



SEA LIONS of the WORLD
CONSERVATION AND RESEARCH
IN THE 21st CENTURY

22nd WAKEFIELD FISHERIES SYMPOSIUM

September 30~October 3, 2004

Anchorage, Alaska USA

PROGRAM

Organizing Committee

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List of Sessions

- Session I: Life History
Session II: Physiological Ecology
Session III: Foraging Ecology
Session IV: Population Ecology
Session V: Population Dynamics
Session VI: Conservation and Management
-

Thursday, 30 September 2004

Registration and Continental Breakfast

7:30 a.m. – 8:30 a.m.

Welcome and Introduction

8:45 a.m.

*Brian Allee, Director, Alaska Sea Grant College Program,
University of Alaska Fairbanks*

*Michael Castellini, Institute of Marine Science, University of Alaska
Fairbanks*

Plenary Speaker

9:15 – 9:45 a.m.

Status of Steller Sea Lions in Alaska

Tom Loughlin, NOAA Fisheries (retired)

Session I—Life History

9:45 a.m. – 12:15 p.m.

Chair: Andrew Trites, University of British Columbia

ORAL PRESENTATIONS

Attendance Patterns of Juvenile Steller Sea Lions (*Eumetopias jubatus*) in the Gulf of Alaska and Aleutian Islands Derived from Satellite Dive Recorders (SDRs)

*Katherine A. Call et al., NOAA Fisheries, National Marine Mammal
Laboratory, Seattle, WA*

Migration and Movements of Adult Male

California Sea Lions

Patrick J. Gearin et al., NOAA Fisheries, National Marine Mammal Laboratory, Seattle, WA

The Effects of Prey Availability on Maternal Attendance and Pup Mortality of South American Sea Lions (*Otaria flavescens*) in Peru

Karim H. Soto and Andrew W. Trites, University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada

Break

10:30 – 11:00 a.m.

Plasticity in Gestation Length in Response to Environmental Conditions in Australian Sea Lions *Neophoca cinerea*: New Hypotheses to an Enigmatic Life History

Simon D. Goldsworthy et al., La Trobe University, Zoology Department, Sea Mammal Ecology Group, Victoria, Australia

How Long Do Steller Sea Lions Drink Milk?

Evgeny G. Mamaev¹ and Vladimir N. Burkanov^{2,3}, ¹Vyatka Agricultural Academy, Kirov, Russia; ²Natural Resources Consultants, Inc., Seattle, WA; ³Russian Academy of Sciences, Kamchatka Branch of the Pacific Institute of Geography, Petropavlovsk-Kamchatskiy, Russia

Australian Sea Lion Pup Production, Mortality and Survival Rates, and the Age Structure of Breeding Females at Seal Bay Conservation Park, Kangaroo Island, South Australia

Rebecca MacIntosh et al., La Trobe University, Sea Mammal Ecology Group, Zoology Department, Victoria, Australia

Objective Classification of Trips-to-Sea Made by Juvenile Steller Sea Lions (*Eumetopias jubatus*) in Alaska

Michael J. Rehberg^{1,2} and Jennifer M. Burns¹, ¹University of Alaska Anchorage, Department of Biological Sciences, Anchorage, AK; ²Alaska Department of Fish and Game, Anchorage, AK

Session I Discussion

Lunch

12:15 – 1:30 p.m.

Session II—Physiological Ecology

1:30 – 4:30 p.m.

*Chair: Michael Castellini, University of Alaska Fairbanks,
Institute of Marine Science*

ORAL PRESENTATIONS

An Investigation of the Role of Hookworm Enteritis in New Zealand Sea Lion Pup Mortality

*Aurelie Castinel et al., Massey University, IVABS, New Zealand
Wildlife Health Centre, Palmerstown North, New Zealand*

Hookworms Arrest California Sea Lion Population Growth

*Robert L. DeLong et al., NOAA Fisheries, National Marine Mammal
Laboratory, Seattle, WA*

Foraging in a Nutrient-Limited Environment: Development of Diving in the Threatened Australian Sea Lion

*Shannon L. Fowler and Daniel P. Costa, University of California
Santa Cruz, Center for Ocean Health, Long Marine Laboratory,
Santa Cruz, CA*

Organochlorine Contaminants in Steller Sea Lions (*Eumetopias jubatus*) of the Northwestern Pacific

*Hiroshi Hoshino et al., Hokkaido University, Graduate School
of Fisheries Sciences, Division of Marine Environment and
Resources, Hakodate, Hokkaido, Japan*

Regional Variation of Juvenile Steller Sea Lion (*Eumetopias jubatus*) Growth Rates in Alaska

*B.S. Fadely et al., NOAA Fisheries, National Marine Mammal
Laboratory, Seattle, WA*

Bioenergetic Demands of Sea Lions: Do Otariids Differ from Other Marine Mammals?

*Terrie M. Williams et al., University of California Santa Cruz,
Department of Ecology and Evolutionary Biology, Long Marine
Laboratory, Center for Ocean Health, Santa Cruz, CA*

Break

3:00 – 3:30 p.m.

Hookworms in Steller Sea Lions (*Eumetopias jubatus*) in Alaska

Kathy A. Burek et al., Alaska Veterinary Pathology Services, Eagle River, AK

A Decade of Adult Steller Physiology in the Field: Where Are We Now?

