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# Alaska's Oceans & Watersheds Symposium Sustainability in the Context of Change

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# EVALUATION - OCEANS & WATERSHEDS SYMPOSIUM June 18-19, 2002

Thank you for participating in the Alaska's Oceans & Watersheds Symposium: Sustainability in the Context of Change. Please take a few minutes to answer the questions below. We would like the symposium to be an annual event and your feedback will help us in planning future programs. Return completed questionnaires to the Registration Desk or mail to Molly McCammon, EVOS Trustee Council, 441 West 5<sup>th</sup> Avenue, Suite 500, Anchorage, AK 99501.

NOTE: confere	Participants who return evaluation forms to the Registration Desk prior to the close of the nce will be entered in a drawing for an ivory carving donated by Robbie Fagerstrom of Nome.
1.	Did you find the symposium valuable overall? (Yes, No) Would you like the symposium to be an annual event? (Yes, No) Every two years? (Yes, No)
2.	Is June a good time of year for the symposium? (Yes, No) If no, what month or time of year would you recommend?
3.	What issues that were not on the agenda this year should have been? What issues would you like to have on the agenda next year?
4.	Did you like the general format of plenary sessions with some key talks and multiple panels? (Yes, No) If no, what format would you suggest?
5.	Were the keynote presentations informative? (Yes, No) Who would you suggest for keynote speakers next year?
6.	Please provide any additional comments you have on the symposium. Suggestions for improvement would be especially appreciated.

Name & Affiliation (optional):

TIME	Name	Biographical Sketches
8:00-8:30	REGISTRATION	
8:30-8:45	Molly McCammon	Molly McCammon has been the Executive Director for the Exxon Valdez Oil Spill Trustee Council for the past seven years. This is the joint federal-state entity that administers the restoration fund established as a result of a court settlement between the United States government and the state of Alaska and Exxon Corporation following the 1989 Exxon Valdez oil spill. Molly came to Alaska more than 25 years ago after graduating from the University of California at Berkeley. Since then, she has homesteaded in the Brooks Range, worked as a radio and television reporter, and during the 10 years prior to her work with the Trustee Council, specialized in natural resources policy for former Governor Bill Sheffield, the Alaska Department of Fish and Game and the Alaska State Legislature.
	Vera Alexander	Vera Alexander is Dean of the School of Fisheries and Ocean Sciences, UAF (1989-present) and Director, Coastal Marine Institute, UAF (1993-present). She received her PhD from University of Alaska in 1965, having earlier received her M.S. and B.A. from University of Wisconsin. Dr. Alexander has an extensive history of professional service—current memberships include Board of Trustees, The Nature Conservancy of Alaska (1999-present), Scientific Advisory Board to NOAA (1998-present), Ocean Research Advisory Panel (ORAP) at NOPP (1998-present), U.S. Marine Mammal Commission (1995-present), and Consortium for Oceanographic Research and Education (CORE)(1995-present). She is a U. S. Delegate (1992-present) and vice-chair of the North Pacific Marine Science Organization (PICES) and former Secretary and Treasurer of the Arctic Research Consortium of the U. S. (ARCUS)(1998-2000). Dr. Alexander's research activities have focused on the biological oceanography of high-latitude sea-ice impacted areas, with emphasis on ice biology, primary production and nitrogen dynamics. Dr. Alexander has more than 70 papers published in the refereed literature, authored or co-authored.
	Robbie Fagerstrom	Robbie Fagerstrom was born and raised in Nome, AK. He graduated from Nome High School in May 1966. He then served 4 ½ years in the U.S. Navy and is a Viet Nam veteran. He continued on to serve and work 5 years for the Alaska Army National Guard, Adjutant (S-1) 1st LT, Infantry. He currently is the President and CEO of Sitnasuak Native Corporation for the past 23 years and board member for the 25 years. He has been a member of the Nome Common Council for 15 years, member of the Policy Council for 12 years as well as past president and member of the Nome Rotary Club for 16 years. Robbie has been married to his wife Pauline for 30 years and has four children.
