

Dr. Jennifer Lee Nielsen
CURRICULUM VITAE

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Current

Appointments **Fisheries Research Scientist**, USGS Alaska Science Center
Immediate Past-President American Fisheries Society (2007-2008)
Chair Past Presidents' Advisory Board American Fisheries Society
Bering Sea Ecosystem Research Committee Inter-Agency Working Group
NSF SEARCH Climate Change Study Group Agency Advisory Committee
Editor-in-Chief *Reviews in Fish Biology and Fisheries* (since 1999)
Book Series Editor *Reviews: Methods and Technologies in Fish Biology and Fisheries* (since 2000)
Affiliate Professor Simon Fraser University, Vancouver B. C. Dept. Biology
Affiliate Professor University of Alaska, Fairbanks, Marine Science Institute
Affiliate Professor University of Alaska, Anchorage, Biology Department
NOAA Technical Recover Team Southern steelhead recovery planning
Board Membership Planning Committee 6th World Fisheries Congress

Career Achievements

Interdisciplinary research in a wide range of fisheries, behavior, genetics, climate change, and fish tagging technologies producing over 120 publications (average citation rate for last five years is 38.2 citations per year) and support for 27 graduate degrees (MSc & PhD) from 16 universities.
 USGS Alaska Science Center Fisheries Program Supervisor, 1999-2005.
 Editor-in-Chief international journal and book series with high impact factors 1999-present; edited eight international books on fish and fisheries.
 Served as Officer American Fisheries Society 2003-2008; President 2006-7.
 American Fisheries Society Award of Merit (1996), Distinguished Professional Achievement (1997), Distinguished Service Award (2000).

Previous Appointments

2004-2007 **Affiliate Professor** University of Alaska, Fairbanks, Fisheries
 2002-2006 **Associate Professor**, Oregon State University
 2002-2005 **Associate Professor**, University Nevada, Reno
 1995-2000 **Research Associate**, Moss Landing Marine Laboratory
 1994-1999 **Visiting Scientist**, Hopkins Marine Station, Stanford University
 1990-1999 **Fisheries Research Scientist**, US Forest Service
 1978-1989 **Fisheries Scientist**, Weyerhaeuser Company

Research – Publications

I have produced over 120 research publications since my first publication in 1982, including journal articles, book chapters, technical reports and international books on fisheries, conservation, genetics, tagging technologies and climate change. This includes over 65 peer-reviewed scientific journal articles or book chapters. Since obtaining my Ph.D. in 1994, I have averaged over five publications per year. My average citation rate for the last five years is 38.2 citations per year; my lifetime-citation rate per paper since first publication is 14.9. A full list of citations follows the text.

I edited American Fisheries Society Symposium 17 (1995):

*Evolution and the Aquatic Ecosystem:
Defining Unique Units in Population
Conservation.*

I have recently contributed peer-reviewed book chapters to the following volumes:

*Pacific Salmon Environment and Life
History Patterns* (2007). Kudsén,
American Fisheries Society;
*The Atlantic Salmon: Genetics,
Conservation and Management* (2007).
Verspoor, Stradmeyer and Nielsen,
Blackwell;
North American Freshwater Fishes (2007)
Mayden, Academic Press.

Editorships

EDITOR-IN-CHIEF

In 1999 I became Editor-in-Chief of the international journal *Reviews in Fish Biology and Fisheries* currently published by Springer. The journal publishes synthesis reviews of interdisciplinary topics on fish and fisheries. Submission and publication of the journal are electronic with no page charges. The current 5-year average impact factor for this journal is 1.82. Since 1999 we have published Special Issues of this journal on:

The Species Concept in Fish Biology (1999);
*The Role of Hybridization in the
Distribution, Conservation and
Management of Aquatic Species* (2000);

Mexican Freshwater Fish and Fisheries
(2002);
Sea Ranching and Stock Enhancement
(2003);
*Interactions of Hatchery and Wild Fishes in
Marine and Estuarine Environments*
(2004);
Rights Based Fisheries (2005);
*Biodiversity Crisis in Southern Galaxioid
Fishes* (2006);
Cephalopod Life-cycles (2007).

ADVISORY EDITOR

I serve as Advisory Editor of *Environmental Biology of Fishes* and co-edited a Special Issue on *Genetics of Subpolar Fish and Invertebrates* (2004).

BOOK SERIES

In 2000 I founded the book series *Reviews: Methods and Technologies in Fish Biology and Fisheries* published by Springer. There have been seven books published in this series to date:

1. *Electronic Tagging and Tracking in Marine Fisheries* (2000) Sibert & Nielsen (eds.)
2. *Inshore Fisheries Management* (2001) Symes & Phillipson (eds.)
3. *Molecular Diagnosis of Salmonid Diseases* (2002) Cunningham (ed.)
4. *Participation in Fisheries Governance* (2005) Gray (ed.)
5. *Aspects of Illegal, Unreported and Unregulated Fishing in the Southern Ocean* (2006) Baird (ed.)
6. *Ecological and Genetic Implications of Aquaculture Activities* (2007) Bert (ed.)
7. *By-catch reduction in the World's Fisheries* (2007) S. Kennelly (ed.)
8. *Electronic Tagging and Tracking in Marine Fisheries II* (2008; in process).

BOOKS

I have edited or co-edited three other book volumes: *Evolution and the Aquatic Ecosystem* (1995 Nielsen, American Fisheries Society). This was the first publication at the American Fisheries

Society to focus on an interdisciplinary approach to genetics and evolution in fish and fisheries.

The Atlantic Salmon: Genetics, Conservation and Management (2007; Verspoor, Stradmeyer and Nielsen, Blackwell). This is the first volume published on the management aspects of genetics in Atlantic salmon in

language that is appropriate for managers not schooled in genetics or evolution.

Proceedings of the Fourth World Fisheries Congress (2007; Nielsen *et al.*, American Fisheries Society). This international volume contains 211 papers from 71 different countries on management and conservation in fisheries around the world.

Research – Achievements

During my research career I have followed several diverse paths focused on the topics of fish ecology, aquatic habitats, animal behavior, genetics, tagging technologies and climate change. Throughout my studies I have sponsored 16 students through their Masters of Science Degrees and six Doctors of Philosophy degrees in fisheries and oceanography at 16 different universities. I have received the Award of Merit (1996), the Distinguished Special Achievement Award (1997) and the Distinguished Service Award (2000) from the American Fisheries Society (AFS) and served as President of AFS 2006-2007.

The following sections provide a brief synopsis of my past and current research work in fisheries and genetics. A list of grants and contracts is given following the text.

SALMON HABITAT IN THE PACIFIC NORTHWEST

Salmonid habitat was the focus of my first research activity as a scientist with the Weyerhaeuser Company in Federal Way, Washington. My work focused on the impacts of logging on salmonid habitat and implications for the Bolt II legal decision authorizing Native American Tribes to specific fishing and harvest rights in the Pacific Northwest. In this capacity I co-authored five papers including the first and still frequently cited paper on fish habitat in freshwater riverine systems (Bisson *et al.* 1982). Originally trained as an artist I illustrated the first edition of the American Fisheries Society's Aquatic Habitat Inventory: Glossary and Standard Methods (Helm 1985). During this period I went back to school at age 38 to The Evergreen State College to obtain a

Bachelors of Science Degree in Environmental Studies in preparation for graduate studies.

MICROHABITAT AND FORAGE BEHAVIOR IN PACIFIC SALMON

My interest in salmonid habitat led to a critical study of early salmonid forage behavior in diverse stream habitats which led to my MSc at Berkeley (1990) and a highly cited paper on microhabitat specific coho forage behavior (Nielsen 1992, TAFS). This work demonstrated the interdisciplinary approach required to investigate forage behavior and early freshwater growth in wild coho salmon. My work at this time also demonstrated patterns of movement and changes in population structure over time in wild coho and steelhead populations in freshwater. Numerous grants funded independent research after my resignation from Weyerhaeuser and move to the University of California, Berkeley for graduate studies. My grants written and obtained during this period exceeded any other graduate student's funding in natural resources research and frequently exceeded the funding available to my major professor. One especially important grant obtained as a graduate student from the State of California in 1992, was for the education of northern California, out-of-work salmon troll fishers in fish habitat analyses and monitoring (\$500,000). In 1990 I was offered a full-time research position with the US Forest Service Southwest Science Center while I continued graduate school at Berkeley for my PhD.