Michael Castellini, University of Alaska Fairbanks, School of Fisheries and Ocean Sciences, Institute of Marine Science, Fairbanks, AK

Indices of Reproductive Effort and Nutritional Health in Lactating Steller Sea Lions and Pups in Areas of Declining and Stable Population

R.W. Davis et al., Texas A&M University, Department of Marine Biology, Galveston, TX

Session II Discussion**Break**

4:30 – 5:00 p.m.

Poster Session and Reception**Hors d'oeuvres and no-host bar**

5:00 p.m.

Session I—Life History**Bull Territoriality in Steller Sea Lions**

E.G. Mamaev, Vyatka State Agricultural Academy, Kirov, Russia

Male Harassment of Breeding Female New Zealand Sea Lions (*Phocarctos hookeri*): A Significant Source of Adult Mortality

B.L. Chilvers et al., Canterbury University, School of Biological Science, Christchurch, New Zealand

Unusual Mortality of Female Steller Sea Lions

Vladimir N. Burkanov et al., Natural Resources Consultants, Inc., Seattle, WA

Steller Sea Lion Movements Based on Brand-Resighting Observations in Southeast Alaska: An Alternative to Satellite Telemetry

Lauri A. Jemison et al., Alaska Department of Fish and Game, Division of Wildlife Conservation, Anchorage, AK

Differences in Breeding between Traditional and New Occupied Areas in South American Sea Lions (*Otaria flavescens*) at Punta León, Northern Patagonia

Guillermo Svendsen et al., Centro Nacional Patagónico CONICET, and Universidad Nacional de la Patagonia San Juan Bosco, Puerto Madryn, Chubut, Argentina

A Field-Based Method for Estimating Age in Free-Ranging Juvenile Steller Sea Lions (*Eumetopias jubatus*)

James C. King et al., Alaska Department of Fish and Game, Division of Wildlife Conservation, Anchorage, AK

Session II—Physiological Ecology

Effects of Water Temperature on Swimming Metabolic Rates and Foraging Efficiency in Sea Lions

David Thompson et al., University of St Andrews, NERC Sea Mammal Research Unit, Fife, UK

Vitamin Supplementation Maintains Plasma 8-isoprostane Levels in Captive Steller Sea Lions

Chun Hu et al., University of British Columbia, Food, Nutrition and Health, Vancouver, BC, Canada

Potential Iron Deficiency Induced by Pollock Diet in Captive Steller Sea Lions (*Eumetopias jubatus*)

Saeko Kumagai et al., University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada

Plasma Lipid Composition in California Sea Lion (*Zalophus c. californianus*) Pups of the Gulf of California: Are There Differences?

M.I. Castro-González et al., Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán, Dirección de Nutrición, D.F, Mexico

Sleep in Young Steller Sea Lions and Northern Fur Seals: A Comparative Study

O.I. Lyamin, University of California Los Angeles and VA Greater Los Angeles Healthcare System, Sepulveda Division, Department of Psychiatry, North Hills, CA

Use of Carbon and Nitrogen Stable Isotope Ratios in Vibrissae to Detect Weaning in Alaska Steller Sea Lions (*Eumetopias jubatus*)

Vicki K. Stegall et al., Alaska Department of Fish and Game, Division of Wildlife Conservation, Anchorage, AK

**Medical Findings in a South American Sea Lion
(*Otaria flavescens*) Newborn Pup**

Carlos F. Yaipen-Llanos et al., Organization for Research and Conservation of Animals: Marine Mammals (ORCCAMM), Lima, Peru

First Case of Neoplasm in South American Sea Lion (*Otaria flavescens*) from Peru: Lymphoma and Papilloma

Carlos Yaipen-Llanos, Organization for Research and Conservation of Animals: Marine Mammals (ORCCAMM), Lima, Peru

Presence of the Hookworm (*Uncinaria hamiltoni*) in South American Sea Lions (*Otaria flavescens*) along the Coast of Patagonia: Preliminary Surveys

Bárbara Berón Vera et al., Centro Nacional Patagónico CONICET, and Universidad Nacional de la Patagonia San Juan Bosco, Puerto Madryn, Chubut, Argentina

Resting Metabolic Rate in Free-Ranging Juvenile Steller Sea Lions (*Eumetopias jubatus*): Life on the Edge

Lisa A. Hoopes et al., Texas A&M University, Department of Wildlife and Fisheries Sciences, College Station, TX

Examination of Blood and Muscle Development in the Steller Sea Lion (*Eumetopias jubatus*): Implications for Diving and Foraging Ability

Julie P. Richmond et al., University of Alaska Anchorage, Department of Biological Sciences, Anchorage, AK

Total Oxygen Stores in California Sea Lion Pups: Implications for the Development of Diving Behavior

Carey E. Kuhn et al., University of California Santa Cruz, Santa Cruz, CA

Sodium Chromate Toxicity and Uptake in Steller Sea Lion Cells

Caroline E.C. Goertz et al., University of Southern Maine, Center for Integrated and Applied Environmental Toxicology, Portland, ME

Survey of Steller Sea Lion Corticosteroid Concentrations in Scat

Kendall Mashburn and Shannon Atkinson, Alaska SeaLife Center, Seward, AK

Distribution and Dynamics of Total Mercury, Cadmium, Zinc, and Copper in Southern Sea Lions (*Otaria flavescens*) from Argentina