8:45-9:30	Nate Mantua	Nate Mantua is an affiliate Assistant Professor of Atmospheric Sciences and Marine Affairs at the University of Washington, and a full time research scientist with the UW's Climate Impacts Group. Most of his current research is focused on the impacts of climate variations on the water cycle and marine ecosystem in the Pacific Northwest, and how climate information is or isn't being used in resource management decisions. He received a BS from the University of California at Davis in 1988, and a PhD from the UW's Department of Atmospheric Science in 1994 for a dissertation focused on El Niño modeling studies. In April 2000 he received a Presidential Early Career Award from Scientists and Engineers for his climate impacts research and public outreach activities. He currently serves on the US GLOBEC scientific steering committee and the National Research Council's panel on the Alaska Groundfish Fishery and Steller Sea Lions.
9:30- 10:15	Doug DeMaster	Doug DeMaster is currently the director of the Alaska Fisheries Science Center. He has conducted research on the population dynamics and status of marine mammals for the last 25 years. He currently serves as the vice-chair of the Scientific Committee of the International Whaling Commission, and was a past president of the Society for Marine Mammalogy. Recently, DeMaster served as one of two NMFS representatives on the North Pacific Fishery Management Council's committee to develop conservation measures to mitigate potential interactions between groundfish fisheries in Alaska and the westernstock of Steller sea lions.
10:15- 10:30	BREAK	

TIME	Name	Biographical Sketches
10:30- 11:00	Keynote address: The Honorable Governor Tony Knowles	Governor Tony Knowles is completing his second term as Governor of Alaska. First elected in 1994, the Governor's focus in office has been on Jobs, Family and Kids. He is a former two-term mayor of Anchorage and continues his business connection here with the Downtown Deli. The Governor serves on the Interstate Oil and Gas Compact Commission, as well as the Pew Oceans Commission, where he is chair of the Governance Committee. Governor Knowles also served a stint on the North Pacific Fisheries Management Council from August 1988 to December 1989.
11:00- 11:45	Carl Hild	Carl Hild has been the President of the American Society for Circumpolar Health and Vice-president of the International Union for Circumpolar Health. He has also been president of the Alaska Health Education Consortium and Northern Regions Emergency Medical Services Council. He has been a Board member and Treasurer of the Alaska Public Health Association. He was a member of the American Public Health Association's Task Force that drafted the 1984 "National Arctic Health Science Policy." He was appointed by the Governor to serve on the Alaska Scientific Review Group for marine mammal stock assessments from 1994-2001. He served as Chair of the Scientific Steering Committee of the National Science Foundation's Arctic System Science program that produced "People and the Arctic – A Prospectus for Research on the Human Dimensions of the Arctic System."
	Mike Smolen	Michael Smolen is a senior scientist in the Wildlife and Contaminants Program at World Wildlife Fund. Mr. Smolen works collaboratively with outside scientific researchers and oversees internal database development and computer support. He is also active in the developing field of endocrine disruption, focusing on the effects of synthetic chemicals on wildlife. He has published 22 peer reviewed scientific papers, which include the fields of ecology, population biology, natural history of mammals, cytogenetics, and toxicology. He is also currently engaged in a range of studies on contaminants in coastal marine and freshwater environments, particularly the movement of contaminants in a marine food web. As part of this work, Smolen is assisting people in 5 native Alaskan communities to address their specific questions about contaminants in subsistence foods and the environment. He received his doctoral degree from the Department of Wildlife & Fisheries Sciences at Texas A&M University where he specialized in cytogenetics, molecular genetics, and toxicology. He received a Masters of Science degree from Idaho State University (mammalian ecology) and a Masters of Arts degree in Museum Sciences from Texas Tech University.