POPULATION GENETICS AND EVOLUTIONARILY SIGNIFICANT UNITS (ESUs)

My studies on forage behavior and population structure in juvenile salmonids in freshwater led to many questions about the role of genetics in salmonid behavior and distribution. To pursue these questions I made a sea change in direction, moved my research to the Allen Wilson Laboratory at Berkeley in the Department of Molecular and Cellular Biology and took up the study of population genetics. During this period my work was highly original and produced some of the first molecular genetic data on Pacific salmonids using mtDNA and microsatellite loci to identify evolutionarily significant units of populations for conservation and protection under the US Endangered Species Act. I was particularly focused on applied aspects available from the new DNA tools found in molecular genetics. Grants and publications from my research increased significantly. I completed my PhD on salmonid genetics and stock identification in 1994 and was offered a Post-Doctoral appointment at Stanford University's Hopkins Marine Station.

CALIFORNIA STEELHEAD AND CHINOOK

Soon after my introduction into molecular genetics at Berkeley I started working on DNA analyses of tissue collections from salmonids in California. These collections included samples taken from steelhead in southern California where the state of knowledge at that time suggested these were hatchery fish that had lost their way in the Pacific Ocean, since there were no significant records of natural production for steelhead south of Monterey Bay since the 1940's. It was a great surprise to me and to the rest of the fisheries research community in California when I published the first reports of unique mitochondrial DNA signatures in some of these fish that were not found in any California hatchery populations (Nielsen *et al.* 1994 CJFAS). Similar break-through molecular findings were published for runs of Chinook salmon in the Sacramento-San Joaquin River drainage and Shasta rainbow trout on the McCloud River (Nielsen *et al.* 1994 Cons. Bio.; Nielsen *et al.* 1999 Mol. Ecol). More recent studies has been published on steelhead populations in California's Central Valley and Snake River steelhead populations throughout Idaho.

My fisheries genetics findings were controversial and led to much discussion and frequent opposition to my published reports. The implications of documenting rare salmonid populations in extreme environments at the southern extent of their range were unexpected and certain to be costly for established management. However, despite significant effort and money directed to refuting my work by state and federal resource managers, my findings still hold today. My serendipitous DNA results on trout and steelhead in southern California have led to the development of significant infrastructure, numerous fisheries biology careers and many publications dedicated to salmonids at the southern extent of their range. Many of these populations are currently protected under the ESA as threatened or endangered species.

MEXICAN SALMONIDS

Interest in salmonids at the southern extent of their range brought me to investigations of unique trout populations in Mexico previously studied by David Starr Jordan and Robert Rush Miller. Freshwater Mexican trout (*Oncorhynchus mykiss nelsoni*) are found in a small number of streams in Baja California, Mexico. Rainbow trout are also common in high altitude, spring-fed streams along the northern Sierra Madre Mountains in central Mexico. Early allozyme analyses showed that these Mexican fishes are more closely related to rainbow trout (*Oncorhynchus mykiss*) than cutthroat trout (*O. clarkii*). Collaborations with Mexican scientists provided contemporary sampling opportunities on these fishes. Through grants I funded several scales of DNA analyses on Mexican trout. I was able to show that Mexican trout in the rios Mayo, Yaqui and other northern Sierra Madre streams have unique molecular signatures that place them as evolutionarily distant from the California rainbow trout populations as *Oncorhynchus chrysogaster* (Mexican golden trout), and Gila and Apache trout populations found in the southwest US. They also do not share common molecular characteristics with any of these other southern trout species. This molecular data supports inference on special status for these fishes. Efforts are underway in Mexico to rename these fishes with their own species status. It is our hope that the new focus on these rare and unique populations of trout in Mexico will help conservation efforts in their native habitats.

STEELHEAD ACOUSTIC AND ARCHIVAL TAGS

After 18 years of studying salmon in freshwater I was still very curious about the two-thirds of their life they spend at sea. In 2000 I became part of the Census of Marine Life's salmon project (POST) and began to experiment with newly developed archival tags for Pacific salmon in an attempt to study their patterns of movement and distribution at sea. I also used acoustic tag technology to monitor the timing and pattern of movement of salmon at the freshwater-marine interface. I beta-tested archival tags developed by LOTEK and off the shelf acoustic technology. For three years I monitored steelhead adults at a weir on the Ninilchik River where a high proportion of repeat spawners were found in the population (20-50%). Acoustic tag technology allowed me to demonstrate that steelhead use tidal activity to accelerate their transition from riverine to sea habitats. Archival tags were difficult to recover in repeat spawning fish; many of the tags were lost before recapture of the fish at the weir. However, two tagged steelhead, one male and one female, gave us bi-minutely data for temperature and depth for 18 months at sea. The most provocative finding derived from these data was the fact that both steelhead spent over 97% of their time at sea in the top six meters of the ocean. Future engineering and better deployment protocols for salmon archival tags will allow us to gain a better picture of these fish at sea.

HALIBUT POP-UP TAGS

This study started when I arrived in Alaska in 1999 with the live capture of seven wild Alaska halibut (>70 lbs each) and putting these fish into husbandry in large circular tanks at the Alaska Sea Life Center Aquarium for experimental tagging with satellite pop-up tags. These fish adapted to captivity very easily and they were eating from hand within three weeks. Two of my tagged halibut remained on display at the Sea Life Center for 18 months. All were released as tagged fish back into their original habitats. Satellite pop-up tags were tethered to the halibut with little effect. These tags carry an on-board computer with high capacity memory storage. We programmed these tags to provide bi-minutely data on temperature, depth and light levels for up to 18 months while these animals were at sea.

Since halibut are demersal and spend most of their time at depth the light sensor was developed for blue light, the type of light that penetrates most deeply through seawater. We were hoping to use standard algorithms to calculate rough estimates of geolocation using these light sensors, apparent dawn and dusk times and the exact clock found in the tag. Comparing these data with depth measurements from the tags allowed us to position tagged halibut within a radius of about 60 nautical miles for most times of the year. Spring and fall equinox periods had high variation in the data due to limited changes in light levels.

To date we have been able to tag a total of 78 halibut from Alaskan waters and get information of their patterns of movement to and from breeding grounds at great depths at sea, usually over 500 meters. We recorded specific mating behaviors in these fish on their winter breeding grounds that was similar to other published flat fish behavior. We showed geographic continuity in winter migrations suggesting population structure in Pacific halibut where none was thought to exist before. Currently genetic studies are underway in my laboratory to confirm this structure using DNA analyses. Support for local population structure in Pacific halibut represents an important contribution to the management of this commercial species. These studies have contributed to a sea change in the way Pacific halibut are managed as a commercial species by the International Pacific Halibut Commission.

CLIMATE CHANGE, OCEAN CARRYING CAPACITY AND SALMON AT SEA

I received my first climate change grant from the USGS in 1999. I was the first biologist to get funding for climate change impacts on salmonids within the agency and served as the only biologist on several early national committees. For the last eight years I have addressed the issue of climate change impacts on salmonid growth and survival at sea in the North Pacific Ocean. Collaborators helped develop a new digital system to record seasonal and annual scale increments from retrospective scale collections taken from salmon captured in Bristol Bay, Alaska, 1955-present. These data were used in time-series analyses to look at trends correlated to patterns of climate change and sea condition over time. One of the most important findings coming from this study is support for competition at sea between wild Alaska sockeye salmon and pink salmon from Kamchatka. These

analyses give further support for the concept of ocean carrying capacity and the need for fisheries management to consider impacts of fish production and harvest far from local marine habitats.