Marcela Gerpe et al., Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Argentina and Universidad Nacional de Mar del Plata, Departamento de Ciencias Marinas, Facultad de Ciencias Exactas y Naturales, Mar del Plata, Buenos Aires, Argentina

Chemical Contamination Levels in Steller Sea Lion Pups from Southwest Alaska and the Russian Far East

Matt Myers^{1,2} and Shannon Atkinson^{1,2}, ¹Alaska SeaLife Center, Seward, AK; ²University of Alaska Fairbanks, School of Fisheries and Ocean Sciences, Fairbanks, AK

Physiology of Homeostasis in Sea Lions: The Link between Hormones and Metabolism

S. Atkinson et al., Alaska SeaLife Center, Seward, AK

Noninvasive Monitoring of Stress Hormone Levels of a Female Steller Sea Lion (*Eumetopias jubatus*) Pup Undergoing Rehabilitation

Lisa Petrauskas, University of Alaska Fairbanks, Institute of Marine Science, Fairbanks, AK, and Alaska Sealife Center, Seward, AK; presented by S. Atkinson, Alaska SeaLife Center, Seward, AK

Juvenile Steller Sea Lion (*Eumetopias jubatus*) Dive Patterns during Long and Short Trips to Sea

Jennifer M. Burns, University of Alaska Anchorage, Department of Biological Sciences, Anchorage, AK

Are All Sea Lions Created Equal? Comparison of Oxygen Storage Capacity of Adult Female California Sea Lions in California and Mexico

Michael J. Weise and Daniel P. Costa, University of California Santa Cruz, Department of Ecology and Evolutionary Biology, Center for Ocean Health, Santa Cruz, CA

Friday, 1 October

Registration and Continental Breakfast

8:00 – 8:30 a.m.

Plenary Speaker

8:30 – 9:00 a.m.

Comparison of Rising California Sea Lion Populations vs. Steller Sea Lion Declines

Kathy Ono, University of New England, Biddeford, ME

Session III—Foraging Ecology

9:00 a.m. – 2:15 p.m.

Chair: Tom Gelatt, NOAA Fisheries, Alaska Fisheries Science Center

ORAL PRESENTATIONS

Is Reproductive Success of New Zealand Sea Lions Limited by the Quality of their Milk?

Frederico Riet Sapriza et al., Massey University, IVABS, Palmerston North, Manawatu, New Zealand

Predictability of Prey Available to Free-Ranging Steller Sea Lions at Varying Spatial Scales

Michael F. Sigler et al., NOAA Fisheries, Alaska Fisheries Science Center, Juneau, AK

Feeding Behavior of *Otaria flavescens* in Response to the Operation of the Industrial Fishing Fleet of *Trachurus symmetricus* off Central Chile

Luis A. Huckstadt et al., Universidad de Concepcion, Laboratorio de Ecologia Pelagica, Concepcion, Chile

A Global Comparative Analysis of Sea Lion Diets

Andrew W. Trites and Karim H. Soto, University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada

Break

10:00 – 10:30 a.m.

Foraging Energetics of Lactating Sea lions: Response to Environmental Fluctuation

Daniel P. Costa, University of California, Department of Ecology and Evolutionary Biology, Santa Cruz, CA

Foraging Ranges of Female New Zealand Sea Lions (*Phocarcos hookeri*): Fisheries Interactions and Management Considerations

B.L. Chilvers et al., Canterbury University, School of Biological Science, Christchurch, New Zealand

Potential Effects of Short-Term Prey Changes on Sea Lion Physiology

David A.S. Rosen et al., University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada

Isotopic Differences between *Zalophus* in the Gulf of California and Galapagos Islands: Track Diet and Location

David Aurioles-Gamboa et al., Centro Interdisciplinario de Ciencias Marinas IPN, La Paz, BCS, Mexico

Sea Lions in Drag, Fur Seals Incognito: What Can We Learn from the Otariid Deviants?

J.P.Y. Arnould et al., Deakin University, School of Biological and Chemical Sciences, Burwood, Australia

Prey Contributions to Energetic Content of Steller Sea Lion Diets

J.J. Vollenweider et al., NOAA Fisheries, Auke Bay Laboratory, Juneau, AK

Lunch

12:00 – 1:15 p.m.

Movement and Dive Behavior of Foraging Juvenile Steller Sea Lions (*Eumetopias jubatus*) Associated with Pelagic Eddies

J.T. Sterling et al., National Marine Mammal Laboratory, Seattle, WA

Bridging the Gap—Linking Real-Time Foraging Movements of Sea Lions to Prey Availability

Mary-Anne Lea et al., University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada

Food Consumption of Sea Lions: Data Gaps and Direction for Future Research

Arliss J. Winship et al., University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada

Session III Discussion

Session IV—Population Ecology

2:15 – 4:45 p.m.

Chair: Kate Wynne, University of Alaska Fairbanks, Marine Advisory Program

ORAL PRESENTATIONS

The Method of Multiple (Spatial) Hypotheses and the Decline of Steller Sea Lions in Western Alaska

Nicholas Wolf et al., Marine Resources Assessment Group Americas, Inc., Tampa, FL

An Evaluation of Hot-Iron Branding as a Permanent Marking Method in the New Zealand Sea Lion, *Phocarctos hookeri*

I.S. Wilkinson et al., Department of Conservation, Science and Research Unit, Wellington, New Zealand; presented by P.J. Duignan, New Zealand Wildlife Health Centre, IVABS, Palmerston North, New Zealand

Break

2:45 – 3:15 p.m.

