE AND PATTERNS OF RECRUITMENT IN NOVEL SOUTH PUGET SOUND PACIFIC OYSTER POPULATIONS

2. †Spendiff, T. M.*, Emlet, R. B.
HARD OR SOFT? RESPONSE OF LARVAL AND JUVENILE SHIPWORMS TO WOODS OF DIFFERENT DENSITIES

THE EFFECT OF TEMPERATURE ON THE RATE OF ANAEROBIC METABOLISM IN MYTILUS GALLOPROVINCIALIS

SEASONAL AND SPATIAL PATTERNS OF INTERTIDAL CLAM SETTLEMENT

5. Cieri, K. P.*
FACTORS INFLUENCING TERRITORIAL BEHAVIOR IN GARIBALDI (HYPSYPOPS RUBICUNDUS) AROUND ISLA NATIVIDAD, BCS

6. †Neumann, K. C.*, Burkepile, D. E.
NUTRIENTS FROM RIDGE TO REEF ON MO‘OREA, A HIGH ISLAND IN THE SOUTH PACIFIC

7. †Hart, D., Schofield, T.*
VARIABLE RECOVERY OF A KEYSTONE SPECIES, PISASTER OCHRACEUS, FOLLOWING WIDESPREAD DISEASE OUTBREAK

8. †Moritsch, M. M., Strope, L. T.*, Crandall, S. G.
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9. †Rangel, R. E.*, Sorte, C. J.
LOCAL-SCALE ENVIRONMENTAL HISTORY INFLUENCES THE RESPONSE OF ALASKAN TIDE POOL SPECIES TO INCREASED TEMPERATURE

ADJUSTMENTS TO EELGRASS LEAF AREA INDEX IN HUMBOLDT BAY BASED ON DESICCATION AND WASTING DISEASE LESIONS

EFFECT OF SHELL CONTRACTION BEHAVIOR ON GAMETE DISPERsal AND FERTILIZATION SUCCESS OF THE RED ABALONE, Haliotis Rufescens

12. †VanderBloomer, P. D.*, Rempel, H. S., Ruttenberg, B. I.
CORAL GRAZING SCAR DISTRIBUTION ACROSS A GRADIENT OF PARROTFISH ABUNDANCE IN THE U.S. VIRGIN ISLANDS

TESTING THE EFFECTS OF ELEVATED TEMPERATURE ON GUMBOOT CHITONS WITH THE USE OF BIOMIMETIC MODELS AND LABORATORY EXPERIMENTS

14. †Panos, D. A.*, Lowe, A. T., Galloway, A. W., Nickols, K. J.
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15. Hessing-Lewis, M. *, Monteith, Z., Olson, A., Smith, R., Vanmaanen, D.
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17. Allen, B. J.*, Passarelli, J. K., Lawrenz-Miller, S. E., Miller, A. C.
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100. Beste, M., Hendricks, K., Jordan, M., Hultgren, K.
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102. Hossfeld, D. H., Cohen, C. S.
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103. †Powell, C. S., Kroeker, K. J., Bell, L.
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104. †Leggett, T., Ng, C., Low, N., Micheli, F.
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105. †Coblentz, M. C., Edmunds, P. J.
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106. McLaughlin, E. L., Rouse, G. W., Wilson, N. G.
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107. Seroy, S. K., Zulmuthi, H. Z., Grünbaum, D.
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108. †Hendricks, K. R., Beste, M., Jordan, M., Hultgren, K. M.
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109. †Truong, A. T.
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110. **Reid, H. B.**, Harley, C. D.
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ADDRESSING COASTAL VARIABILITY: HOW DO PH FLUCTUATIONS MEDIATE THE EFFECTS OF OA ON COASTAL FISH?

113. **Green, J. M.**, Puritz, J. B.
UNLOCKING THE EXOME: EXPLORING DE NOVO ASSEMBLY OPTIONS FOR CAPTURE SEQUENCING

114. †**Kalbach, G. M.**, Traiger, S., Nickols, K. J.
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116. †**Franzova, V. A.**, MacLeod, C. D., Harley, C. D.
THE EFFECT OF OCEAN ACIDIFICATION AND WARMING ON TREMATODE CERCARIAE

EXAMINATION OF SPATIAL DIFFERENCES IN DEMOGRAPHY AND LIFE HISTORY OF CANARY ROCKFISH (SEBASTES PINNIGER) ALONG THE U.S. WEST COAST

118. **Trego, M. L.**, Whitehead, A., Kellar, N. M., Lauf, M., Lewison, R. L.
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119. **Langhans, M. R.**, Casey, C., Reichmuth, C.
CALL PRODUCTION IN GUADALUPE FUR SEAL (ARCTOCEPHALUS TOWNSENDI) FEMALES AND PUPS

POPULATION STRUCTURE OF STRONGYLOCENTROTUS PURPURATUS IN KELP FORESTS AND URCHIN BARRENS (WORKING TITLE)