BROOKS RIVER GRIZZLY BEARS

In 2006 I received a grant from the National Parks Service NRPP Program to look at brown bears in the Brooks River drainage. These grizzly bears are part of an extensive tourist bear-viewing opportunity in Alaska that is managed by NPS. Numerous bears visit a low waterfall in the spring and fall to feed on salmon runs and carcasses in the Brooks River. NPS has established safe and effective viewer platforms along the lower river for bear observations by visitors. Nothing is known about the origin of the bears visiting this site, their genetic relationships and the mechanisms that establish their spatial and temporal use of the river. We are using mtDNA and microsatellite loci to develop genetic relationships among the bears. We will look at temporal and spatial use by individual bears that can be identified by known genetic signatures using DNA from hair and tissue collections. We have amplified the first circadian rhythm genes in brown bears to look for sequence variation among bears that may have functional relationships with the timing and behavior of bears on Brooks River.

NORTH SLOPE ARCTIC CISCO

USGS collaborates with the DOI Minerals Management Service to monitor distribution, activity and abundance of plants and animals of interest on the North Slope of Alaska. Before 2006, no research had been done on the Arctic cisco overwinter in the Colville River on the North Slope during periods of winter ice in the Beaufort Sea. These fish provide a

subsistence harvest for the local native community with net harvest under the ice when the fish move into coastal habitats in October. The local community is concerned about increased development of the slope and climate change effects on this important subsistence harvest. The putative source population for all the Arctic cisco in the Colville River is the Mackenzie River in Canada, where three distinct spawning populations have been identified. We will use genetic analyses to look at the relationships among the Colville River harvest of Arctic cisco and putative source populations, including other potential breeding populations along the Beaufort and Chukchi seas. We will look at changes in recruitment from different source populations over time in relationship to climate change and shifts in the Arctic oscillation.

RESEARCH BASED AWARDS AND HONORS

- 1996 Special Contributions Award - California-Nevada Chapter American Fisheries Society
- 1996 Award of Merit - Western Division of the American Fisheries Society
- 1997 Distinguished Professional Achievement Award California-Nevada Chapter American Fisheries Society
- 1997 Award of Special Recognition Western Division of the American Fisheries Society
- 1998 Letter of Recognition Government of Canada Networks of Centers of Excellence
- 1999 Letter of Recognition & Book Award California Coastal Commission
- 2000 - 2003 Star Awards USGS Alaska Science Center
- 2000 On-the-Spot Award USGS BRD ICEBIRG Program, Reston, West Virginia.
- 2000 Distinguished Service American Fisheries Society

Research – Administration

Sound administration requires a team effort where leadership primarily focuses on individual talents and skills as they relate to the common goals of the community. I have administered over 40 research projects and several programs during my career at the university, state and federal levels. I have a strong

reputation for timely and rigorous research products produced within a cost-effective budget.

RESEARCH MANAGEMENT

My research has consistently been interdisciplinary requiring a creative balance among multiple goals and

funding opportunities. This approach often required accumulation of small grants or funding opportunities dedicated to various aspects of one overarching hypothesis. At other times I have focused large sums of money to both scientific and sociological aspects of fisheries research covering multiple related project goals. In all cases my strategic approach to the management of science has been to ask the right question at the right time and look for ways to interpret that challenge to other scientists and managers. I have been very successful in this endeavor.

I served as president of the American Fisheries Society (AFS), September 2006-September, 2007. In this capacity, I lead a national and international program of fisheries science dedicated to 10,000 members with a staff of 27 fulltime employees and over 400 volunteer appointments. AFS's primary goal is to define and implement best available science for fisheries and environmental science, policy and management.

PROGRAM MANAGEMENT

GENETICS LABORATORIES

Immediately after my PhD in 1994, I organized and managed a soft-money genetics laboratory at Hopkins Marine Station, Stanford University. The laboratory space was offered to me by Stanford, but all research funding came from my own grants. This laboratory was dedicated to the study of population genetics in fish and fisheries. Special focus was placed on the genetics of California salmonids and much of the research along these lines contributed to the listing of Pacific salmon in California under the ESA.

Conferences and Seminars

ORGANIZATIONAL PARTICIPATION (1995-2008)

Park City, Utah. July 16-19, 1995. Western Division American Fisheries Society. Practical Applications of Ecosystem Management Genetic Tools. **Session Chair.**

Tucson, AZ. December 4-14, 1995. USDA Ecological Stewardship Workshop. **Scientific Committee** - Genetic and Species Diversity.

In 1996 I spent three months on the South Island of New Zealand as a visiting scientist to assist the National Institute for Water and Atmosphere (NIWA) in the creation of a molecular genetics laboratory dedicated to the study of plants and animals in New Zealand. The first molecular studies on Chinook salmon and native New Zealand eels started from work I initiated in this laboratory during this time.

FISHERIES PROGRAM ELEMENTS

In 1999 I was offered the role as supervisor of the fisheries program at the USGS Alaska Science Center. I ran their fisheries program until 1995 and supervised 17 scientists and technical staff with over 23 research projects. During this time I successfully implemented new research at USGS for climate change, studies of salmon at the freshwater/marine interface, patterns of seasonal movement in Pacific halibut and critical marine habitats for Pacific salmon. I implemented cutting-edge research on ocean carrying capacity and North Pacific salmonid fisheries. I applied new technologies such as satellite pop-up tags on Pacific halibut, and archival and acoustic tagging of wild Alaska steelhead to monitor ocean migration and critical marine habitats. See the research overviews above for specific projects. In 2005 I turned over leadership of the fisheries program to Dr. C. Zimmerman, whom I hired in 2001, so that I could dedicate a large proportion of my time to the American Fisheries Society for five years of service as an Officer of the Society.

Santa Fe, NM. February 16-20, 1997. Keystone Symposium on Evolution of Molecular

Mechanisms. **Session Chair** - Repetitive DNA and the evolution of repeat units.

Monterey, CA. August 24-29, 1997. American Fisheries Society Annual Meeting. **Program Chair.**

Seattle, WA. June 24-27, 1998. Ecology, Ethology, and Evolution of Fishes (EEEF).