11:45- 12:30	Steve Colt	Steve Colt is assistant professor of economics at UAA. He earned his PhD in economics from MIT, with a dissertation focusing on the economics of Alaska's regional native corporations. Current research interests include sustainable energy and utilities for rural Alaska and the economic importance of commonly owned ecosystems. Most recently, Dr. Colt worked with United Nations and Russian collaborators on a proposal to fund a large-scale experiment in ecosystem management and preservation of wild salmon on Russia's Kamchatka Peninsula.
	Henry Huntington	Henry Huntington is an independent researcher in Eagle River, Alaska. His research has examined traditional ecological knowledge, environmental contaminants, climate change, conservation in Alaska and the Arctic, as well as other topics concerning the Arctic, its environment, and the peoples who live there. He is currently president of the board of the Arctic Research Consortium of the United States, and is a member of the Polar Research Board of the National Research Council.
12:30- 1:30	LUNCH Keynote speaker Dave Martin	Dave Martin was awarded the PhD in Oceanography from the University of Washington in 1992. His doctoral research dealt with quantitative methods for addressing atmospheric radiance contamination of multispectral remote sensing measurements of the ocean. He has served in a number of senior leadership positions in the national oceanographic community including being the Director of the Operational Oceanography Center at the Naval Oceanographic Office, the Director of the National Ice Center in Suitland, Maryland, the Assistant for Environmental Sciences for the Deputy Undersecretary of Defense for Science and Technology and his present role as Director of Ocean.US, the national office for integrated and sustained ocean observations.

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TIME	Name	BIO.
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Panel 1	Phil Mundy	Phil Mundy is Science Director for the Trustee Council Gulf Ecosystem Monitoring Program. He received a B.S. from University of Maryland, M.S. from
1:30-2:30		University of Alabama, and PhD from University of Washington. His career objective has been to make the basic marine science relevant to North Pacific
		fisheries accessible to other scientists, fishery regulators, policy makers, litigators, and the public at large. In addition to his current position, positions held in
6,		pursuit of this objective include Assistant Professor, Department of Oceanography, Old Dominion University; Associate Professor, School of Fisheries and
1		Ocean Sciences, University of Alaska; Chief Fishery Scientist, Division of Commercial Fisheries, Alaska Department of Fish and Game; Chair, Scientific and Statistical Committee, North Pacific Fishery Management Council; Member, Research and Statistics Committee and Data Sharing Committee, Pacific Salmon
		Commission; Manager, Fishery Science Department, Columbia River Inter-Tribal Fish Commission; Member, Independent Scientific Advisory Board, National
N		Marine Fisheries Service and Northwest Power Planning Council; Member, Steering Committee, U.S. Global Ocean Observing System.
	Dick Beamish	Dick Beamish is the Senior Scientist and former Director at the Pacific Biological Station in Nanaimo, British Columbia, Canada. He has published over 150
	Dion Bourner	scientific articles on a range of topics from climate impacts on fish, to new species of fish. For the past 9 years he was a Commissioner of the International
		Pacific Halibut Commission. He was appointed as the Department of Fisheries and Oceans representative on the New Pacific Fisheries Resource
l x		Conservation Council, an independent body that advises the Minister of Fisheries and Oceans on salmon and related management issues.
	*	In February of 1999, he was awarded the Order of Canada for his discovery of the problem of acid rain in North America. As well, he was recently appointed
		as a Fellow of the Royal Society of Canada. His work on age determination included the recognition that many fish are long-lived and he has also contributed
		to the understanding of the impacts of climate on fish populations.
	Doug Eggers	Doug Eggers is a Senior Fisheries Scientist with the Alaska Department of Fish and Game. He began his tenure with the Department in 1982, as Bristol Bay
		research project leader. He has served as Southeast Regional biometrician, Chief biometrician, and Fisheries Scientist. Prior to his tenure with the
	In all I I all a	Department of Fish and Game he was with the Fisheries Research Institute, University of Washington.
