

Voyage to the White Shark Café

What: A first-ever research expedition is completing a four week voyage to the “White Shark Café,” a patch of ocean in the High Seas roughly the size of Colorado, centered about 1,000 nautical miles off the coast of the Baja Peninsula, and 1,300 miles from Hawaii. The voyage departed from Honolulu, HI on April 20, 2018, and will return on May 28, 2018.

This research expedition is based on more than a decade of tagging studies on white sharks, which show that they often spend several months of the year in this area of the ocean. The reasons for this behavior are unknown, in part because this region of the ocean has had little exploration. The goal of this expedition is to study the physical, chemical, and biological oceanography of the White Shark Café, during a time when white sharks are present, to unravel the mystery of why they are there.

Who: Dr. Barbara Block, Prothro Professor of Marine Sciences at Stanford University, is the expedition’s chief scientist. Block is joined by a team of oceanographers, marine ecologists, and molecular biologists from Stanford University, Monterey Bay Aquarium, Monterey Bay Aquarium Research Institute (MBARI), the University of Delaware, and the NOAA Office of Exploration. The expedition has received support from: The Schmidt Ocean Institute; The Aspen High Seas Initiative; ARGOS; The Anthropocene Institute; and Saildrone.

Power of Technology: The research vessel R/V *Falkor* is owned and operated by the Schmidt Ocean Institute. Originally built in 1991 as a fishery protection vessel, it was refitted from 2009-2012 for its role as an oceanographic research vessel. It is 82.9 m (272 feet) long and 13 m (43 ft) wide, with a maximum speed of 17 knots. On May 15, 2018, Dr. Block and her team will conduct a live broadcast from the White Shark Café into an event on the High Seas co-hosted by The Smithsonian Institution and the Aspen Institute.

This expedition involves an array of cutting-edge research tools, which will be used in concert to characterize the Café region in unprecedented detail. These tools include:

- ✓ **Robotic Sub:** Remotely operated vehicle *SuBastian* – 4,500 m depth capable robotic submarine with a variety of cameras, sensors and sampling gear
- ✓ **Saildrones** – these unmanned, wind-powered surface vehicles carry sensors to locate plankton and midwater fish, as well as passive listening sonar receivers capable of receiving coded “pings” from white sharks carrying acoustic tags.
- ✓ **Slocum Glider** – this unmanned, torpedo-shaped robot also carries acoustic tag receivers for detecting and identifying tagged white sharks.
- ✓ **Listening Buoys** – in addition to the mobile robotic platforms, a network of stationary listening buoys will be deployed to help locate and identify tagged white sharks.
- ✓ **Environmental DNA (E-DNA) sampling** – this cutting-edge technique identifies organisms in the water column by sampling the genetic material they leave behind as they pass through.
- ✓ **Electronic Tags** – from October, 2017-February 2018, 37 white sharks were tagged with Pop-up Satellite Archival Tags (PATs) off California’s Central Coast. These tags were programmed to release from the sharks during the expedition, providing pinpoint locations for the sharks, as well as environmental and behavioral data from their migrations. In addition, approximately 80 white sharks are carrying acoustic tags, which emit unique, coded “pings,” allowing researchers to identify them using acoustic receivers.
- ✓ **Oceanographic Samplers** – in addition to all the high-tech electronic devices, the researchers will use more traditional water samplers and plankton nets to profile the physical, chemical, and biological material in the water column.

Conservation: Although far from land, the White Shark Café is not immune to human impact. A [recent study](#) has shown that, like most of the open ocean, the Café is commercially fished. However, A [2016 UNESCO/IUCN report](#) identified the White Shark Café as a **potential World Heritage site**, recognizing the unique importance of this region for white shark biology.

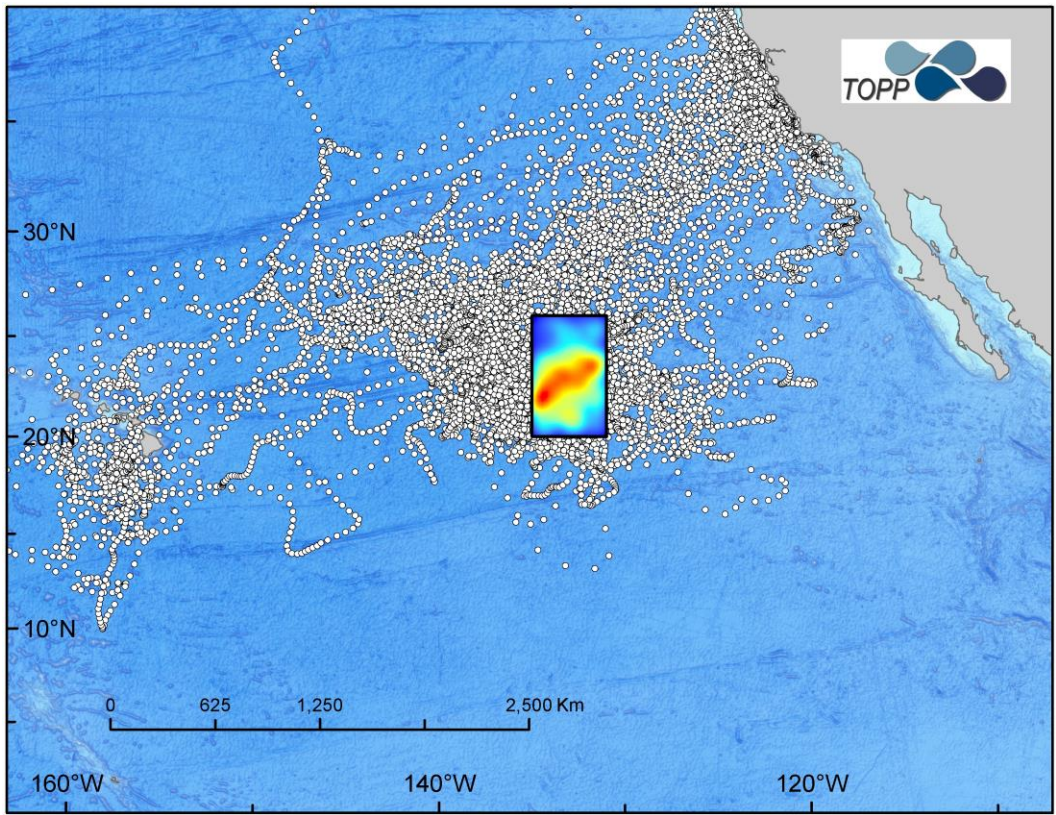


Figure 1 - The White Shark CAFE lies about halfway between Hawaii and Mexico's Baja Peninsula. It was revealed by through electronic tagging studies, which showed that white sharks aggregate in this region for several months every year.



Figure 2 - The Schmidt Ocean Institute's Research Vessel Falkor is the base of operations for the Voyage.



Figure 3 - The Voyage is making use of a variety of cutting-edge oceanographic sampling platforms, including two autonomous, wind-powered SAILDRONES. Outfitted with sonar and acoustic receivers, the SAILDRONES can detect both predators and prey.