- Symposium Chair:** "The Intersection of Molecular and Behavioral Science."
Hartford, CN. August 26, 1998. American Fisheries Society Annual Meeting. **Session Chair:** Ecology, physiology, and genetics of salmon at the southern edge of their distribution: Implications for conservation.
- Charlotte, NC. August 14, 1999. American Fisheries Society Annual Meeting. **Organizer:** The role of hybridization in the distribution, conservation, and management of aquatic species.
- La Paz, MX. June 15, 2000. Annual Meeting American Society of Ichthyologists and Herpetologists. **Session Chair:** Freshwater fish and invertebrates of Mexico.
- Phoenix, AZ. August 2001. American Fisheries Society Annual Meeting. **Session Chair.** Conservation, biology, genetics and management of freshwater fish in the Southwest and Mexico.
- Juneau, AK. July 2002. Alaska Sea Grant **Organization Committee:** Genetics of sub-polar fish and invertebrates.
- San Diego, CA. April 2003. **Organization Chair and Editor:** Hatchery/wild interactions in marine and estuary habitats. Western Division American Fisheries Society.
- Vancouver, BC. May 2004. **Publication Committee Chair,** 4th World Fisheries Congress.
- San Francisco, CA. September 2007. AFS Annual Meeting. **President** of AFS and **Plenary Chair.**
- Auckland, NZ. February 2008. **Organizing Committee and Session Chair.** AFS 2nd International Tagging Symposium.
- Edinburgh, Scotland. May 2012. **Organizing Committee.** 6th World Fisheries Congress.
- interactions, and implications for salmon recovery." G. Ruggerone and **J. L. Nielsen.**
- Newport, OR. March 15, 2007. 9th Annual Salmon Ocean Ecology Meeting. "Ocean climate change and collapse of the world's largest sockeye salmon population." G. Ruggerone, **J. L. Nielsen** and M. Link.
- Anchorage, AK. Feb. 21, 2007. FWS/USGS Forum on climate change. "Salmon-climate relationships reflect bottom-up control in the complex dynamics of species interactions and salmon life history at sea." **J. L. Nielsen** and G. T. Ruggerone.
- Anchorage, AK. Feb. 7, 2007. AYK SSI Symposium "Retrospective analysis of Yukon and Koskokwin Chinook salmon growth." G. Ruggerone, **J. Nielsen** and B. Agler.
- Anchorage, AK. Feb. 8, 2007. AYK SSI Symposium. "Growth and survival of salmon in response to competition and climate change." G. Ruggerone and **J. Nielsen.**
- Petropavlovsk-Kamchatsky, Russia. World Wildlife International Workshop. Nov. 30, 2006. "Growth and survival of salmon in response to competition and climate change: Implications for interactions of wild and hatchery salmon." G. Ruggerone and **J. Nielsen.**
- Fairbanks, AK. Nov. 16, 2006. American Fisheries Society AK Chapter. "Long-term trends in annual Bristol Bay and Chignik sockeye salmon scale growth at sea in relation to sockeye abundance and climate change, 1955-2000." **J. L. Nielsen** and G. Ruggerone.
- Homer, AK. Oct. 30, 2006. World Wildlife Fund Bering Sea Climate Camp. "Growth, abundance and survival of salmon in response to climate change. G. Ruggerone and **J. Nielsen.**
- Victoria, BC. June 4, 2006 ASLO 2006. "Growth and survival of salmon in response to climate, competition and a dynamic ocean carrying capacity. G. Ruggerone and **J. L. Nielsen.**
- Sesimbra, Portugal. June 7, 2005. Sixth Conference on Fish Telemetry. "The potential of using pop-up archival transmitting tags to monitor migration and behavior of Atlantic halibut (*Hippoglossus hippoglossus*) in Norwegian waters. K. Michalsen, A. C. Seitz and **J. L. Nielsen.**
- Victoria, BC. May 15-16, 2005. GLOBEC Symposium: Climate Variability and sub-arctic marine ecosystems. "Linkages between climate, growth, competition at sea and sockeye salmon abundance in Bristol Bay, Alaska, 1955-2000" poster presentation by G. Ruggerone, **J. Nielsen** and J. Meka.
- Honolulu, HI. October 19, 2004. PICES 13th Annual Meeting. "Top-down and bottom-up linkages among climate, growth, competition and production of sockeye salmon populations in Bristol Bay, Alaska." **J. L. Nielsen.**
- Sacramento, CA. October 5, 2004. California Bay Delta Authority Science Conference. "Microsatellite analyses of Central Valley trout populations, 1999-2003." **J. L. Nielsen.**

<p>INVITED PRESENTATIONS AT SYMPOSIA AND SOCIETY MEETINGS (1997-2007)</p>

- Portland, OR. May 4, 2008. Western Division American Fisheries Society. "Growth & survival in response to competition and climate change: Implications for wild and hatchery salmon." G. Ruggerone and **J. L. Nielsen.**
- Sokcho, Korea. April 9, 2008. International Salmon Carrying Capacity Workshop sponsored by Moore Foundation. "Managing data for long-term monitoring of salmon growth and survival versus climate change." G. T. Ruggerone and **J. L. Nielsen.**
- Seattle, WA. Nov. 6, 2007. Pacific Salmonid Recovery Conference. "Climate change, salmon

- Seward, AK. March 9, 2004. International Scientific Symposium for Climate Change in the Arctic: Arctic Climate Impact Assessment Meeting. "Ecosystem management: threats, vulnerabilities and opportunities." **J. L. Nielsen.**
- Honolulu, HI. February 19, 2004. ASLO/TOS Ocean Research 2004 Conference. "Use of acoustic tags and moored receivers to describe behavior and freshwater to marine migration of post-spawn steelhead, Ninihchik River, Alaska." D. R. Wilson, C. E. Zimmerman, P. Richards, T. Tingy and **J. L. Nielsen.**
- Seattle, WA. October 23, 2003.. SEARCH Open Science Meeting: Biological Feedbacks. "Linkages between climate, growth, competition at sea, and production of sockeye salmon populations in Bristol Bay, Alaska, 1955-2000." **J. L. Nielsen** and G. Ruggerone.
- Sacramento, CA. October 15, 2003. The Wildlife Society Western Section Annual Meeting. "Importance of genetic verification for determination of Atlantic salmon in North Pacific waters. S. L. Graziano, I. Williams, G. K. Sage, C. E. Zimmerman and **J. L. Nielsen.**
- Baltimore, MD. August 20, 2002. AFS Annual Meeting. "Development and application of microsatellites for Pacific halibut." **J. L. Nielsen,** G. K. Sage, B. Pierson, I. Williams, T. Wiacek, S. Talbot, D. Wilson, and A. Seitz.
- Quebec City, QB. August 17, 2002. EEEF 2002. "Satellite pop-up tags and molecular genetics describe unique behavior for Pacific halibut in Alaska." **J. L. Nielsen,** G. K. Sage, D. Wilson, and A. Seitz.
- Kansas City, MO. July, 6, 2002. ASIH annual meeting.. "Microsatellite analyses of the trout of northwest Mexico" **J. L. Nielsen** and G. K. Sage.
- Spokane, WA. April 30, 2002. Toward ecosystem-based management, American Fisheries Society Western Division, Spokane, WA. "Hatchery and wild steelhead genetics in Idaho" **J. L. Nielsen,** A. Byrne, S. Pavey and G. K. Sage.
- Anchorage, AK. January 23, 2002. Exxon Valdes Trustee Committee Annual Meeting. "Using new Technologies in Ecosystem Science" **J. L. Nielsen.**
- Phoenix, AZ. August 24, 2001. American Fisheries Society. "Molecular genetics of the trout of northern Mexico" **J. L. Nielsen** and G. K. Sage.
- Santa Rosa, CA. March 30, 2001. American Fisheries Society Cal-Neva Chapter. "Colonization by coho salmon (*Oncorhynchus kisutch*) in recently deglaciated streams in Glacier Bay, Alaska: Inference for restoration of Pacific salmon" **J. L. Nielsen,** G. K. Sage, K. T. Scribner, E. Knudsen, and C. Soilseth.
- Boise, ID. February 22, 2001. American Fisheries Society Idaho Chapter Meeting. Plenary Presentation: "Genetics vs. ecomorphology in fish management: Does it matter if reproductive isolation precedes or follows divergence between lineages?" **J. L. Nielsen.**
- La Paz, MX. June 15, 2000. American Association of Ichthyology and Herpetology. "Molecular systematics and evolutionary status of the trout of the Sierra Madre, Mexico" **J. L. Nielsen.**
- Astoria, OR. October 30, 1999. Pacific Fisheries Biologists. "Genetic analysis and management – Is near-real-time information on the Horizon" **J. L. Nielsen.**
- Astoria, OR. October 30, 1999. Pacific Fisheries Biologists. "Advances in genetic techniques for stock discrimination: Finding the markers" **J. L. Nielsen.**
- Pennsylvania State University. June 28, 1999. Joint Meeting ASIH, AES, HL, and SSAR. "Within basin life history divergence based on alternate reproductive strategies in steelhead: genetic and environmental considerations." **J. L. Nielsen.**
- Hartford, CT. August 26, 1998. American Fisheries Society Annual Meeting. "Molecular genetics and conservation of salmonids at the southern extent of their range in California and Mexico." **J. L. Nielsen.**
- Florence, Italy. July 24, 1998. VII International Congress of Ecology. Special Symposium: Gene conservation: Identification and Management of Genetic Diversity. "Incorporating molecular evolutionary hybrids into ESU criteria" **J. L. Nielsen.**
- Baltimore, MD. Sept. 25, 1997. International Congress on the Exploration of the Sea (ICES) 1997 Annual Science Conference. "Extinction risk and genetic variation in anadromous salmonids at the southern extent of their range." **J. L. Nielsen.**
- Seattle, WA. June 29, 1997. American Association of Ichthyology and Herpetology. Special Symposium: Nuclear DNA and the Evolutionary Genetics of Fishes, Amphibians and Reptiles. "Molecular genetics and evolutionary status of the trout of the Sonora and Chihuahua desert region of Mexico." **J. L. Nielsen,** M. C. Fountain, K. Cobble, J. Campoy Favela, and B. L. Jensen.

