Please join us for a free 2 hour tour of the

USC Wrigley Marine Science Center

in Big Fisherman Cove on Saturdays beginning at 10am in the Lecture Hall.

May 27–September 2, 2017
Saturdays 10am-12pm

Tour Includes: • Science Lecture by Summer Fellows (Topics including ocean acidification, environmental monitoring, food security and climate change effects on marine ecosystems) • Tour of the Laboratory • Touch Tanks • Catalina Hyperbaric Chamber (unless in use for treatments)

Come learn about the exciting research our Wrigley Institute Summer Fellows are conducting!

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The Lab is located just east of Two Harbors, past the campground. Please feel free to: walk (2 miles each way), catch a Shoreboat (departs Two Harbors at 9:45am and returns at 12:00pm), or come over in your dinghy (tie up on north side of dock). The tour begins at 10:00am in the Lecture Hall. For more info please call (310) 510-0811.
May 27th  Nathan Churches  
University of Southern California  
"Using genomics to improve seafood production and sustainability"

The domestication of a species involves selective breeding for multiple generations, and can be accelerated by the use of modern scientific techniques, such as applied genomics. Many modern terrestrial crops are managed this way. The farming of bivalves (clams, oysters, mussels, etc.) can be a very sustainable and environmentally friendly aquaculture option, but almost none of these crops are domesticated in any fashion. My lab uses genomics and other scientific techniques to expedite the domestication process in bivalves in order to improve production and sustainability of these important foods.

June 3rd  Yubin Raut  
University of Southern California  
"Role of nitrogen fixing microbes associated with macroalgae"

Nitrogen is an important macronutrient essential to life but only a select group of microbes are capable of directly using the largest reservoir of nitrogen, dinitrogen gas trapped in our atmosphere. These organisms occupy a wide array of ecosystems including biofilms on macroalgae. As of recently, we are finding rich microbiomes associated with many organisms and it is our focus to investigate what roles nitrogen fixers may be playing in macroalgal ecosystems.

June 10th  Erika Nava  
California State University, Northridge  
"The effects of marine protected areas on fish foraging behavior"

Marine protected areas (MPAs) are used to allow organisms and habitats to recover from anthropogenic impacts such as overfishing, which has significantly diminished exploited fish populations. MPAs provide localized, inexpensive, techniques to manage fisheries while conserving biodiversity and increasing fish densities. Although many studies have documented enhanced densities and biodiversity of MPAs, little is known about whether these higher densities result in resource limitation. I intend to evaluate whether a species known to have higher biomass in marine protected areas (MPAs), the California sheephead is food limited within MPAs.

June 17th  Alyssa Clevenstine  
California State University, Long Beach  
"Aggregation patterns and site fidelity of giant sea bass (Stereolepis gigas) at Catalina Island"

Aggregating fishes tend to be heavily targeted because they are easy to catch en masse. Giant sea bass (GSB) is an example of a species that aggregates for spawning purposes and was fished throughout California and Mexico in the early 20th century. In the last decade, southern California fishing and diving communities report increases in sightings and catch of GSB, suggesting the species may be recovering. Because GSB have been negatively impacted over the last 80 years, their behaviors, particularly aggregating and spawning, may have changed. It is important to identify aggregation sites to allow for continued recovery and protection in areas where they may be most vulnerable. If numbers are increasing, more people are likely to encounter GSB, so research and education on their movements are crucial to reduce potential negative interactions that may influence their reproductive behavior.
June 24th  Jason Wang  University of Southern California  “The Future of Food from the Sea: Are you really what you eat?”  Just as the advent of agriculture expanded the limits of human-kind, our modern ability to grow food from the oceans will increase our capacity to provide nourishment globally. However, growing marine organisms sustainably and efficiently from a changing ocean is not without challenges. This summer, I am researching how commercially important marine organisms might utilize food sources more efficiently for faster growth and development – as it turns out, you aren't necessarily what you eat!

July 1st  Alexis Estrada  California State University, Northridge  “Key habitats for green abalone (Haliotis Fulgens)”  Increasing abundance of green abalone at Santa Catalina Island provides a unique opportunity to examine the basic ecology of a species that was once prominent on coastal rocky reefs and important in both commercial and recreation fisheries in California. I am interested in factors that could be affecting the population structure and recovery of the green abalone population at Santa Catalina Island. My research examines these factors by identifying key habitat for green abalone to determine adult density at the island and gaining a better understanding of the movement and aggregation of adults.