	Jack Helle	After finishing a Master's Degree at the University of Idaho in 1960, Jack Helle drove up to Juneau in a "55" Ford with an 8 month pregnant wife to work at
		Auke Bay Laboratory and except for spending one year as an Honorary Research Fellow at the University of Aberdeen Scotland and one year at Oregon State University working on a doctorate has been in Juneau at the Auke Bay Lab ever since.
	Eric Knudsen	Eric Knudsen earned his PhD in Wildlife and Fisheries Science at Louisiana State University. He has 28 years experience as a fisheries biologist. Nineteen of
	Lite Milduseii	those years were dedicated to salmon and steelhead management and research in Washington and Alaska. His current professional interest is exploring new
		ways of thinking that support sustainability of salmon populations.
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TIME	Name	BIO
Panel 2 2:30-3:30	Chris Oliver	Chris Oliver is the Executive Director of the North Pacific Fishery Management Council.
2.00 0.00	Jesus Jurado- Molina	Jesus Jurado-Molina has a Bachelor's degree in biology and a Master's degree in biological oceanography from the National Autonomous University of Mexico (UNAM). He has his PhD in fisheries from the University of Washington. Jesus is also a research assistant, cooperatively working with the Alaska Fisheries Science Center through the UW-NOAA Joint Institute for the Study of Atmosphere and Oceans.
	Brenda Norcross	Brenda Norcross is a Professor of Fisheries Oceanography at University of Alaska Fairbanks. She arrived in Alaska from the Virginia Institute of Marine Science just two months before the <i>Exxon Valdez</i> oil spill in 1989. Brenda's area of interest is larval and juvenile fisheries. She has been involved in research on Pacific herring in Prince William Sound since the spill. Part of the results of that research is the basis of her presentation at this symposium. Brenda is still involved in EVOS activities and currently serves as Co-Chair of the Science and Technical Advisory Committee (STAC) of GEM.
	Carol Ladd	Carol Ladd completed her PhD in physical oceanography at the University of Washington. She currently works for NOAA's Pacific Marine Environmental Laboratory studying variability in the physical environment of the Bering Sea and the Gulf of Alaska and connections with the marine ecosystem.
	Gordon Kruse	Gordon Kruse earned his PhD in Fisheries from Oregon State University in 1983. He worked for the Alaska Department of Fish and Game for over 19 years, most of this time as head of their marine fisheries research program. In November 2001, he joined the school of Fisheries and Oceans Sciences, University of Alaska Fairbanks, as President's Professor of Fisheries. His research focused on stock assessment methods, population modeling, fisheries oceanography, and management strategies for commercially exploited marine invertebrates and fishes.
	Nate Mantua	Nate Mantua is an affiliate Assistant Professor of Atmospheric Sciences and Marine Affairs at the University of Washington, and a full time research scientist with the UW's Climate Impacts Group. Most of his current research is focused on the impacts of climate variations on the water cycle and marine ecosystem in the Pacific Northwest, and how climate information is or isn't being used in resource management decisions. He received a BS from the University of California at Davis in 1988, and a PhD from the UW's Department of Atmospheric Science in 1994 for a dissertation focused on El Niño modeling studies. In April 2000 he received a Presidential Early Career Award from Scientists and Engineers for his climate impacts research and public outreach activities. He currently serves on the US GLOBEC scientific steering committee and the National Research Council's panel on the Alaska Groundfish Fishery and Steller Sea Lions.
3:30-4:00	BREAK	

TIME	Name	BIO
Panel 3 4:00-5:00	David Irons	David Irons is Seabird Coordinator for the U.S. Fish and Wildlife Service in Anchorage, Alaska. He received his PhD from the U. of CA, Irvine in 1992 and his M.S. from Oregon State University in 1982. He has been studying seabirds in Alaska for 22 years. Irons has conducted or directed several seabird studies in the Gulf of Alaska and the Bering Sea including several studies on the Exxon Valdez oil spill.