<p style="text-align: center;">PRESENTATIONS AT TECHNICAL CONFERENCES, SEMINARS, AND TECHNICAL WORKSHOPS (2000-2007)</p>

- Boise, ID. May 31, 2000. Symposium on the detection, status, and management of introgressed populations of cutthroat trout. "Using mitochondrial DNA and microsatellite analyses to determine rainbow trout introgression in Lahontan cutthroat trout." **J. L. Nielsen** (invited).
- Leavenworth, WA. Nov. 3, 2000. Russian-U.S. Fisheries Working Group. "Salmonid research in Alaska" **J. L. Nielsen** (invited).
- Vancouver, BC. Nov. 7, 2000. Workshop for standardization of microsatellite alleles in Chinook and sockeye salmon. "Using the internet for standardization of microsatellite alleles." **J. L. Nielsen.**

- Newport, OR. Nov. 16, 2000. Distinguished Marine Scientist Seminar Series, Hastings Marine Science Center. "How do human impacts and genetic lineages limit our efforts to conserve salmonids" **J. L. Nielsen** (invited).
- Vancouver, BC. Dec. 9, 2000. Census of Marine Life (CoML) Workshop on Pacific salmon tagging. "Identifying research hypotheses for the study of wild salmon in the ocean." **J. L. Nielsen** (invited).
- Anchorage, AK. January 24, 2001. SW Alaska National Parks Science and Research Symposium. "Interesting salmon biology in the wake of cataclysmic geology." T. Hamon and **J. L. Nielsen**.
- Anchorage, AK. January 24, 2001. SW Alaska National Parks Science and Research Symposium. "Genetic population structure of rainbow trout (*Oncorhynchus mykiss*) within the Alagnak River drainage." G. K. Sage, J. Meka, **J. L. Nielsen**, D. Wilson, I. Williams and E. Knudsen.
- Anchorage, AK. January 24, 2001. SW Alaska National Parks Science and Research Symposium. "Effects of catch-and-release fishing and hooking injury on the physiology and behavior of Alagnak River rainbow trout." D. Wilson, J. Meka, **J. L. Nielsen** and E. Knudsen.
- Dillingham, AK. May 3, 2001. Bering Sea Salmon Science Symposium. "Global climate change and freshwater growth in sockeye salmon in drainages of the Bering Sea." **J. L. Nielsen** (invited).
- Boise, ID. July 9, 2001. Special seminar Idaho Department of Fish and Game. "Conservation units in resource management: Integrating genetics and ecology." **J. L. Nielsen** (invited).
- Amsterdam, The Netherlands. September 12, 2001. Special seminar University of Amsterdam. "Scientific publication and resource conservation in the new century." **J. L. Nielsen** (invited).
- Bodega Bay, CA. October 26, 2001. Salmonid Coastwide genetics Meeting, Bodega Bay, CA. "Standardization of microsatellite alleles in *Oncorhynchus mykiss*." **J. L. Nielsen** (invited).
- Portland, OR. November 5, 2001. Pacific Rim Wild Salmon and Steelhead Conference. "Testing new electronic archival tags in Pacific salmon." (Poster) **J. L. Nielsen** and D. Wilson.
- Portland, OR. November 6, 2001. Pacific Rim Wild Salmon and Steelhead Conference. "Steelhead distribution throughout Alaska." (Poster) **J. L. Nielsen** and D. Wilson.
- Sitka, AK. November 13, 2001. AFS AK Chapter. "Testing satellite pop-up tags as a tool for identifying critical habitat." **J. L. Nielsen** and D. Wilson.
- Oakland, CA. November 14, 2001. The Status of Anadromous Fish in Bay Area Streams. "DNA sleuthing in urban streams: using molecular genetics to identify native California steelhead." **J. L. Nielsen** (invited).
- Juneau, AK. November 30, 2001. Departmental Seminar University of Alaska. "Electronic tagging and tracking of marine organisms in Alaska waters." **J. L. Nielsen** (invited).
- Santa Cruz, CA. January 16, 2002. 4th Annual Salmon Ocean Ecology Meeting. "Testing Electronic Archival Tags in Coho Salmon in Alaska" **J. L. Nielsen** (invited).
- Vancouver, BC. March 15, 2002. NPAFC/NASCO Conference. "Long-term trends in annual Bristol Bay sockeye salmon scale growth at sea in relation to sockeye abundance and environmental trends, 1955-2000." (Poster) G. T. Ruggerone, **J. Nielsen**, E. Farley, S. Ignell, P. Hagen, B. Agler, D. Rogers, and J. Bumgarner.
- Anchorage, AK. June 19, 2002. Alaska's oceans and watersheds: sustainability in the context of change, EVOS Trustee Council. "Electronic tagging and tracking of marine fishes?" **J. L. Nielsen** (invited).
- Amherst, MA. October 1, 2002. University of Massachusetts, Amherst. "Electronic tagging and tracking of Pacific halibut reveals unique spawning behavior and population substructure?" **J. L. Nielsen** (invited).
- Turners Falls, MA. October 3, 2002. USGS Conte Laboratory Seminar Series. "Competition between Asian pink salmon and North American sockeye salmon in the North Pacific Ocean." **J. L. Nielsen** (invited).
- Shepherdstown, WV. November 1, 2002. National Conservation Training Center, USFWS. Conservation Genetics Workshop. "Integrating across scales: genetics and ecology in resource management." **J. L. Nielsen** (invited).
- Anchorage, AK. January 24, 2003. Biology Seminar Series, University of Alaska, Anchorage. "Molecular systematics and conservation of Mexican trout (*Oncorhynchus mykiss*) in the Sierra Madre Occidental." **J. L. Nielsen** (invited).
- Anchorage, AK. March 12, 2003. Campbell Creek Science Center (BLM). "Women in Science: Fisheries in Alaska" **J. L. Nielsen** (Invited).
- Guelph, OT. March 27, 2003. Department of Biology Seminar Series, University of Guelph. "Implementation of new tagging technologies in Alaska's salmon and halibut." **J. L. Nielsen** (Invited).
- San Diego, CA. April 16, 2003. Western Division AFS. "Evidence for competitive dominance of pink salmon over other salmonids in the North Pacific Ocean." G. Ruggerone and **J. L. Nielsen** (invited).
- San Diego, CA. April 17, 2003. Western Division AFS. "Genetic diversity in native and introduced Mexican trout species." A. George, K. Sage, R. Mayden, B. Kuhajda, D. Hendrickson, H. Espinosa, L. Findley, J. Tomelleri, **J. Nielsen** and F. Garcia de Leon.
- Vancouver, BC. June 12, 2003. World Summit on Salmon, Simon Fraser University. "History and