July 8th  Casey Barr  University of Southern California  “Microbiology: Historical perspectives and new ideas”  For over 3 billion years, all life on Earth comprised solely of single celled organisms; however, it wasn't until the late 1500's, that the invention of the microscope allowed for the discovery and exploration of the microscopic world, ultimately paving the way for the field of microbiology. Come learn about the medical roots of microbiology and how technology and understanding has allowed for the expansion of the field into diverse interests. Subjects covered will include: the birth of microbiology, the human microbiome, environmental microbiology, the early evolution of life and the search for life in the solar system.

July 15th  Kenneth Bolster  University of Southern California  “Mapping metals in the Pacific Ocean”  Vitamins and minerals are necessary for all living things, including sea creatures. Getting those nutrients while far away from land is challenging. On research expeditions throughout the Pacific Ocean, and experiments on Catalina Island, I study how underwater volcanoes, dust storms, and dead (oxygen-free) zones provide metals to organisms living in the open ocean.
July 22nd
Elaina Graham
University of Southern California

"Discovering novel microbial groups in the surface ocean"

It is estimated that there are $13 \times 10^{31}$ bacteria in the ocean, which is 100 million times the number of stars in the known universe. Despite this large number it is still predicted that we have only discovered around 1% of the microbial species. My research uses genes collected from the environment to uncover new organisms and better understand the roles they play in ocean health. Most recently by using genes in the ocean, we have identified a novel group of bacteria that uses light to produce energy. We want to know if these organisms are globally distributed and how significant of a role they play in the global carbon cycle.

July 29th
Melissa Delatorre
University of Southern California

“Marine organism responses to global environmental changes”

Changing ocean conditions can create stress for marine organisms making them less fit for their environment. These include changes in temperature, food, ocean acidification, or chemical contamination events, which can be detrimental to organisms. The objective of my research is to discern how early developmental stages of marine invertebrates are impacted due to environmental stresses, and their potential to develop adaptations and resilience.

August 5th
Caitlin McGarigal
California State University, Long Beach

“A Fisherman’s Dilemma: Kelp bass catch and release”

Recreational fishing is an important part of California culture, but many fishing regulations result in catch-and-release practices which can be a traumatic experience for fish. Stress from capture and handling can affect a fish’s growth, reproduction, behavior and, ultimately, impact population growth. The objectives of my research are to 1) Determine how catch-and-release stress affects fish physiology and behavior, 2) Measure how quickly fish recover after release, and 3) Identify specific practices fishermen can use to minimize stress for these valuable recreational species.

August 12th
John Lee
Harvey Mudd College

"Autonomous tracking of fish aggregations with AUVs”

Studying the spatial interactions of fish within an aggregation group provides important insight to group dynamic. Previous research teams have demonstrated that multiple AUVs can cooperatively track an individual fish. This summer, my work is to achieve real time autonomous tracking of an entire fish aggregation using the insights gained from studying spatial interactions of individuals. By using the IVER2 robot, I hope to track aggregations of kelp bass, leopard sharks, white sharks, and potentially other species.
USC Wrigley Institute for Environmental Studies
Saturdays at the Lab, Wrigley Fellows Presentation Calendar
10:00 AM Memorial Day to Labor Day
WMSC Lecture Hall

August 19th
Casey Barr
University of Southern California

"Astrobiology: Lessons learned and new perspectives in the search for life"

Are we alone in the Universe, or does life exist elsewhere in our own solar system? Learn about the history of humankind’s attempt at answering these questions and the newest ideas that are shaping the way we look for life off-Earth. Topics to be discussed include: Historical views of life in the solar system, past NASA missions, future endeavors and the concept of non-Earth-like life.

August 26th
Emily Meese
California State University, Long Beach

"Movements and behaviors of an important kelp forest predator, the California horn shark"

Horn sharks play an important role in the kelp forest because they are one of the few urchin predators in southern California. Quantifying where they go and what they do allows us to better understand their impacts on rocky reefs. I am studying the energetic requirements of these sharks, to determine how changing ocean temperatures may affect the distribution and behavior of this important kelp forest species.

September 2nd
Presenter
To Be Determined