

S4

FIS/BIO Topic Session

Hot spots and their use by migratory species and top predators in the North Pacific

Session Convenors: Churchill B. Grimes (U.S.A.), Yukimasa Ishida (Japan), Hidehiro Kato (Japan) and William J. Sydeman (U.S.A.)

There are specific areas, “hot spots” of biological activity, where migratory species, including especially marine mammals, sea birds, sharks and tunas, are abundant in the North Pacific Ocean. Some probably persist through time due to the influence of topographical features (*e.g.*, seamounts) on biological productivity. Some persist due to relative stability of oceanographic features such as currents and eddies, and some may be more ephemeral, changing in time or location owing to variability in wind patterns. However, little is known about the dynamics of these potentially important hot spots as habitats that may support increased biodiversity or as regions that support fisheries. This session seeks to identify and compare the physical and biological features of “hot spots” where migratory species and top-predators tend to concentrate among the western and eastern North Pacific Ocean. It also requests reports of studies that analyze topographic control, oceanographic mechanisms, the ecology of plankton, nekton and pelagic fishes in these hot spots, and methods to determine the degree of association of organisms within the communities inhabiting hot spots. Motivating questions include: How persistent are these sites in time and space? What oceanographic mechanisms support high levels of biological activity? How do predators associate with and functionally respond to oceanographic and community structure and variability? And what is the role of these hot spots in reproduction, growth and survival and life history strategies of migratory top predators?

Tuesday, October 19, 2004 8:30-17:30

Introduction by Session Convenors

- 08:30-09:00 **Franklin B. Schwing, Steven J. Bograd, Cara Wilson, Petra M. Stegmann, Barbara Block and Daniel Costa** (Invited)
An oceanographic basis for identifying biological hot spots (S4-2097)
- 09:00-09:20 **Cara Wilson**
Chlorophyll hot spots in the oligotrophic North Pacific Subtropical Gyre (S4-2073)
- 09:20-09:40 **Sukyung Kang, Suam Kim, Kevin Telmer, David Welch and Youn-Ho Lee** (Invited)
Configuration of migratory history based on analyses of stable isotopes and trace elements in otolith of the North Pacific chum salmon (S4-2011)
- 09:40-10:00 **Robert Suryan, David Hyrenbach, Fumio Sato, Kiyooki Ozaki, Gregory Balogh, Paul Sievert, Daniel Roby and David Anderson**
Foraging destinations of short-tailed albatrosses (*Phoebastria albatrus*) in the Northwest Pacific Ocean, Gulf of Alaska, and Bering Sea (S4-2058)
- 10:00-10:20 **Coffee break**
- 10:20-10:40 **Peter Etzover, D. Canny, B. Mate and L. Morgan** (Invited)
Persistent pelagic habitat in the Northeast Pacific (S4-2168)
- 10:40-11:00 **Daniel Costa, Barbara Block, Steven J. Bograd, Randy Kochevar and TOPP Science Team** (Invited)
Tagging of Pacific Pelagics (TOPP): Using electronic tags to discover hot spots in the pelagic realm (S4-2020)