- Effects of Hatchery Salmon in the Pacific.” **J. L. Nielsen** (invited).
- Anchorage, AK. September 12, 2003. University of Alaska Anchorage Biological Sciences Seminar. “The importance of genetic verification of Atlantic salmon caught in Pacific waters.” **J. L. Nielsen** (invited).
- Red Bluff, CA. October 8, 2003. Battle Creek Workshop. “Molecular genetic analyses of Central Valley steelhead populations 2001-2002.” **J. L. Nielsen** (invited).
- Bergen, Norway. Nov. 14, 2003. Institute of Marine Resources. Pop-up archival transmitting (PAT) tagging of Pacific halibut (*Hippoglossus stenolepis*). A. C. Seitz, B. L. Norcross, D. Wilson and **J. L. Nielsen** (invited).
- Fairbanks, AK. Nov. 18, 2003. Alaska Chapter AFS. “Identifying spawning behavior in Pacific halibut, *Hippoglossus stenolepis*, using electronic tags. A. C. Seitz, B. L. Norcross, D. Wilson and **J. L. Nielsen**.
- Nuiqsut, AK. November 19, 2003. Minerals Management Service Nuiqsut Arctic Cisco Workshop. “Exploitation dynamics of small fish stocks like Arctic cisco.” **J. L. Nielsen** (invited).
- Fairbanks, AK. Jan. 21, 2004. University of Alaska Fairbanks Institute of Marine Science Seminar Series. “Satellite tagging of Pacific halibut (*Hippoglossus stenolepis*) in the Gulf of Alaska. A. C. Seitz, B. L. Norcross, D. Wilson and **J. L. Nielsen** (invited).
- Anchorage, AK. Feb. 10, 2004. Alaska Forum for the Environment. “Linkages between climate, growth, competition at sea and production of sockeye salmon populations in Bristol Bay, Alaska 1955-2000. J. Meka, **J. L. Nielsen**, G. Ruggerone (invited).
- Seattle, WA. May 27, 2004. International Pacific Halibut Commission; Special Projects Reports. “Satellite tagging of Pacific halibut (*Hippoglossus stenolepis*). A. C. Seitz, T. Loher, B. L. Norcross and **J. L. Nielsen** (invited).
- Dutch Harbor, AK. July 14, 2004. Forum of Alaska Marine Issues, Dutch Harbor/Unalaska Community Seminar Series. A. C. Seitz, T. Loher, B. L. Norcross and **J. L. Nielsen** (invited).
- Bergen, Norway. September 16, 2004. Biological Sciences Seminar Series, University of Bergen. “The use of acoustic and archival tags to monitor ocean migrations and critical marine habitat in salmonids.” **J. L. Nielsen** (invited).
- Sitka, AK. Nov. 17, 2004. Alaska Chapter American Fisheries Society. “The use of acoustic and archival tags to monitor ocean migrations and critical marine habitat in salmonids.” Phil Richards, C. E. Zimmerman, and **J. L. Nielsen**.
- Anchorage, AK. Sept. 12, 2005. American Fisheries Society Annual Meeting. Growth and survival of salmon in response to climate change and a dynamic ocean carrying capacity.” G. Ruggerone and **J. L. Nielsen**.
- Anchorage, AK. Sept. 14, 2005. American Fisheries Society Annual Meeting. “Hypothetical migration pathways of Pacific halibut in the Gulf of Alaska, based in daily maximum depth.” A. C. Seitz, D. C. Douglas, B. L. Norcross and **J. L. Nielsen**.
- Anchorage, AK. Sept. 15, 2005. American Fisheries Society Annual Meeting. “Salmon age structure and variable resilience of Bristol Bay sockeye salmon to climate change.” G. Ruggerone, **J. Nielsen** and M. Link.
- Kyoto, Japan. October 24, 2005. Sixth International Symposium on Flatfish Ecology – Habitats in relation to recruitment variability-generation of future direction. “Pop-up satellite tagging of Pacific halibut in the Bering Sea and Aleutian Islands” A. C. Seitz, T. Loher, B. L. Norcross and **J. L. Nielsen**.
- Vancouver, BC. April 20, 2006. Simon Fraser University Department of Biology Seminar Series. “Satellite pop-up tags and genetics describe Pacific halibut population structure in Alaska” **J. L. Nielsen**, A. C. Seitz, I. Williams and S. Graziano.
- Kamchatka, Russia. December 5, 2006. World Wildlife Fund Workshop on Interactions of Wild and hatchery Salmon. “Growth and survival of salmon in response to competition and climate change” G. Ruggerone and **J. Nielsen**.
- San Francisco, CA. Sept. 3, 2007. American Fisheries Society Annual Meeting. “Genetic analysis of Alaskan Pacific halibut (*Hippoglossus stenolepis*).” S. L. Graziano and **J. L. Nielsen**.
- San Francisco, CA. Sept. 3, 2007. American Fisheries Society Annual Meeting. “Testing molecular tools to investigate population-of-origin and migration of Arctic cisco (*Coregonus autumnalis*) collected in the Colville River, Alaska.” A. Ramey, S. L. Graziano and **J. L. Nielsen**.
- San Francisco, CA. Sept. 5, 2007. American Fisheries Society Annual Meeting. “Genetic diversity of native Mexican species of trout using microsatellite markers.” C. A. de los Santos, A. L. George, **J. L. Nielsen**, I. B. Sosa, R. L. Hayden and F. J. Garcia de Leon.
- Anchorage, Alaska April 23, 2008. Alaska Chapter Wildlife Society. “Population genetic survey of brown bears at Brooks River, Alaska.” S. L. Graziano and **J. L. Nielsen** (Poster).
- Portland, OR. May 3, 2008. Western Division American Fisheries Society. “Genetic analyses of Colville River Arctic cisco (*Coregonus autumnalis*). **J. L. Nielsen**, A. Ramey and S. L. Graziano.

Outreach and Public Service

One of my most focused goals throughout my research career has been to always provide the best possible science while creating and facilitating opportunities for students and young professionals in my field of interest.

STUDENT SPONSORSHIP

- Avelino, Olivia 2000, M. Sc. Sacramento State University. Employed in lab 1998-1999.
- Carpanzano, Cindy 1996, M. Sc. University of California, Santa Barbara. Habitat relationships in southern steelhead. JLN served on Thesis Committee and funded research.
- Cheney, Lisa C. 1995, M. Sc. San Jose State University, Moss Landing Marine Lab. Thesis topic: conservation genetic of the Pacific sea otter. Employed in lab 1995-1996.
- Crowdson, Yarrow 2000, Undergraduate Whitman College, Washington. Employed in lab 2000-2002.
- Crow, Karen 1995, M. Sc. San Francisco State University, Moss Landing Marine Lab. Thesis topic: conservation genetics of kelp greenling. Employed in lab 1995-1996. Ph.D. 2001 UC Santa Cruz.
- Fountain, Monique C. 1997, M. Sc. San Francisco State University. Thesis topic: Conservation genetics and the European green crab introduction into San Francisco Bay. Employed in lab 1995 – 1999.
- Gan, Christina A. 1997, M. Sc. Humboldt State University. Thesis topic: Golden trout genetics of the Kern Plateau. JLN served on Graduate Committee and funded research. Employed in lab 1994-1998.
- George, Anna 2002-3, Ph.D. Department of Biology, Saint Louis University. Sponsored for independent research on lab 2002. Collaborated on development of molecular database for Mexican trout 2003.
- Gomez-Uchida, Daniel 2003-2006, Ph. D. Oregon State University. Thesis topic: A demographic approach to the study of the interplay between molecular population genetics and population dynamics in over-fished rockfish. JLN served on graduate and Thesis Committees.
- Guy, Troy 2004, MSc. Oregon State University. Thesis topic: Cutthroat trout above natural barriers in Oregon. JLN served on Graduate and Thesis Committees.
- Heine, Erica 1998, M. Sc. California Polytechnic University. Student technician in Nielsen laboratory 1997- 1998.
- Lowery, Alex 1997, Mountain View H.S. Senior Project - MHC polymorphisms in steelhead from Alaska to California. Molecular science work done in Nielsen lab. Currently undergraduate at Stanford University.
- McClellan, Scott 1999-2004. M. Sc. University of Alaska Fairbanks. Research sponsor and supervisor. Effects of upwelling on survival and production of chum salmon in redds on the Yukon River. JLN funded thesis research.
- Malone, Catherine L. 1994, B. A. University of California Santa Cruz. Americorp volunteer in lab 1994-1995. Currently Ph. D. student Texas A & M Univ. Employed in lab 1996.
- Meka, Julie 2000 – 2004. M. Sc. University of Alaska Fairbanks. Thesis topic: stress physiology and injury in rainbow trout subject to catch-and-release fishing. JLN served on Thesis Committee and funded research.
- Neville, Helen M. 2003- 2005, Ph. D. University of Nevada, Reno. Thesis topic: Metapopulations structure and genetics of Lahontan Cutthroat trout. JLN served on Graduate and Thesis Committees.
- Pavey, Scott 2004. M. Sc. University of Alaska, Anchorage; 2004-2007 Ph. D. Candidate Simon Frasier University. Thesis topic: Rapid microevolution in sockeye salmon on the Aniakchak River, Alaska. JLN serves on Thesis Committee and funds research collaboratively with NPS.
- Pelot, Sage, 2000. Undergraduate University of California Davis. Student appointment 2000.

