Connectivity of Reef Fishes Between Mangroves and Coral Reefs in Broward County, Florida.

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environ of Florida, including the Gulf of Mexico, were investigated for the period 1960-2012. Annual average SSTs were calculated by linear least squares for all 179 COADS boxes using the annual averages; the mean and standard deviation trend of the ensemble of 179 boxes is +0.43 ± 0.84 °C per century. Thirty nine (39) of the 179 boxes had NDBC (NOAA National Data Buoy Center) buoys; the rest did not. Boxes with buoys were compared to juxtaposed boxes without buoys to ascertain if the buoy sampling system led to differences in SST trends. For the 39 boxes with buoys, the mean trend was +0.50 ± 1.16 °C/century; for the 39 juxtaposed boxes without buoys it was +0.58 ± 0.93 °C/century; for the remaining 140 boxes the statistics were +0.41 ± 0.73 °C/century. From a T-test between the mean trend in buoyed boxes and non-buoyed boxes it was determined that there is no statistically significant difference in sea surface temperature trends between boxes with NDBC buoys and juxtaposed boxes without buoys. The coefficient of determination between the 39 pairs of buoyed boxes versus non-buoyed boxes, however, had R²=0.09 revealing that there is little relationship between them.

AOS-11  Modeling El Nino Southern Oscillation (ENSO): Interplay of memory and delayed-action effects. D. QUESADA, School of Science, Technology and Engineering Management, St. Thomas University, 16401 NW 37 Ave. Miami Gardens, FL 33054. ENSO is one of the most important dynamical processes impacting the weather conditions in many parts of the World. It involves a right tuning of the ocean-atmosphere interaction as well as the teleconnection with other global oscillations as the Maddean-Julian Oscillation (MJO), and the North Atlantic Oscillation (NAO). The prediction of ENSO and its periodicities is still a challenge for Global Circulation Models (GCM) as well as Regional Meso-scale Models (RMM). Several alternative approaches based on toy mathematical models have been adopted within the scientific community in order to understand basic mechanisms leading to the appearance of ENSO and its periodicities. In this sense, the Delayed Action Oscillator (DAO) has played a central role. Even though such a model has been capable to describe some general features of ENSO, it is unable to reproduce others. Motivated by these facts, the author has extended the DAO model by incorporating memory effects in addition to a cubic non-linear dissipative and delayed action terms. Such a model is referred as the DAOM, DAO model with memory. Solutions of the later were obtained for different combination of parameters as well as were investigated for sensitivity to constant heating and periodic noise. It is noteworthy that constant heating is a surrogate of global warming, while the periodic noise might account for periodic noisy changes due to solar cycle variability. Comparison with ENSO index history and predictions from NOAA is carried on.

AOS-P01  The effects of grooming on the recruitment of macrofouling to damaged silicone fouling release surfaces. K. LIEBERMAN, E. RALSTON, A. STEPHENS, and G. SWAIN. Florida Institute of Technology, 150 West University Blvd, Melbourne, FL 32901. Silicone fouling release systems are now being applied as biocide free coatings to commercial ships. They function by reducing the adhesion strength of organisms to the surface, but under certain operational conditions they may become fouled. One method being developed to prevent fouling is by the use of proactive gentle cleaning (grooming). Silicone coating systems are also weak and therefore easily damaged. These damaged areas foul readily. This study investigated the effect of mechanical damage on coating performance and how proactive grooming may slow macrofouling recruitment to those damaged areas. A total of 28 polyvinyl chloride (PVC) panels cut to 10 cm by 20 cm were used giving 4 replicates of 7 treatments including controls. Test panels were coated with a three-part silicone fouling release system (epoxy, tie-coat, and topcoat respectively). The test panels were artificially damaged to two widths (0.3 cm and 1.3 cm) and to different depths exposing the tie-coat and epoxy layers of the coating system. The damage area was 18.75 percent of the total surface area. The panels were groomed weekly using a handheld rotating brush and assessed visually (ASTM 6990) monthly. The results demonstrated that organisms preferentially recruited to damaged areas on silicone coating systems. Grooming slows but does not inhibit recruitment of fouling to damaged areas.

AOS-P02  Connectivity of reef fishes between mangroves and coral reefs in Broward County, Florida. J. SAVARO (1), A. HIRONS (2), D. KERSTETTER (1), and T. SUTTON (1). (1) Nova Southeastern University, Oceanographic Center, 8000 N. Ocean Dr., Dania Beach, FL 33004, (2) Nova Southeastern University, Farquhar College of Arts and Sciences, 3301 College Avenue, Fort Lauderdale-Davie, FL 33314. Many ecological and recreationally important species of marine fishes use the mangrove ecosystem for foraging, protection, spawning and as a nursery habitat. This study examined the ontogenetic migration and trophic connectivity of reef fishes in Broward County, Florida to develop a better understanding of energy flow between the local mangrove and coral reef ecosystems. Four species of reef fishes – grey snapper Lutjanus griseus, bluestriped grunt Haemulon sciurus, yellowfin mojarra Gerres cinerus, and great barracuda Sphyraena barracuda – were collected both from mangrove sites located adjacent to Port Everglades and coral reef sites located nearby offshore of...
Port Everglades in Broward County. All species were analyzed using 13C and 15N ratios from muscle tissues and 18O and 13C ratios from otoliths to evaluate ontogenetic migrations, foraging, and occupation within the mangrove and reef sites. Preliminary d18O and d13C otolith data indicated mangroves to be more enriched than offshore reef habitats. Food sources found in the mangroves are expected to be more enriched in 13C and 15N due to more recycling of nutrients. This study will help clarify the relative importance of the various habitats essential for early life-history stages of reef fishes.

