

Alaska Fisheries Science Center Shark Research and Assessments

Pacific Sleeper Shark Predation of Steller Sea Lions

In August 2001 and May 2002, scientists at the Auke Bay Laboratory investigated the diet of Pacific sleeper sharks (*Somniosus pacificus*) to test the hypothesis that sleeper sharks prey on Steller sea lions (*Eumetopia jubatus*). Longline gear was used to capture sleeper sharks near four Steller sea lion rookeries in the northern Gulf of Alaska during times of pup vulnerability to determine if live Steller sea lions are prey for these sharks. Twenty-one longline sets were completed in August 2001, and 15 longline sets were completed in May 2002 aboard the chartered fishing vessel *Norska*. One hundred ninety-eight stomach samples were collected. Predominant prey items were walleye pollock, octopus, unidentified teleost fish, Pacific salmon, and marine mammal tissue that appears to be from cetaceans. Stomach content analysis found no direct evidence of sea lion predation. Marine mammal tissue comprised 31% and 34% of sleeper shark diet by percent weight during the August and May sampling cruises, respectively. DNA analysis is being used to identify the species of marine mammal consumed. Forensic pathology methods imply the nominal cetacean tissues were carrion. The fatty acid analysis of samples of shark tissue will help determine if fish versus marine mammal prey in the diet can be discerned. In addition to the diet study, data on the vertical and geographic movement of sleeper sharks was collected by tagging methods for comparison with the vertical distribution of Steller sea lions while at sea. Thirty-three sleeper sharks were tagged with archival satellite tags that are designed to transmit depth data and location to polar orbiting Argos satellites. Data from 25 satellite tags have been recovered. Based on tag endpoint locations the sharks typically moved less than 100 kilometers from the release locations. Archived depth data shows that some sleeper sharks regularly traverse depths at rates over 200 meters per hour and sometimes come to the surface at night. A peer-reviewed manuscript of the study is being prepared and is scheduled for submission for internal review by mid-August.