Using *Leptospira interrogans* Sensu Lato in Pups of the Sea Lion (*Zalophus c. californianus*) as a Tool to Determine Interactions among Populations

Cecilia Pedernera et al., UNAM, Facultad de Medicina Veterinaria y Zootecnia, Ciudad Universitaria, Delegación Coyoacán, Mexico

Are California Sea Lions in the Gulf of California, Mexico, Increasing in Abundance?

Diana Szteren et al., CICIMAR-IPN, La Paz, Baja California Sur, Mexico

Population Biology and Status of Steller and California Sea Lions (*Eumetopias jubatus* and *Zalophus californianus*) in Canadian Waters

Peter F. Olesiuk, Fisheries and Oceans Canada, Pacific Biological Station, Nanaimo, BC, Canada

Population Ecology of Resident South American Sea Lions (*Otaria flavescens*) along the Central Peruvian Coast

Carlos Yaipen-Llanos, Organization for Research and Conservation of Animals: Marine Mammals (ORCCAMM), Lima, Peru

***Klebsiella pneumoniae* Epidemics in New Zealand Sea Lions: A Natural Phenomenon or an Adverse Human Impact?**

P.J. Duignan et al., Massey University, IVABS, New Zealand Wildlife Health Centre, Palmerston North, New Zealand

Session IV Discussion

Break

4:45 – 5:15 p.m.

Poster Session and Reception

5:15 p.m.

Session III—Foraging Ecology

Estimation of Otolith Recovery in Feces through Captive Feeding Trials in Southern Sea Lions (*Otaria flavescens*)

Diego Rodríguez et al., Universidad Nacional de Mar del Plata, CONICET, and Departamento de Ciencias Marinas, Mar del Plata, Argentina

Seasonal Foraging Behavior of Lactating California Sea Lions

Sharon R. Melin and Robert L. DeLong, NOAA Fisheries, National Marine Mammal Laboratory, Seattle, WA

Diving Physiology of Steller Sea Lions: Insights from Trained Animals in the Open Ocean

Gordon D. Hastie et al., University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada

Shouldn't We Ask Where? Stable Isotopic Evidence of Geographical Variations in Steller Sea Lion (*Eumetopias jubatus*) Diets

Pieter A.P. deHart¹ and Matthew J. Wooller^{1,2}, ¹University of Alaska Fairbanks, School of Fisheries and Ocean Sciences, Institute of Marine Science, Fairbanks, AK; ²University of Alaska Fairbanks, Alaska Stable Isotope Facility, Water and Environmental Research Center, Fairbanks, AK

**Diving Behavior of Male South American Sea Lions
(*Otaria flavescens*)**

Gabriele Müller and Rory Wilson, Leibniz-Institut für Meereswissenschaften, Marine Zoologie, Kiel, Germany

Movements of a Juvenile Southern Sea Lion in La Plata River Estuary (Argentina-Uruguay)

Diego Rodriguez et al., Universidad Nacional de Mar del Plata, CONICET, and Departamento de Ciencias Marinas, Facultad de Ciencias Exactas y Naturales, Mar del Plata, Argentina

Importance of Seasonally Available Prey for Steller Sea Lions (*Eumetopias jubatus*) at Benjamin Island, Southeastern Alaska

Jamie N. Womble and Michael F. Sigler, NOAA Fisheries, Auke Bay Laboratory, Juneau, AK

Using Feeding Trials and Computer Simulations to Reconstruct Sea Lion Diet from Scat

Ruth Joy et al., University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada

Assessing Overlap between Steller Sea Lion Diets and Fish Distributions in the North Pacific

Emma L. Bredesen et al., University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada; presented by Andrea P. Coombs, University of British Columbia

Seasonal Availability of Nearshore Prey to Steller Sea Lions near Two Haul-outs in Southeastern Alaska

John F. Thedinga et al., NOAA Fisheries, Auke Bay Laboratory, Juneau, AK

Steller Sea Lion (*Eumetopias jubatus*) Feeding Habits in the Russian Far East

Jason N. Waite¹ and Vladimir N. Burkanov², ¹Alaska SeaLife Center, Seward, AK; ²Natural Resources Consultants, Inc., Seattle, WA

Using Fatty Acids to Investigate Dietary Changes in Young Steller Sea Lions (*Eumetopias jubatus*) in Alaska

Carrie A. Beck et al., University of Alaska Anchorage, Anchorage, AK

Following in the Wake of Sea Lions: Fine-Scale Boat-Based Tracking of Juvenile Steller Sea Lions Reveals Distinct Habitat Preferences for Shorelines

Ben Wilson et al., University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada

Comparisons of Blubber Fatty Acids between Sexes of Adult Steller Sea Lions

Laura K. Hoberecht et al., University of Washington, School of Aquatic and Fishery Sciences, Washington Cooperative Fish and Wildlife Research Unit, Seattle, WA

Variation in the Quality of Steller Sea Lion Prey from the Aleutian Islands and Southeastern Alaska

L. Schaufler et al., NOAA Fisheries, Alaska Fisheries Science Center, Auke Bay Laboratory, Juneau, AK

Spatially Explicit Foraging Ecology of Juvenile Steller Sea Lions (*Eumetopias jubatus*)

M.E. Lander et al., University of Washington, School of Aquatic and Fishery Sciences, Washington Cooperative Fish and Wildlife Research Unit, Seattle, WA

Ontogeny of Foraging Behaviors of the Immature California Sea Lion (*Zalophus californianus*)

Anthony J. Orr et al., NOAA Fisheries, National Marine Mammal Laboratory, Seattle, WA

Techniques for Capture and Handling of Steller and California Sea Lions

Steven Jeffries et al., Washington Department of Fish and Wildlife, Marine Mammal Investigations, Tacoma, WA

Are Steller Sea Lions Prey-Limited? Ask Their Neighbors!