AOS-P03 The Indian River Lagoon Research Institute: Integrating Scientists, Engineers, and Educators to Improve and Sustain Lagoon Health. L.H. SWEAT, K.A. ZARGIEL, K.B. JOHNSON, and R.J. WEAVER. Florida Institute of Technology, Department of Marine and Environmental Systems, 150 West University Blvd., Melbourne, FL 32901. Today’s problems in the Indian River Lagoon (IRL) have evolved through a complex set of interrelated issues that have led to the decline of lagoon health. The Indian River Lagoon Research Institute (IRLRI) was recently established at the Florida Institute of Technology with the mission to develop and implement sustainable solutions for the revitalization and maintenance of the IRL. A group of more than 20 faculty members with decades of scientific research experience in the IRL have come together to improve understanding and develop solutions in the following areas: muck and nutrients, lagoon flow, nutrient reduction, sediment loading, ecosystem recovery, policy and management, and engineering technologies. Part of the mission of the IRLRI also includes outreach and education to help the community and lagoon stakeholders understand the importance of IRL problems and their role in creating solutions. The IRLRI is striving to collaborate with numerous institutions and agencies along the lagoon with the common goal of improving the IRL system.

AOS-P04 Ocean 180 Video Challenge: Turning Research Papers into Digital Stories. M. WATSON (1), M. BUCKLEY (2), L. DIEDERICK (3), J. WINDSOR (1), and R. TANKERSLEY (1). (1) Department of Marine and Environmental Systems, College of Engineering, Florida Institute of Technology 150 W. University Blvd, Melbourne, FL 32901, (2) COSEE Florida, Indian River State College, 3209 Virginia Ave, Fort Pierce, FL 34981, (3) Smithsonian Marine Station at Fort Pierce, 701 Seaway Dr, Fort Pierce, FL 34949. Ocean scientists conduct exciting, ground-breaking research that addresses many of world’s greatest challenges. Yet, far too often the importance, meaning and implications of their discoveries are never shared with non-scientists. Recognizing the need for scientists to communicate more effectively with the general public, the Florida Center for Ocean Sciences Education Excellence (COSEE Florida) saw an opportunity to connect the two through video. In the fall 2013, COSEE Florida launched the Ocean 180 Video Challenge to tap into the competitive spirit of scientists and inspire them to share their discoveries with the public. Scientists from US-based institutions were encouraged to submit 180 second videos summarizing the important findings of a recent peer-reviewed paper and highlighting the relevance, meaning, and implications of the research to persons outside their discipline. Videos were initially screened by science/communication experts, yet the winners were selected by middle school students from around the world. The presentation will review the outcomes and lessons learned from the competition and describe plans to utilize the videos for professional development/training and educational purposes.

BIO = BIOLOGICAL SCIENCES

BIO-01 Spatial-temporal overlap and resource partitioning in larval fish assemblages of the northern Indian River Lagoon. M.J. SONNEFELD, E.A. REYIER, R.G. TURINGAN. Department of Biological Sciences, 150 West University Blvd, Florida Institute of Technology, Melbourne, FL 32901. The Indian River Lagoon (IRL) has one of the most diverse fish assemblages in North America; it contains over 400 species of fish. Not only does it serve as an important nursery, but also as a breeding ground for many species. While there has been much research on the interactions and distribution of adult fishes in the IRL, little is known about how the ichthyoplankton community is structured spatially and temporally. Most importantly, how these spatial-temporal interactions influence the assemblage has not been fully addressed. It has been previously shown that seasonal variation in larval assemblages occurs and there is little variation across years. The goal of this study is to address the three questions to better understand the variation in the larval fish assemblage: 1) Does the larval fish assemblage in the northern IRL change spatially and temporally? 2) What are the environmental factors that drive the spatial and temporal variation in the larval fish assemblage? 3) What are the plausible biological mechanisms that drive the spatial and temporal variation in the larval fish assemblage of the northern IRL? To address these questions bi-weekly ichthyoplankton tows were collected between the southern Mosquito Lagoon and the southern Banana River from August 2002 to July 2004. The abundances of 60 species of larval fishes were compared spatially and temporally using ANOSIM. The CCA examined the correspondence between fish abundance and six environmental variables. The potential partitioning of resources across species through the use of Hurlbert’s Index was established. Seasonal shifts in the environmental drivers