	Vernon Byrd	Vernon Byrd received a B.S. in wildlife management at the Univ. of Georgia in1968, did post graduate studies in wildlife biology at the Univ. of Alaska, Fairbanks in 1975 (thesis topic, Breeding biology of the Aleutian Canada goose), and completed an M.S. in wildlife biology at the Univ. of Idaho in 1989 (thesis topic, Seabirds in the Pribilof Islandstrends and monitoring methods). He has been employed by the U.S. Fish and Wildlife Service for nearly 30 years, serving as a biological technician, refuge manager and refuge biologist on 5 different national wildlife refuges. Vernon has worked primarily with seabirds, marine mammals, waterfowl, and endangered and threatened species. He has served on 4 endangered species recovery teams and is currently a member of the Steller Sea Lion and Aleutian Canada goose teams. Vernon was a member of the wildlife workgroup during development of "Fulfilling the Promise", a vision for the National Wildlife Refuge System, and he is a member of the "Promises Team" that is coordinating implementation of that vision. Vernon has served as a regional co-editor for American Birds in Alaska and is currently a member of the scientific advisory board for Audubon Society's Alaska Region.
	Lloyd Lowry	Lloyd Lowry has worked from 1975-2000 as a Marine Mammal Biologist and Marine Mammals Coordinator for the Alaska Department of Fish and Game. He retired from ADF&G and is currently an Affiliate Associate Professor at the University of Alaska Fairbanks School of Fisheries and Ocean Sciences. Currently Lloyd serves as Chairman of the Marine Mammal Commission Committee of Scientific Advisors, and as a member of the NMFS Alaska Regional Scientific Review Group. He previously served as Chairman of the Steller Sea Lion Recovery Team and as a member of the National Research Council, Committee on the Bering Sea Ecosystem.
	John Piatt	John Piatt has been studying marine fish, birds and mammals in the North Atlantic and Pacific oceans since 1975. In recent years, he has led ecosystem research projects in Cook Inlet and Glacier Bay, with emphasis on factors influencing the biology of seabirds and whales in those areas. John is a research scientist with the Biological Office of the USGS Alaska Science Center.
	Caleb Pungowiyi	Caleb Pungowiyi was born November 28, 1941 and is a resident of Savoonga, Alaska were he is president of Robert Aqqaluk Newlin Sr. Memorial Trust.  Caleb serves on the Alaska Board of Game and is a member of the Native Advisory Panel and the Alaska State Council of the Arts. Pungowiyi's specialties consist of ice associated marine mammals, subsistence and traditional uses of marine resources. Caleb has assisted in the census of marine sea birds on St. Lawrence Island and has also conducted research on traditional knowledge on uses and observations of sea birds.
5:00-6:30	RECEPTION	

TIME	Name	BIO
Panel 4 8:00-9:00	Michele Brown	Michele Brown was appointed Commissioner of the Department of Environmental Conservation on January 20, 1996, by Governor Tony Knowles. Ms. Brown formerly was a DEC deputy commissioner and an assistant attorney general in the Alaska Department of Law, where she represented and advised the Departments of Environmental Conservation, Natural Resources, Fish and Game, and Community and Regional Affairs. In that position, she worked extensively on the <i>Exxon Valdez</i> spill response to deal with many of its legal, regulatory, and enforcement problems. In 1993, Ms. Brown was appointed as senior environmental specialist for the USAID Mission in Moscow, where she administered the agency's environmental technical assistance projects to Russia. Ms. Brown attended college at the University of California, Berkeley, and received her law degree from the University of California, Davis. Alaska has been her home since 1977.