- 11:00-11:20 **Rogelio Gonzalez-Armas, A. Muhlia-Melo, A. Trasviña-Castro, G. Gutierrez De Velasco, A. Valle-Levinson and R. Funes-Rodriguez**
Differences in large pelagic fish larvae and zooplankton volumes over and around a seamount in the Gulf of California (S4-1942)
- 11:20-11:40 **Anatoliy Ya. Velikanov**
Seasonal frequency of pelagic fish species in some micro-regions of the southwestern Okhotsk Sea (S4-1787)
- 11:40-12:00 **Shingo Kimura and Katsumi Tsukamoto**
Landmark for the spawning of Japanese eel (S4-1951)
- 12:00-13:00 **Lunch**
- 13:00-13:20 **Youn-Ho Lee, Geoyoung Kang, Woongsic Jung, Ki-Baek Seong, Suam Kim and Gisic Min**
(Invited)
How to discriminate the aggregated stocks of migratory species according to their origins: A simple and quick PCR method utilizing stock-specific single nucleotide polymorphisms (S4-1913)
- 13:20-13:40 **Brian K. Wells, Churchill B. Grimes and Jim Waldvogel**
The effects of ENSO events on California chinook salmon (*Oncorhynchus tshawytscha*) as revealed by scale increment analysis (S4-2071)
- 13:40-14:00 **Hiroshi Ohizumi and Hikaru Watanabe** (Invited)
Stomach contents of toothed whales in relation to prey distribution in the North Pacific (S4-1977)
- 14:00-14:20 **Scott M. Gende and Mike Sigler**
Persistence of prey “hot spots” in southeast Alaska (S4-1793)
- 14:20-14:40 **Ivonne Ortiz and Kerim Y. Aydin**
Hot spots for dining - A groundfish’s view (S4-2143)
- 14:40-15:00 **K. David Hyrenbach, William J. Sydeman, Ken H. Morgan and Peggy P.W. Yen**
Upper-trophic predator hot spots in the California Current system: A retrospective analysis of marine bird and mammal communities (S4-1885)
- 15:00-15:20 **Coffee break**
- 15:20-15:40 **Robert S. Schick and Molly Lutcavage**
Using GIS to locate pelagic hot spots for bluefin tuna (S4-1989)
- 15:40-16:00 **Takashi Kitagawa, Andre Boustany, Chris Perle, Charles Farwell, Tom Williams, Heidi Dewar and Barbara Block**
Horizontal and vertical movements of juvenile bluefin tuna (*Thunnus orientalis*) in relation to seasons and oceanography in the eastern Pacific (S4-2105)
- 16:00-16:20 **Douglas C. Reese and Richard D. Brodeur**
Identifying biological hot spots within the northern California Current (S4-2046)
- 16:20-16:40 **Mukti Zainuddin, Katsuya Saitoh and Sei-ichi Saitoh**
Detection of high productive area of albacore fishing ground and migration route using multi-sensor satellite remote sensing (S4-1940)
- 16:40-17:00 **Yoshihiro Fujise, Koji Matsuoka, Hiroto Murase, Shigetoshi Nishiwaki and Hidehiro Kato**
Existence of hot spots of large sized baleen whale concentration in pelagic zone of the western North Pacific; its biological and oceanographical features (S4-1983)

17:00-17:20 **Vincent F. Gallucci and Gordon H. Kruse** (Invited)
Recent advances in knowledge of cold water sharks in the North Pacific Ocean (S4-2034)

17:20-17:30 **Synthesis by Session Convenors**

Posters

Sachihiko K. Itoh and Shingo Kimura

Transport and migration of larval and juvenile fishes through oceanic fronts (S4-1947)

Patrick D. O'Hara, Peggy P. Yen, Chris Rintoul, Ken H. Morgan, K. David Hyrenbach and William J. Sydeman

Pelagic habitat hot spots as revealed by replicate seabird surveys in the NE Pacific (S4-2115)

John E. Richert, Salvador J. Jorgensen, Arturo Muhlia Melo and A. Peter Klimley

Seamounts as hot spots of pelagic fish diversity in the Eastern Pacific Ocean (S4-1897)

Victor R. Foux and Eugene V. Samko

Transport of fodder plankton in low-frequency waves and eddies: Favorable conditions for fishing grounds formation (S4-1815)

Robert Survan, David Anderson, Daniel Roby, David Hyrenbach, Scott Shaffer, Yann Tremblay, Jill Awkerman, Mark Westbrook, Karen Fischer, Fumio Sato and Kiyooki Ozaki

Wing loading and prevailing winds: Their relative importance to the at-sea distribution of four species of Pacific albatrosses (S4-2060)

Galina A. Vlasova

Zone of "hot spots" of the surface temperature for the NW Pacific (S4-1797)

Doug Yelland

Backscatter variability within a Haida Eddy (S4-2206)