Rasgon, Jason 1996. M. Sc. Student California Polytechnic University. Employed in lab 1996.

Rathouz, Margaret M. 1996, Ph. D. University of California, San Diego. Employed in lab 1996-1997.

Reamey, Jacklyn 2001-04, DOI SCEP Native America student appointment. Pacific Lutheran University, Anchorage, AK. Study topic is Alaska blackfish genetics.

Seitz, Andy 2002-6. Ph. D. University of Alaska, Fairbanks. Population substructure derived from satellite pop-up tags in Pacific halibut. JLN serves on Thesis Committee and funded research.

Sundermeyer, Ruth, 1999, M. Sc. San Jose State University. Thesis topic: Molecular genetics of steelhead in the Pajaro River basin. Employed in lab 1996 - 1999.

Wiacek, Talia C. 2000, Senior University of Alaska Anchorage, Employed in lab 2000-2003.

Williams, Ian 2001-2004, M. Sc. University of Alaska Anchorage. Thesis topic: Genetic introgression between coastal cutthroat trout and steelhead on the Copper River, Alaska. JLN serves on Thesis Committee and funds research.

Wiltse, Darren S. 1998, M. Sc. San Jose State University. Employed in lab 1998 - 1999.

Wise, Lawrence M. 1996, M. Sc., San Francisco State University. Thesis: Consistency of Focal Position by Juvenile Rainbow Trout and Brown Trout in a Central Sierra Nevada Stream. JLN served on Thesis Committee and advised funding agency (EPRI).

Society for Conservation Biology
Society for the Study of Evolution

**TECHNICAL REVIEWS REQUESTED
(2006-2008)**

AYK Sustainable Salmon Initiative
Canadian Journal Fish and Aquatic Sciences
Conservation Genetics
Copeia
Environmental Biology of Fishes
Environmental Protection Service
Fisheries
Genetics
Genetica
Molecular Ecology
NASA
National Fish and Wildlife Foundation
National Geographic
National Science Foundation
Natural Sciences and Engineering Research Council of Canada
North American Journal of Fisheries Management
North Pacific Research Board
North Pacific Research Council
Sea Grant California - Marine Ecological Reserves Research Program
Sea Grant – University of Washington Omnibus Proposal
Transactions of the American Fisheries Society
U.S. Geological Survey
U. S. Department of Agriculture, Forest Service
U. S. Department of Agriculture, Small Business Innovation Research
U. S. Department of Commerce, NOAA, NMFS
U. S. Fish and Wildlife Service
Washington Sea Grant

**PROFESSIONAL MEMBERSHIPS
IN SCIENTIFIC SOCIETIES**

American Association for the Advancement of Science
American Fisheries Society (Life Member)
American Institute of Fishery research Biologists
American Society of Ichthyologists and Herpetologists (Life Member)
American Society for Limnology and Oceanography
Council of Scientific Society Presidents
Desert Fishes Council
Ecological & Evolutionary Ethology of Fishes (Life Member)
Fisheries Society of the British Isles
Oceanographic Society

**SCIENTIFIC APPOINTMENTS
(1992-2008)**

1992-97 American Fisheries Society - National Fisheries Action Network.
1993-94 President California-Nevada Chapter American Fisheries Society.
1995 US Forest Service, BLM, EPA and NMFS - Scientific Advisor for genetic and species diversity.
1996 Sustainable Ecosystem Stewardship Committee.

- 1997 Toulumne River Hatchery Genetics Review Committee, CDFG.
- 1997 Atlantic Salmon Conservation Review Committee, DOI, Braemar Scotland
- 1997 Ecological Stewardship Project Award, U.S. Forest Service.
- 1997 Advisory Editor *Environmental Biology of Fishes*, Board of Governors.
- 1997 National Meeting Program Chair American Fisheries Society.
- 1997 Time and Place Committee American Fisheries Society.
- 1998 Committee to Restore Southern California Steelhead, U.C. Extension Service.
- 1997 Southern Coho Restoration Committee, California Department of Fish and Game (CDFG).
- 1998 Advisory Editor *Environmental Biology of Fishes*.
- 1999 Government of Canada – Networks of Centers of Excellence (NCE) Panel Review for Fisheries Network.
- 1999 Committee for Integration & Collaboration for Emerging Biological Issues and Research Goals – ICEBIRG Genetics and Molecular Tools.
- 1999 Editor-in-Chief Reviews in Fish Biology and Fisheries.
- 2000 Book Series Editor *Reviews: Methods and Technology in Fish Biology and Fisheries*.
- 2000-03 Management Committee and Governing Board American Fisheries Society.
- 2000-02 President Genetics Section American Fisheries Society
- 2000 Editorial Board *Guelph Ichthyology Reviews*.
- 2001 Distinguished Service Award Nomination Committee American Fisheries Society.
- 2001-04 Independent external expert European Union's SALGEN project on Atlantic salmon genetics.
- 2001-04 Scientific Steering Committee Census of Marine Life – Sloan Foundation
- 2002-05 USGS ASC SEARCH Science Steering Committee Representative.
- 2002-05 Habitat Subcommittee Exxon Valdez Oil Spill Trustee Council's GEM Program.
- 2002-05 Publication Chair Fourth World Fisheries Congress.
- 2002-03 NASA Earth Science Enterprise Peer-Review Committee.
- 2003 Elected Second Vice-President American Fisheries Society.
- 2003-04 NOAA NMFS South-Central California Coast Technical Recovery Team.
- 2003-05 AFS Time and Place Committee.
- 2003-06 AFS Hutton Sub Committee.
- 2003-06 AFS Membership Committee, Chair.
- 2004 AFS Carl R. Sullivan Fishery Conservation Award Committee Chair.
- 2004 AFS Meritorious Service Award Committee Chair.
- 2004 AFS Certification Board of Appeals Committee.
- 2004 Scientific Advisory Committee Sitka tribe of Alaska.
- 2004 First Vice-President American Fisheries Society.
- 2005 Exxon Valdez Oil Spill Trustee Council's Watersheds Work Group
- 2005 AFS Awards Committee, Chair.
- 2005 AFS Special Committee on Fisheries Conservation Foundation Proposal Review Process, Chair.
- 2005 Vice-President American Fisheries Society.
- 2005 Interagency Working Group Bering Sea Ecosystem Study Team.
- 2006 President Elect American Fisheries Society
- 2006-07 Council of Scientific Society Presidents Environment, Population and Energy Committee, Co-Chair
- 2007 President American Fisheries Society
- 2007-08 World Council Fisheries Society
- 2007 Board Fisheries Conservation Foundation
- 2007-08 Immediate Past-President American Fisheries Society
- 2007-08 Advisory Board COE Program on Marine Bio-Manipulation, Department of Aquaculture Genetics and Genomics, Graduate School of Fisheries, Hokkaido University, Japan.

ACADEMIC APPOINTMENTS

- 1995 Visiting Scientists New Zealand Federal Government National Institute of Water and Atmosphere.
- 1995 Visiting Scientist Fellowship University of Otago, NZ.
- 1995-99 Visiting Scientist, Stanford University Hopkins Marine Station.
- 1995-99 Adjunct Research Professor - Moss Landing Marine Laboratory, California State University System.
- 1996-98 Associate Research Biologist - Marine Science Institute, University of California, Santa Barbara.
- 1999-present. Affiliate Assistant Professor of Marine Science, School of Fisheries and Ocean Science, Institute of Marine Science, University of Alaska, Fairbanks.