Kate M. Wynne et al., University of Alaska Fairbanks, School of Fisheries and Ocean Sciences, Alaska Sea Grant Marine Advisory Program, Kodiak, AK

Estimating Ecological Niche Overlap between Steller Sea Lions and Commercial Trawl Fisheries in Alaska

Edward J. Gregr and Andrew W. Trites, University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada; presented by Andrew W. Trites, University of British Columbia

Persistence of Prey “Hot Spots” for Steller Sea Lions in Southeast Alaska

Scott Gende¹ and Mike Sigler², ¹National Park Service, Glacier Bay Field Station, Juneau, AK; ²NOAA Fisheries, Alaska Fisheries Science Center, Juneau, AK

A Model of Diving Behavior Applied to Steller Sea Lion Foraging

Carlos Alvarez-Flores¹ and Sarah Hinckley², ¹Joint Institute for the Study of the Atmosphere and the Ocean, Seattle, WA; ²NOAA Fisheries, Alaska Fisheries Science Center, Seattle, WA

Estimating Diet Composition in Sea Lions: What Technique to Choose?

Dom Tollit et al., University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada

Individually Based Modeling of Steller Sea Lion Foraging Behavior

Sarah Hinckley et al., NOAA Fisheries, Alaska Fisheries Science Center, Seattle, WA

Effects of Increased Swimming Costs on Foraging Efficiency of Captive Steller Sea Lions

Leslie A. Cornick et al., Alaska Pacific University, Anchorage, AK

Session IV—Population Ecology

Implications of the Prince William Sound Herring Population Crash: Did It Impact Steller Sea Lions?

Gary L. Thomas¹ and Richard E. Thorne², ¹Rosenstiel School of Marine and Atmospheric Sciences, Miami, FL; ²Prince William Sound Science Center, Cordova, AK

Status of the Western Steller Sea Lion (*Eumetopias jubatus*) Population in 2004

Lowell Fritz et al., NOAA Fisheries, Alaska Fisheries Science Center, Seattle, WA

Diurnal and Seasonal Activity Patterns of Oregon's Steller Sea Lions

Jennifer Katalinich, Oregon State University, College of Oceanic and Atmospheric Sciences, Corvallis, OR

Trends in Pup Abundance of Australian Sea Lions *Neophoca cinerea* in South Australia

Peter Shaughnessy et al., CSIRO Sustainable Ecosystems, Canberra, ACT, Australia; presented by Rebecca MacIntosh, La Trobe University, Zoology Department, Sea Mammal Ecology Group, Victoria, Australia

**Human Interaction Impact on South American Sea Lions
Recorded in Strandings along Central Peruvian Coast**

*Michelle Cáceres-Jerí et al., Organization for Research and
Conservation of Animals: Marine Mammals (ORCCAMM), Lima,
Peru; presented by Carlos F. Yaipén-Llanos, (ORCCAMM), Lima, Peru*

**Changes in Abundance and Sightings of Marked Steller Sea
Lion in Hokkaido**

Takeomi Isono et al., Econix Co., Ltd., Hokkaido, Japan

**Wintering of Steller Sea Lion (*Eumetopias jubatus*) along
the Northern Coast of the Sea of Japan**

*Hiroshi Hoshino et al., Hokkaido University, Graduate School
of Fisheries Sciences, Division of Marine Environment and
Resources, Hakodate, Hokkaido, Japan*

Saturday, 2 October

Registration and Continental Breakfast

8:00 – 8:30 a.m.

Plenary Speaker

8:30 – 9:00 a.m.

Conservation Management Issues and Status of Australian and New Zealand Sea Lions

Richard Campbell, Department of Fisheries, West Australian Marine Research Laboratories, North Beach, Australia

Session V—Population Dynamics

9:00 – 11:15 a.m.

Chair: Lowell Fritz, NOAA Fisheries, Alaska Fisheries Science Center

ORAL PRESENTATIONS

Estimation of Weaning Status of Juvenile Steller Sea Lions Using Mark-Resight Models

Kenneth W. Pitcher et al., Alaska Department of Fish and Game, Division of Wildlife Conservation, Anchorage, AK

Age- and Sex-Specific Survivorship of California Sea Lions

J. Laake and S. Melin, NOAA Fisheries, National Marine Mammal Laboratory, Seattle, WA

Correlations between the Steller Sea Lion Decline and the Bering Sea/Gulf of Alaska Commercial Fishery

Daniel R. Hennen, Montana State University, Bozeman, MT

Can Experimental Manipulation Be Used to Determine the Cause of the Decline of the Western Stock of Steller Sea Lions (*Eumetopias jubatus*)?