	Patricia Cochran	Patricia Cochran is an Inupiat Eskimo born and raised in Nome, Alaska. Ms. Cochran serves as Executive Director of the Alaska Native Science Commission (ANSC), a cooperative program of the Alaska Federation of Natives, University of Alaska Anchorage and the National Science Foundation. The ANSC provides a linkage for creating partnerships and communication between science and research and Alaska Native Communities. Ms. Cochran previously served as Administrator of the Institute for Circumpolar Health Studies at the University of Alaska Anchorage; Executive Director of the Alaska Community Development Corporation; Local Government Program Director with the University of Alaska Fairbanks; and Director of Employment and Training for the North Pacific Rim Native Corporation. Ms. Cochran currently serves as Past Chair of the American Indian/Alaska Native/Native Hawaiian Caucus of the American Public Health Association; Science Advisor to the Arctic Research Commission; Member of the Alaska Global Change Planning Team; Past Member of the Office Advisory Committee for NSF Office of Polar Programs; Program Chair for the Indigenous Program of the International Union for Circumpolar Health; Member of the National Native Science Education Advisory Council; Member of the National Research Council Committee on Environmental Effects of Oil & Gas Activities in the North Slope, Alaska; board member of the American Society for Circumpolar Health, board member of the Albrecht-Milan Foundation, and U.S. member for the Youth and Elders Initiative of the Arctic Council.
	James Berner	James Berner is a pediatrician who has worked for the Alaska Native health care system for 28 years, with the IHS and later, with the Alaska Native Tribal Health Consortium. In addition to pediatrics, his work with the ANTHC has included monitoring of Alaska Native mothers and infants for POPs and heavy metals, and research on health effects, and benefits from the traditional diet.
	Todd O'Hara	Todd O'Hara is a Research Biologist for the Department of Wildlife Management, North Slope Borough and 8 year resident of Barrow, Alaska where he lives with his wife Carla and son Lars. Dr. O'Hara came to Alaska for the "opportunity of a lifetime" to work and live "in the field" with amazing people and wildlife. Dr. O'Hara's academic training includes a D.V.M. [University of Wisconsin – Madison, School of Veterinary Medicine (1988-1992)], a PhD in Pharmacology/Toxicology [Medical College of Virginia (1985-1988)], and a B.S. in Biology [Villanova University (1979-1985)]. Dr. O'Hara is a Diplomat of the American Board of Veterinary Toxicology (ABVT) since 1995. His major interests are environmental/wildlife toxicology, and Eskimo (Inuit) harvested bowhead whales and the effects of contaminants on arctic marine and terrestrial mammals.
	Randy Rice	After completion of undergraduate studies in marine biology at the University of California Santa Cruz, Randy Rice came to Alaska in 1977 for graduate studies with the University of Alaska, Fairbanks, Institute of Marine Science. During graduate work, Mr. Rice worked with numerous species of groundfish, halibut, crab, and shrimp, completing his master's degree in 1980 with studies on Cook Inlet shrimp. Randy also spent two seasons conducting research on protein synthesis rates in indigenous fish in Antarctica. Mr. Rice worked 6 years with the Alaska Department of Fish and Game, and 7 years with the Alaska Department of Environmental Conservation. While with ADEC, Mr. Rice was a specialist in water quality and contaminants. Randy also worked privately as an environmental consultant for 3 years before joining ASMI in March 1998. Mr. Rice has developed various programs and information materials to heighten the awareness of the Alaska seafood industry on the international movement for sustainability, traceability, and seafood quality and safety standardization. He is also a representative to the Codex Alimentarius, an international body developing world food standards and codes of practice. A part of his ASMI duties involves training in food safety and quality for fishermen and seafood processing workers. He also is actively involved in facilitating communication among the ASMI members and their customers in and out of the country. He regularly gives seminars in Asia and Europe on technical issues of Alaska seafood, such as sustainability, purity, and nutrition. Mr. Rice has also been a commercial fisherman in Alaska for 15 years, fishing halibut, shrimp, and salmon with crew help from his children.

