

W3 BIO Workshop

W3 Integrating marine mammal populations and rates of prey consumption in models and forecasts of climate change-ecosystem change in the North Pacific and North Atlantic Oceans

Co-Sponsored by ICES

Co-Convenors: Hidehiro Kato (Japan), Begoña Santos (ICES, Spain) and William J. Sydeman (U.S.A.)

In many marine ecosystems from tropical to arctic waters, marine mammals are showing considerable changes in abundance. In general, cetaceans, recovering from historical exploitation, are increasing, whereas some pinniped species are declining regionally, while others are increasing. Models of marine mammal prey consumption indicate that ~20-60% of secondary production may be taken by these top consumers. Therefore, marine mammals may exert «top-down» control on food webs, as well as functioning as competitors to fish, seabirds, and humans for mid-trophic level food resources. One of the goals of PICES and ICES science is to enhance forecasts of ecosystem change attributable to climate and anthropogenic forcings. Given this goal, the workshop will review and assess rates of marine mammal population and prey consumption changes in the North Pacific and North Atlantic. Presentations are invited on changes in marine mammal abundance, distribution, diet, and prey consumption. Discussion will focus on how to best integrate this information into models of ecosystem dynamics, with and without climate change and fishing impacts.

Tuesday, October 27 (14:00-18:00)

- 14:00 **Introduction by Convenors**
- 14:05 **Andrew W. Trites (Invited)**
Marine mammals in multi-species models: Assumptions, limitations and theoretical considerations (W3-5652)
- 14:30 **Frank A. Parrish**
Top-down pressure of foraging monk seals on subphotic fish communities; a possible symptom of a marine mammal population at carrying capacity (W3-5511)
- 14:50 **Rolf Ream and Lowell Fritz**
Pinniped population changes in the North Pacific: Recent trends in northern fur seal and Steller sea lion abundance (W3-5964)
- 15:10 **M. Begoña Santos and Graham J. Pierce (Invited)**
Integrating marine mammal populations and rates of prey consumption in models and forecasts of climate change-ecosystem change in the North Atlantic Ocean (W3-5779)
- 15:35 **Coffee / tea break**
- 16:00 **Hiroshi Okamura, Hiroshi Nagashima, and Shiroh Yonezaki (Invited)**
Quantitative assessment of impacts on the sandlance population by consumption of minke whales (W3-5771)
- 16:25 **Hiroto Murase, Tsutomu Tamura, Tatsuya Isoda, Ryosuke Okamoto, Hidehiro Kato, Shiroh Yonezaki, Hikaru Watanabe, Naoki Tojo, Ryuichi Matsukura, Kazushi Miyashita, Hiroshi Kiwada, Koji Matsuoka, Sigetoshi Nishiwaki, Denzo Inagake, Makoto Okazaki, Hiroshi Okamura, Yoshihiro Fujise and Shigeyuki Kawahara**
Prey preferences of common minke (*Balaenoptera acutorostrata*), Bryde's (*B. edeni*) and sei (*B. borealis*) whales in the western North Pacific (W3-5724)
- 16:45 **Jarrod A. Santora, William J. Sydeman and Christian S. Reiss**
Of whales and krill: Investigating the patch dynamics between foraging whales and krill (W3-5725)

- 17:05 **Valeriy I. Fadeev**
Benthos and food supply studies in feeding grounds of the Okhotsk-Korean gray whale population off the northeast coast of Sakhalin Island (Russia), 2004-2008 (W3-5718)
- 17:25 **Kyung-Jun Song, Zang Geun Kim, Seok-Gwan Choi, Yong-Rock An and Chang Ik Zhang**
Stomach contents of bycaught minke whales (*Balaenoptera acutorostrata*) in Korean waters (W3-5853)
- 17:45 William **Sydeman**
Synthesis
- 18:00 **Workshop ends**

W3 Posters

- W3-5719 **Sergey I. Kiyashko, Svetlana A. Rodkina, Vladimir I. Kharlamenko and Valeriy I. Fadeev**
Macrobenthos trophic relationships in western grey whale feeding areas (northeast coast of Sakhalin Island, Okhotsk Sea)
- W3-5720 **Natalia L. Demchenko and Valeriy I. Fadeev**
Quantitative distribution and species composition of amphipods from the feeding ground of western gray whales on the seashore near the Chayvo Bay (northeastern coast of Sakhalin Island, Okhotsk Sea)
- W3-5739 **Kenji Konishi, Hiroshi Kiwada, Koji Matsuoka, Toshihide Kitakado, Takashi Hakamada and Tsutomu Tamura**
Modeling prediction of temporal and spatial distribution of Bryde's whales in the western North Pacific
- W3-5777 **Elena Ieno, M. Begoña Santos, Alex Edridge, Paul M. Thompson and Graham J. Pierce**
Long-term variation in seal diet and relationships with fish abundance
- W3-5843 **Hyun Woo Kim, Zang Geun Kim, Seok-Gwan Choi and Yong-Rock An**
Estimating the population size of Indo-Pacific bottlenose dolphins, *Tursiops aduncus*, in coastal waters off Jeju Island
- W3-5862 **Ah-Ra Ko, Zang Geun Kim, Seok-Gwan Choi, Kyung-Hoon Shin and Se-Jong Ju**
Understanding the feeding ecology of minke whales, *Balaenoptera acutorostrata*, in Korean Seas using trophic lipid markers
- W3-5886 **Kristen Ampela**
The diet of gray seals (*Halichoerus grypus*) in United States waters, estimated from hard remains and blubber fatty acids
- W3-5921 **Hyun Woo Kim, Zang Geun Kim, Seok-Gwan Choi and Yong-Rock An**
First record of the Indo-Pacific bottlenose dolphins, *Tursiops aduncus*, in Korean waters, by means of skull morphometry and external morphology
- W3-5943 **Kyum Joon Park, Seok-Gwan Choi, Yong-Rock An, Zang Geun Kim, Ji Eun Park, Hyun Woo Kim, Tae-Geon Park, Young Ran Lee and Dae-Yeon Moon**
Abundance estimation of minke whales (*Balaenoptera acutorostrata*) in the East Sea, using the sighting survey in 2009
- W3-5987 **Valeriy A. Vladimirov, Sergey P. Starodymov, Alexey G. Afanasyev-Grigoryev and Vladimir V. Vertyankin**
Distribution and abundance of western gray whales off the northeast coast of Sakhalin Island, Russia, 2008