THE IMPACT OF ANTHROPOGENIC DISTURBANCE ON LONG-TERM BULL KELP DYNAMICS
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123. †Monak, M. F.*  
MONITORING BARRIER BEACH BREACHING WITH UAVS GENERATING MAPS AND 3D MODELS FROM AERIAL IMAGES TO DETERMINE BREACHING PATTERNS

124. †Mahanes, S. A.*, Bracken, M. E., Sorte, C. J.  
FICKLE FRONDS: THE EFFECTS OF A DOMINANT ALGA ON COMMUNITY DIVERSITY AND COMPOSITION

125. †Jaffe, N. J.*, Cohen, C. S.  
REGIONAL PHYLOGEOGRAPHY IN A BROODING SEA STAR VARIABLY IMPACTED BY SEA STAR WASTING DISEASE

126. †Liu, O. R., Szuwalski, C. S., Steven D. Gaines,  
RECOVERY OF AN ENDANGERED SPECIES THREATENS A HARVESTED RESOURCE

127. †Tedford, K. N.*, Daly, E. J., Castorani, M. C.  
SPATIAL PATTERNS OF CONSUMER COMMUNITIES ACROSS A RESTORED SEAGRASS LANDSCAPE

DOES EELGRASS ACT AS AN OCEAN ACIDIFICATION REFUGE FOR SHELLFISH IN PUGET SOUND?

129. Roe, M. C., Oldach, E. J., Webber, H. M., Petersen, C. W.  
POPULATION BIOLOGY OF ROCKWEED IN FRENCHMAN BAY, MAINE: ASSESSMENT OF A COMMERCIALLY TARGETED AND ECOLOGICALLY IMPORTANT SPECIES

130. †Bolm, A. E.*, Fisher, J. L., Granek, E. F., Horn, D. A., Baechlar, B. R.  
MICROPLASTIC CONTAMINANTS IN PELAGIC ZONE ZOOPLANKTON AND SEAWATER OF THE NORTHEAST PACIFIC OCEAN

PUBLIC PARTICIPATION IN SCIENTIFIC RESEARCH: SEA OTTERS AND SEAGRASS IN SOUTHEAST ALASKA

132. †Raether, S. A.*, Shaughnessy, F. J.  
SEAWEED COMMUNITY STRUCTURE ALONG ENVIRONMENTAL GRADIENTS IN AN OCEAN-DOMINATED ESTUARY

133. †Strickland, K. M.*, Lindholm, J. B.  
MICROHABITAT ASSOCIATIONS OF KELP ROCKFISH *SEBASTES ATROVIRENS* ALONG THE REEF-SAND INTERFACE AT CENTRAL CALIFORNIAN REEFS
134. †Salinas Ruiz, P. ⌣, Lindholm, J. 
STRANGE FISH IN WEIRD PLACES: THE CHANGING DISTRIBUTION OF FISHES ALONG THE COAST OF CALIFORNIA

FORCES OF CHANGE: ASSESSING THE EFFECT OF LARGE-SCALE OCEAN WARMING EVENTS ON ROCKFISH LIFE HISTORY TRAITS.

136. †Gong, Z. ⌣, Jaffe, N. H., Bland, R. ⌣, Cohen, C. S. 
WHO IS STRONGER: ATTACHMENT STRENGTH OF LEPTASTERIAS SPP. IN RELATION TO MICROHABITATS AND CLADES

137. McHaskell, D. M. ⌣, Smith, J. E. 
UNDERSTANDING INVASION SUCCESS OF UNDARIA PINNATIFIDA (HARVEY) SURINGAR IN SAN DIEGO: MAPPING DISTRIBUTION AND ZOOSPORE SETTLEMENT

OCTOPUSES IN A CHANGING ENVIRONMENT: TEMPERATURE AND OCEAN ACIDIFICATION EFFECTS ON THE METABOLIC PHYSIOLOGY OF *OCTOPUS RUBESCENTS

LITHOTHAMNION SORIFERUM IS THE HABITAT-FORMING RHODOLITH OF KINZAROF LAGOON, ALASKA

PHYSIOLOGICAL AND MOLECULAR ASSESSMENT OF THERMAL TOLERANCE AND HSP70 EXPRESSION OF LYTECHINUS PICTUS

141. †Chin, C. T., Roopnarine, P. D. 
THE IMPACTS OF INVASIVE LIONFISH ON CARIBBEAN FOOD WEBS

142. †Nguyen, B. N. ⌣, Altieri, A. H., Knowlton, N. ⌣, Paulay, G. ⌣, McMillan, W. O., Crandall, K. A., Leray, M. 
ARE CORAL REEFS REALLY THE MOST DIVERSE TROPICAL SHALLOW-WATER HABITATS?