TIME	Name	BIO
Panel 5 9:00- 10:00	Vera Alexander	Vera Alexander is Dean of the School of Fisheries and Ocean Sciences, UAF (1989-present) and Director, Coastal Marine Institute, UAF (1993-present). She received her PhD from University of Alaska in 1965, having earlier received her M.S. and B.A. from University of Wisconsin. Dr. Alexander has an extensive history of professional service—current memberships include Board of Trustees, The Nature Conservancy of Alaska (1999-present), Scientific Advisory Board to NOAA (1998-present), Ocean Research Advisory Panel (ORAP) at NOPP (1998-present), U.S. Marine Mammal Commission (1995-present), and Consortium for Oceanographic Research and Education (CORE)(1995-present). She is a U. S. Delegate (1992-present) and vice-chair of the North Pacific Marine Science Organization (PICES) and former Secretary and Treasurer of the Arctic Research Consortium of the U. S. (ARCUS)(1998-2000). Dr. Alexander's research activities have focused on the biological oceanography of high-latitude sea-ice impacted areas, with emphasis on ice biology, primary production and nitrogen dynamics. Dr. Alexander has more than 70 papers published in the refereed literature, authored or co-authored.
	Marcia McNutt	Marcia McNutt is the President and CEO of the Monterey Bay Aquarium Research Institute (MBARI) in Moss Landing, California. MBARI is a nonprofit research laboratory funded by the David and Lucile Packard Foundation to develop and apply new technology for the exploration of the oceans. McNutt is a native of Minneapolis, Minnesota, where she graduated class valedictorian from Northrop Collegiate School in 1970. In 1973, she received a BA degree in physics, <i>summa cum laude</i> , Phi Beta Kappa, from Colorado College in Colorado Springs. As a National Science Foundation Graduate Fellow, she studied geophysics at Scripps Institution of Oceanography in La Jolla, California, where she earned a PhD in Earth Sciences in 1978. After a brief appointment at the University of Minnesota and three years at the US Geological Survey in Menlo Park, California, she joined the faculty at MIT in Cambridge, Massachusetts, in 1982. At MIT, she was appointed the Griswold Professor of Geophysics and served as Director of the Joint Program in Oceanography and Applied Ocean Science and Engineering, a cooperative graduate educational program between MIT and the Woods Hole Oceanographic Institution. In 1988, she won the Macelwane Award from the American Geophysical Union, presented for outstanding research by a young scientist. In 1997, she took over the leadership at MBARI. She is also President of the American Geophysical Union and chaired the President's Panel on Ocean Exploration.
	Scott Glenn	Scott Glenn received his PhD in Ocean Engineering in 1983 from the MIT/Woods Hole Joint Program. He then worked on the development of new observation and modeling systems to forecast the Gulf Stream, first for Shell Oil in support of their deepwater drilling programs, and later for Harvard University in support of Naval cold war operations. He joined Rutgers University in 1990 where he is the co-director of the Coastal Ocean Observation Lab. His research focuses on the development of coastal observation networks, and their coupling to ocean forecast models.
	Jennifer Nielsen	Jennifer Nielsen received her PhD in fisheries from the University of California, Berkeley. She has studied fish behavior, critical habitat, and population structure for over 25 years resulting in over 80 journal publications, book chapters and technical reports. Her primary research focus is the integration of genetics and ecology. Dr. Nielsen is currently a supervisory research biologist with the fisheries team at the USGS Alaska Science Center.
	Patrick Simpson	Patrick Simpson received a BA in Computer Science from UCSD in 1986. Mr. Simpson has written two books, edited two others, and published several archival papers on computational intelligence. In 1994, Simpson served as the President of the IEEE Neural Networks Council. In 1992, Simpson founded Scientific Fishery Systems, Inc. a company that has dedicated the majority of its attention to developing technologies for more efficient fisheries.