André E. Punt and Gavin Fay, University of Washington, School of Aquatic and Fishery Sciences, Seattle, WA; presented by Gavin Fay, University of Washington

Break

10:00 – 10:30 a.m.

Historic Changes in Distribution and Abundance of Steller Sea Lions in the Western Pacific, 1700s–2002

Vladimir Burkanov^{1,2} and Thomas R. Loughlin³, ¹Natural Resources Consultants, Inc., Seattle, WA; ²Russian Academy of Sciences, Kamchatka Branch of the Pacific Institute of Geography, Petropavlovsk-Kamchatskiy, Russia; ³NOAA Fisheries, National Marine Mammal Laboratory, Seattle, WA

The Size and Status of the Population of Southern Sea Lions in the Falkland Islands

David Thompson et al., University of St Andrews, NERC Sea Mammal Research Unit, Fife, UK

Session V Discussion

Session VI—Conservation and Management

11:15 a.m. – 4:15 p.m.

Chair: Doug DeMaster, NOAA Fisheries, Alaska Fisheries Science Center

ORAL PRESENTATIONS

A Synthesis of Australian Sea Lion Research and the Development of Effective Conservation: Where to from Here?

Richard Campbell¹ and Nicholas Gales², ¹Department of Fisheries, West Australian Marine Research Laboratories, North Beach, Australia; ²Australian Antarctic Division, Kingston, Tasmania, Australia

An Integrated Bayesian Model for Exploring the Interaction between Hooker's Sea Lions (*Phocarcotos hookeri*) and the New Zealand Squid Fishery

Paul A. Breen and Susan W. Kim, National Institute of Water and Atmospheric Research (NIWA), Wellington, New Zealand

Are Trawl Exclusion Zones Effective at Mitigating Competition between Commercial Fisheries and Steller Sea Lions?

Elizabeth A. Logerwell and Susanne F. McDermott, NOAA Fisheries, Alaska Fisheries Science Center, Seattle, WA

Lunch

12:00 – 1:15 p.m.

A Critical Review of the Regime Shift–“Junk Food” Hypothesis for the Decline of the Western Stock of Steller Sea Lions

Lowell Fritz and Sarah Hinckley, NOAA Fisheries, Alaska Fisheries Science Center, Seattle, WA

How Uncertainties about Competition between Steller Sea Lions and U.S. Groundfish Fisheries off Alaska Have Been Addressed in Fisheries Regulations

Shane Capron¹ and Lowell Fritz², ¹NOAA Fisheries, Alaska Region, Office of Protected Resources, Anchorage, AK; ²NOAA Fisheries, National Marine Mammal Laboratory, Seattle, WA

Conservation and Status of Sea Lions in Ecuador and the Galapagos Islands

Juan Jose Alava, University of South Carolina, School of the Environment, Columbia, SC

A Health Assessment Approach to Steller Sea Lion Research in Alaska

Kimberlee B. Beckmen et al., Alaska Department of Fish and Game, Division of Wildlife Conservation, Fairbanks, AK

Pinniped Policy: Dealing with Scientific Uncertainty

Shilpa Rajkumar and Sali J. Bache, University of Wollongong, Centre for Maritime Policy, New South Wales, Australia

A Long-Term Program on South American Sea Lions of Argentina

H.L. Cappozzo, Estación Hidrobiológica de Puerto Quequén, Museo Argentino de Ciencias Naturales “Bernardino Rivadavia” (MACN-CONICET), Buenos Aires, Argentina; presented by Diego Rodriguez, CONICET, Mardel Plata, Argentina

Break

2:45 – 3:15 p.m.

Is Human Disturbance Affecting Steller Sea Lions?

Laura Kucey and Andrew W. Trites, University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada

Uncertain Management or Management of Uncertainty: Steller Sea Lion—A Case Study

Robert J. Small¹ and Douglas P. DeMaster², ¹Alaska Department of Fish and Game, Juneau, AK; ²NOAA Fisheries, Alaska Fisheries Science Center, Seattle, WA

Integrating Behavior and Demography in Pinniped Conservation: California Sea Lions (*Zalophus californianus*) in the Gulf of California

Leah R. Gerber et al., Arizona State University, School of Life Sciences, Tempe, AZ

Session VI Discussion

Symposium Wrap-Up

4:15 – 4:45 p.m.

Break

4:45 – 5:15 p.m.

Poster Session and Social

5:15 p.m.

Session V—Population Dynamics

The Decline of Steller Sea Lions and the Ecosystem of the Gulf of Alaska

Sylvie Guénette et al., University of British Columbia, Fisheries Centre, Marine Mammal Research Unit, Vancouver, BC, Canada

A Bayesian Stochastic Metapopulation Model for Steller Sea Lions (*Eumetopias jubatus*): Evaluating Changes in Model Fits with Different Assumptions about the Causes for Population Decline

Gavin Fay and André E. Punt, University of Washington, School of Aquatic and Fishery Sciences, Seattle, WA

Composition and Long-Term Numerical Fluctuations in a Southern Sea Lion Colony at Mar del Plata Harbor (Argentina)

Diego Rodríguez et al., Universidad Nacional de Mar del Plata, CONICET, and Departamento de Ciencias Marinas, Facultad de Ciencias Exactas y Naturales, Mar del Plata, Argentina