143. Scheetz, E. L. ⌣, Whitley, S. 
MICROPLASTIC DISTRIBUTION IN SEDIMENT AND UPTAKE BY THE BIVALVE MERCENARIA MERCENARIA

144. †Pepper, M. A. ⌣, Castellanos, M. ⌣, Connor, C. M. 
HEAT-SHOCK GENE RESPONSE IN THE MUSSLE, MYTILUS GALLOPROVINCIALIS, UNDER ANAEROBIC CONDITIONS

145. Tonra, K. ⌣, Poulin, E. ⌣, Mumford, T. ⌣, Freshwater, D. W. 
CORALLINE ALGAE AS AN INTERMEDIATE HOST FOR KELP GAMETOPHYTES
146. †McCollum, B. A. †, Adjunta, D. , Byrnes, J. E.
THE BEHAVIORAL AND METABOLIC RESPONSE OF GREEN SEA URCHINS
(STRONGYLOCENTROTUS DROEBACHIENSIS) TO MARINE HEAT WAVES

147. †Jones, R. D. †
REEVALUATING MEASUREMENTS OF BIODIVERSITY WITHIN INTERTIDAL
COMMUNITIES: EXAMINING SPECIES HETEROGENEITY WITHIN MUSSEL BED
MATRICES

THE EFFECTS OF UPWELLING, CHLOROPHYLL A, AND SST ON THE
SEASONALITY OF THE ZOOPLANKTON COMMUNITY STRUCTURE IN
MONTEREY BAY

149. †Davis, K. E. †, O’Connor, M. I.
METABOLIC SCALING OF BIOLOGICAL NITROGEN FIXATION: FROM CELLS TO
ECOSYSTEMS

150. Oceguera Zavala, J. O. †, Winquist, T. , Grosholz, E. D., Hollarsmith, J. H.
RESISTANCE OF BULL KELP (NEROCYSTIS LUETKEANA) TO TEMPERATURE,
PH, AND URCHIN GRAZING

151. †Garcia, S. R. †, Smith, J. G., Carr, M. H.
VARIATION IN LANTERN MORPHOLOGY OF STRONGYLOCENTROTUS
PURPURATUS BETWEEN KELP FOREST AND URCHIN BARREN HABITATS

152. †Park, S. K. †, Marquardt, A. R., Ruttenberg, B. I.
REPRODUCTIVE CYCLE OF THE PISMO CLAM, TIVELA STULTORUM, ON PISMO
BEACH, CALIFORNIA

153. †O’Brien, C. E. †, Kaur, C. , Connor, K. M.
THE EFFECTS OF OCEAN MICROPLASTIC ON THE DIGESTIVE SYSTEM OF THE
GLOBALLY DISTRIBUTED MUSSEL MYTILUS GALLOPROVINCIALIS

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SPECIAL TOPICS FOR CONTRIBUTED TALKS

Alongside our usual range of topics, the meeting includes sessions of contributed talks focused on the Special Topics listed below. Please see the schedule for session times and locations.

**Ecosystems as Coastal Resilience Mechanisms in the Face of Climate Change**

The focus of many conferences and scientific papers in the recent past has been on the impacts of climate change and other stressors on coastal ecosystems, the potential for increasing vulnerability due to SLR, coastal flooding, erosion, drought, etc. But what if we turn the tables around and evaluate the opportunity that many of these systems provide for adaptive management to increase resilience to climate impacts? The potential of kelp forests as pH refugia for invertebrates, beach dunes as natural buffers for coastal erosion, seagrass meadows that may have the potential to accrete sediments with SLR, and wetland flood storage capacity in light of more extreme events like El Ninos?

Contributed by: Karina Johnston

**Opportunities and advances in using Environmental DNA (or eDNA) to understand ecology and natural history**

eDNA – in which genetic traces of multicellular organisms or whole single-celled organisms are sampled from water, soil, or air — appears increasingly useful for ecological analysis. This session welcomes everyone to learn about these emerging techniques, and particularly welcomes speakers using these methods in the field to uncover ecological patterns.

Contributed by: Ryan Kelly

**Marine conservation of seagrasses and seaweeds: A symposium in honor of Dr. Susan Williams**

Seagrass and seaweed beds are highly productive and provide a number of ecosystem services. These systems are also stressed from exposure to air and warming ocean waters and disturbance by anthropogenic activities including habitat destruction and invasions by non-native species. This session will highlight recent advances in the ecology and conservation of these important ecosystems.

Contributed by: Cascade Sorte and Megan Dethier

**Microplastics, Marine debris, and emerging contaminants**

This session will focus on the prevalence and impacts of microplastics, pharmaceuticals, sunscreen and other anthropogenic pollutants in freshwater and marine ecosystems.

Contributed by: Dorothy Horn

**Science to Action on Changing Oceans: Engaging Governments, Communities and Industries in the Challenge**

Talks and presentations submitted to this session will showcase science collaborations aimed at addressing the growing threat of global environmental change to coastal communities and industries. Presentations will explore opportunities for science to inform ocean and coastal management and policy solutions, build resilient industries, and opportunities to adapt – from both a human and ecosystem perspective – to the changes ahead.
Taking the long view: Insights from long-term and historical ecological research

Long-term observations, experiments, and historical studies have a unique potential to improve ecological knowledge and reveal the causes and consequences of environmental change. We encourage submissions that use novel long-term data or creative historical approaches to understand ecological change, the impacts of human activities, and predicted responses to future environmental changes.

Contributed by: Robin Elahi and Max Castorani