- 1999–present. Affiliate Associate Professor, School of Fisheries and Ocean Science, University of Alaska Fairbanks.
- 2001-05 Affiliate Associate Professor, Department of Biology, University of Alaska, Anchorage.
- 2002-05 Professor Graduate Faculty of Oregon State University, Department of Fisheries and Wildlife.

POLICY APPOINTMENTS

- 1997 Steelhead Restoration and Management Plan for California, CDFG.
- 1997 Status Review of Coho Salmon from Washington, Oregon, and California, NMFS.
- 1997 Status Review for Anadromous Atlantic Salmon in the United States, NMFS.
- 1997 Status Review of West Coast Steelhead from Washington, Idaho, Oregon, and California, NMFS.
- 1997 Salmon Aquaculture Review, British Columbia Environmental Assessment Office.
- 1997 Determination of Critical Habitat for Southern Steelhead, NMFS, Sierra Club, and the California Coastal Commission.
- 2000 U.S./Russia Steelhead Life History Committee (USFWS).

- 2000 Committee for microsatellite allelic standardization in salmonids.
- 2000 State of Oregon Scientific Advisory Committee Independent Multidisciplinary Science Team – hatchery review sub-committee.
- 2000 Scientific Steering Committee Sloan Foundation’s Census of Marine Life (CoML) – electronic tags in the census of marine salmonids.
- 2001 Scientific Advisory Committee – LOTEK Marine Science committee for the development of salmon archival tags
- 2002 Independent External Expert – SALGEN Workshop on Atlantic salmon genetics, London, England
- 2002 Restoration Advisory Committee – Lahontan cutthroat trout, Reno, Nevada
- 2003 External Expert - SALGEN Workshop on Atlantic salmon genetics, Westport, Ireland
- 2005-07 Interagency Working Group Bering Sea Ecosystem Team (BEST)
- 2005-07 Advisory Board Alaska Tribal Natural Resource Management Career Development Program – NOAA
- 2007-08 Advisory Council for the Tribal Natural Resources Education Program, Chugach Regional Resources Commission.

Grants & Contracts	1999 - 2008
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Years	Sponsor	Topic	Funding (\$)
1999	CA Fish & Game	Genetics of hatchery vs. wild fall-run Sacramento Chinook	25,000
1999	City of Oakland	Molecular genetics of urban trout in San Francisco Bay	3,000
2000-05	USGS Competitive Grant	Effects of climate change on sockeye growth in Alaska	444,000
2000-03	State of Idaho	Molecular genetics Snake R. steelhead populations	309,000
2000-01	USFWS Ventura CA	Genetics of rainbow trout of the Santa Ynez River basin	24,000
2000-03	National Parks Service	Catch-and-release fishing on trophy rainbow trout in Alaska	210,000
2000-02	EVOS	Satellite tagging of Pacific halibut	77,000
2000-01	CA Fish & Game	Sequence analyses of microsatellite loci in Chinook salmon	25,000
2001-02	USGS	Fisheries research on Yukon Chinook and chum salmon	410,000
2001-03	EVOS	Testing archival tag technology in Alaska salmon	175,000
2001	USGS	Fisheries research at the freshwater/marine interface	50,000
2001	Great Basin Tribes	Investigations of Pyramid Lake Lahontan cutthroat trout genetics	9,600
2001	CA Fish & Game	Genetics Central Valley steelhead	108,000
2001	USFWS	Genetics of steelhead in Central Valley, CA	24,000
2001-02	USGS	Genetics of rainbow trout after dam removal in CA	43,000
2001-03	USFS	White Salmon River steelhead genetics	20,000
2002-04	Sloan Foundation	Steelhead kelts tagging study	38,000
2002-03	USFWS	Clear Creek rainbow trout study.	35,800
2002-05	IPHC	Seasonal movements of Bering Sea Pacific halibut	23,000
2002-05	NSF	Biodiversity of native Mexican trout	73,735
2003-04	NSF	EPSCoR Fellowship University of Alaska Anchorage	17,000
2003-08	NPS NRPP	Genetic population structure Aniakchak sockeye	128,000
2003-05	USFS	Natural hybridization in Copper River Delta trout	27,000
2003	CA Fish & Game	Genetic population structure Central Valley steelhead	35,000
2004-08	USGS Competitive Grant	Climate Change Initiative	720,000
2004-07	NPS	Katmai National Park and Preserve genetics	80,000
2004-06	AYK SSI	Yukon River Chinook salmon growth at sea	48,000
2006-09	NPS NRPP	Genetics of Brooks River brown bears	166,000
2006-10	MMS OCS	Genetics and otolith microchemistry Arctic cisco	1,000,000
Total Grant & Contracts			\$4,168,100

Previous Grants in California (1990-1999) Total – \$3,578,000.

Jennifer L. Nielsen, PhD
List of Publications

**PEER REVIEWED MANUSCRIPTS
AND BOOK CHAPTERS**

78. Ruggerone, G. T. and **J. L. Nielsen**. 2008. Growth and survival of salmon at sea in response to competition and climate change. (accepted) *Sea Grant Publication* AYK Sustainable Salmon Initiative.
77. **Nielsen, J. L.**, A. Byrne, S. L. Graziano and C. C. Kozfay. 2008. Steelhead genetic diversity at multiple scales in a managed basin – Snake River, Idaho. (Accepted with revision) *North American Journal Fisheries Management*.
76. **Nielsen, J. L.**, C. E. Zimmerman, R. Phillips, D. Noakes, J. Holmes and S. Crawford. Biology, life history and systematics of salmonid and osmerid fishes. In R. Mayden (ed.) *Freshwater Fishes of North America*. Academic Press (in press).
75. **Nielsen, J. L.**, J. Dodson, K. Friedland, T. Hammon J. Musick, and E. Verspoor, (Eds.) 2008. Reconciling Fisheries with Conservation: Proceedings of the Fourth World Fisheries Congress. American Fisheries Society. Volumes I and II. 1946pp.
74. **Nielsen, J. L.** and G. Ruggerone. 2008. Climate change and a dynamic ocean carrying capacity: Growth and survival of Pacific salmon at sea. Proceedings Pacific Salmon Environment and Life History Models: Advancing Science for Sustainable Salmon. AFS Symposium Publication (in press).
73. **Nielsen, J. L.** 2007. AFS President's Hook. The Last Hook. *Fisheries* 32(8):368.
72. **Nielsen, J. L.** 2007. AFS President's Hook. Talent du jour: what's in a name? *Fisheries* 32(7): 316 & 352.
71. Ruggerone, G. T., **J. L. Nielsen** and J. Bumgarner. 2007. Linkages between climate, growth at sea, and sockeye abundance in Bristol Bay, Alaska 1955-2002. *Deep Sea Research II* 54:2776-2793; doi:10.1016/j.dsr2.2007.08.016.
70. Ramey, A., S. L. Graziano, and **J. L. Nielsen**. 2007. Isolation and characterization of microsatellite loci from the Arctic cisco *Coregonus autumnalis*. *Molecular Ecology Notes* doi:10.1111/j.1471-8286.2007.1955.
69. **Nielsen, J. L.** 2007. AFS President's Hook. Member-centric IT at AFS. *Fisheries* 32(6):264 & 304.
68. **Nielsen, J. L.** 2007. AFS President's Hook. Savoring the Concept. *Fisheries* 32(5):212 & 250.
67. Pavey, S. A., T. R. Hamon and **J. L. Nielsen**. 2007. Revisiting the "evolutionary dead-end" hypothesis in sockeye salmon life history. *Canadian Journal Fisheries and Aquatic Sciences* 64:1199-1208.
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