Survival Rates of Steller Sea Lions in Southcentral and Southeastern Alaska

Grey W. Pendleton et al., Alaska Department of Fish and Game, Wildlife Conservation, Douglas, AK

Survival of Steller Sea Lion Pups from Branding to Three Months after Branding at Lowrie Island, Alaska

Kelly Hastings and Tom Gelatt, Alaska Department of Fish and Game, Division of Wildlife Conservation, Anchorage, AK

Survival Estimates for California Sea Lions (*Zalophus californianus californianus*) in the Gulf of California, Mexico

Claudia J. Hernández Camacho et al., Centro Interdisciplinario de Ciencias Marinas-IPN, Departamento de Pesquerías y Biología Marina, La Paz, Mexico

Session VI—Conservation and Management

Steller Sea Lion (*Eumetopias jubatus*) and California Sea Lion (*Zalophus californianus*) Interactions with Vessels in Pacific Rim National Park Reserve: Implications for Marine Mammal Viewing Management

Wendy Szaniszlo, University of Victoria, Department of Geography, Pacific Rim National Park Reserve, Ucluelet, BC, Canada

Steller Sea Lion Protection Measures in the Alaska Ground-fish Fisheries: Spatial and Temporal Harvest Control

Melanie N. Brown et al., NOAA Fisheries, Sustainable Fisheries Division, Alaska Region, Juneau, AK

Acoustic Characteristics and Morphological Observation of Roar Sound of Steller Sea Lion (*Eumetopias jubatus*) Migrating to the West Coast of Hokkaido, Northern Japan

Kohji Iida et al., Hokkaido University, Graduate School of Fisheries Sciences, Hakodate, Hokkaido, Japan

Relationship between Roar Sound and Behavior of Steller Sea Lion (*Eumetopias jubatus*) Migrating to the West Coast of Hokkaido, Northern Japan

Tae-Geon Park et al., Hokkaido University, Graduate School of Fisheries Sciences, Hakodate, Hokkaido, Japan

Fishery Effects: Testing the Local Depletion Hypothesis

M. Elizabeth Conners et al., NOAA Fisheries, Alaska Fisheries Science Center, Seattle, WA; presented by Elizabeth A. Logerwell, NOAA Fisheries, Seattle, WA

Movements and Diving Behavior of Juvenile Steller Sea Lions (*Eumetopias jubatus*) during the Winter and Spring in Southcentral Alaska

H.B. Briggs et al., Texas A&M University, Department of Marine Biology, Galveston, TX

Entanglements of North American Sea Lions in Marine Debris: Do We Know Enough?

Kimberly L. Raum-Suryan et al., Alaska Department of Fish and Game, Division of Wildlife Conservation, Anchorage, AK

Effect of Marking Operations on Pup Survival at Medny Island (Russia), 1991–2001

Vladimir N. Burkanov^{1,2} and Evgeny G. Mamaev³, ¹Natural Resources Consultants, Inc., Seattle, WA; ²Russian Academy of Sciences, Kamchatka Branch of the Pacific Institute of Geography, Petropavlovsk-Kamchatskiy, Russia; ³Vyatka State Agricultural Academy, Kirov, Russia

Method for Field Identification of South American Sea Lions: Operational Tool for Research and Management

Gabriel A. Garaycochea et al., Organization for Research and Conservation of Animals: Marine Mammals (ORCCAMM), Lima, Peru; presented by Carlos F. Yaipén-Llanos, ORCCAMM, Lima, Peru

Can a New Marine Mammal Law Be Developed in Peru? An Analysis of Environment Legal Order

Mariana Alegre-Escorza and Carlos F. Yaipen-Llanos, Organization for Research and Conservation of Animals: Marine Mammals (ORCCAMM), Lima, Peru; presented by Carlos F. Yaipen-Llanos, ORCCAMM, Lima, Peru

Effects of Tourism on Australian Sea Lions (*Neophoca cinerea*) at Seal Bay Conservation Park, South Australia

Terijo Arianna et al., University of New South Wales, School of Biological, Earth, and Environmental Sciences, Sydney, Australia

The Impact of International Law on the Conservation and Management of Pinnipeds

Shilpa Rajkumar and Sali J. Bache, University of Wollongong, Centre for Maritime Policy, New South Wales, Australia

TASSC: Sea Lion Comanagement in Alaska

Lianna Jack et al., The Alaska Sea Otter and Steller Sea Lion Commission (TASSC), Anchorage, AK

Future Directions: Seal Bay Conservation Park, Kangaroo Island, South Australia

Jacqueline Wright, Department for Environment and Heritage, Seal Bay Conservation Park, Kingscote, South Australia, Australia

The Effects of Movement Rates on Viability Predictions: California Sea Lions (*Zalophus californianus californianus*) as a Case Study

Manuela Gonzalez-Suarez et al., Arizona State University, School of Life Sciences, Tempe, AZ

Organochlorine Levels in Steller Sea Lion Prey from the Aleutian Islands and Southeastern Alaska

Ron Heintz et al., NOAA Fisheries, Auke Bay Laboratory, Juneau, AK

Potential Interactions between State-Managed Fisheries and Steller Sea Lions (*Eumetopias jubatus*)

Nathan J. Soboleff and Gordon H. Kruse, University of Alaska Fairbanks, School of Fisheries and Ocean Sciences, Juneau Center, Juneau, AK

Southern Sea Lions and Artisanal Fisheries in Uruguay: Comparing the Conflicts through Three Years

Diana Szteren et al., Universidad de la República, Sección Zoología Vertebrados, Facultad de Ciencias, Montevideo, Uruguay

Avoidance Behavior of Steller Sea Lion (*Eumetopias jubatus*) to Artificial Sound Stimuli

Kohji Iida et al., Hokkaido University, Graduate School of Fisheries Sciences, Hakodate, Hokkaido, Japan

Sunday, 3 October

Continental Breakfast

8:00 – 9:00 a.m.

Roundtable Discussions

Sign up at the registration desk by Saturday, 2 October, for the discussion groups you wish to attend.

Concurrent Sessions

9:00 – 10:30 a.m.

Topic: **Learning from Our Data Gaps: Population Research and Monitoring Priorities**

Session leaders: Bob Small and Kate Wynne

Location: Anchorage Room

Topic: **Physiology and Metabolism**

Session leader: Kendall Mashburn

Location: Juneau Room

Topic: **Telemetry Techniques and Analysis in Sea Lion Research: What Is the State of the Art?**

Session leaders: Mary-Anne Lea and Mike Rehberg

Location: Haines Room

Break

10:30 – 10:45 a.m.

Concurrent Sessions

10:45 a.m. – 12:15 p.m.

Topic: **Quantifying Predation on Sea Lions: Identifying Key Parameters and Data Needs**

Session leaders: Ben Wilson and Arliss Winship

Location: Anchorage Room

Topic: **Telemetry Attachment Techniques: What Works and What Doesn't?**

Session leaders: Mary-Anne Lea and Mike Rehberg

Location: Haines Room

Topic: **Open Session**
Location: Juneau Room

Lunch

12:15 – 1:30 p.m.

Concurrent Sessions

1:30 – 3:00 p.m.

Topic: **Dietary Analysis of Sea Lions: How Should It Be Done?**

Session leader: Andrew Trites

Location: Anchorage Room

Topic: **Foraging Studies**

Session leader: TBA

Location: Juneau Room

Topic: **Open Session**

Location: Haines Room

Monday, 4 October

Optional Field Trip to Seward, Alaska

7:45 a.m. – 9:30 p.m.

On Monday, October 4, 2004, we will be traveling via motor coach to Seward, Alaska. Included in the field trip will be a scenic ride along Turnagain Arm onto the Kenai Peninsula, a behind-the-scenes tour of the Alaska SeaLife Center, a catered lunch, free time to explore the coastal town, and a stop at Alyeska Ski Resort for dinner (dinner not included in field trip price) on our return trip to Anchorage. The cost of the field trip is \$60. A few seats are still available. If you are interested in joining us, please see Sherri Pristash or Adie Callahan at the registration desk.

7:45 a.m.—Meet in hotel lobby

8:00 a.m.—Depart from Marriott Downtown Hotel

11:00 a.m.—Arrive in Seward

12:00 p.m.—Lunch (provided) and tour of the Alaska SeaLife Center

4:00 p.m.—Depart Seward

6:00 p.m.—Arrive at Alyeska Ski Resort, dinner is on your own

8:00 p.m.—Depart Alyeska Ski Resort

9:00 p.m.—Drop off at Anchorage International Airport

9:45 p.m.—Return to Marriott Downtown Hotel

Those of you already signed up, please pay your fees at the symposium registration desk by Saturday, October 2. Thank you!



Alaska SeaLife Center

w i n d o w s t o t h e s e a

Lowell Wakefield Fisheries Symposia

- 1982 International Symposium on the Genus *Chionoecetes*
- 1983 International Sablefish Symposium
- 1984 Symposium on Dungeness Crab Biology and Management
- 1985 International King Crab Symposium
- 1986 International Rockfish Symposium
- 1986 International Symposium on Seafood Quality Determination
- 1988 International Symposium on the Biology and Management of Walleye Pollock
- 1989 International Symposium on King and Tanner Crabs
- 1990 International Herring Symposium
- 1992 International Symposium on Management Strategies for Exploited Fish Populations
- 1993 International Symposium on Genetics of Subarctic Fish and Shellfish
- 1994 International Flatfish Symposium
- 1995 International Symposium on the Biology, Management, and Economics of Crabs from High Latitude Habitats
- 1996 International Symposium on the Role of Forage Fishes in Marine Ecosystems
- 1997 Fishery Stock Assessment Models for the 21st Century: Combining Multiple Information Sources
- 1998 Ecosystem Considerations in Fisheries Management
- 1999 Spatial Processes and Management of Fish Populations
- 2000 Herring2000: An International Symposium on Expectations for a New Millennium
- 2001 Crab2001—Crabs in Cold Water Regions: Biology, Management, and Economics
- 2002 Genetics of Subarctic Fish and Invertebrates
- 2003 Assessment and Management of New and Developed Fisheries in Data-Limited Situations
- 2004 Sea Lions of the World: Conservation and Research in the 21st Century
- 2005 Biology, Assessment, and Management of Pacific Rockfishes
- 2006 Resiliency of Gadid Stocks to Fishing and Climate Change

Proceedings are published for all of the symposia. Contact Sea Grant Publications for availability: www.uaf.edu/seagrants/bookstore or 907/474-6707 (toll free 888/789-0090).

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