	Lyn McNutt	Lyn McNutt, Research Associate Professor, Geophysical Institute. McNutt served as the Chief Scientist for the Alaska SAR Facility from 1993-1995 and the Arctic Region Super Computer Center in 1995, and as the lead PI for the International Arctic Research Center (IARC) to develop and implement the IARC INIS System. McNutt has experience in all aspects of planning and implementing complete Earth observation from space programs, beginning with the SeaSAT Program in 1976. She has been involved in data processing for airborne and satellite sensors, and in ground segment design and scientific program planning for SeaSAT, ERS-1 and 2, RADARSAT, ADEOS and ENVISAT Programs. Before coming to the Geophysical Institute, McNutt was the manager of the Earth Observation Program Office at the Canadian Space Agency, and lead PI for the CRYSYS Project as part of the NASA Earth Science Enterprise Interdisciplinary Working Group. McNutt has nearly 30 years experience in air-sea-ice research in the Arctic and in marginal seas including the Bering Sea and Labrador Sea. Her current research includes sea ice dynamics in the western Arctic Ocean, the use of remote sensing data in regional climate models, atmospheric teleconnections in the Bering Sea and the impacts of climate change on primary productivity, and the use of remote sensing data within integrated analysis systems to investigate and model climate change in the Western Arctic and Bering Sea.

TIME	Name	BIO
10:00 – 10:30	Break	
Panel 6 10:30- 11:30	Clarence Pautzke	Clarence Pautzke assumed the position of Executive Director of the North Pacific Research Board on January 1, 2002. Dr. Pautzke served for over 21 years on the staff of the North Pacific Fishery Management Council, as the Deputy Director from 1980 to 1988, and then as Executive Director. He took a brief tour at the National Marine Fisheries Service headquarters office in Silver Spring, Maryland, serving first as the Director of the Office of Sustainable Fisheries in the fall of 2000, and then as Deputy Assistant Administrator for Regulatory Programs during the first half of 2001, before returning to the Council staff as Executive Director through December 31, 2001. Dr. Pautzke earned a doctorate in biological oceanography from the University of Washington in 1979. His research focused on Arctic Ocean marine ecosystems below the pack ice. He served as an officer in the U.S. Navy on active duty from 1969 through 1971. He subsequently held various leadership positions in the Naval Reserves, retiring with the rank of Captain in 1992.
	George Hunt	George Hunt is a professor of ecology and evolutionary biology at the University of California, Irvine. He has been a student of seabirds since the early 1960s and has been working in the Bering Sea since 1975. He has participated in colony-based studies of seabirds at the Pribilof Islands and examined the foraging ecology of marine birds and the oceanographic phenomena that facilitate their successful foraging. Recently he has focused on how climate variability may influence the timing and fate of primary production and its fate in the southeastern Bering Sea. These studies have investigated the mechanisms by which changes in climate regimes may influence the availability of prey to upper trophic level organisms.
	David Fluharty	David Fluharty is a teacher, researcher and practitioner in the area of marine natural resource planning and management. He has served on the NPFMC since 1994 and has chaired the national Ecosystem Principles Advisory Panel. He was member of the National Research Council study team on Marine Protected Areas in the US.
	Dave Cline	Dave Cline is a wildlife conservationist and 31 year Alaska resident currently serving as Director of the World Wildlife Fund (WWF) Alaska Field Office for the Bering Sea Ecoregion and Chairman of the Kodiak Brown Bear Trust. After receiving an advanced degree in fish and wildlife management from the University of Minnesota in 1964, he participated in three National Science Foundation sponsored wildlife expeditions to the Antarctic, worked 11 years as a wildlife biologist for the U.S. Fish and Wildlife Service, and served 18 years as regional vice president for the National Audubon Society in Alaska.
	Dick Beamish	Dick Beamish is the Senior Scientist and former Director at the Pacific Biological Station in Nanaimo, British Columbia. He has published over 150 scientific articles on a range of topics. For the past 9 years he was a Commissioner of the International Pacific Halibut Commission and was appointed as the Department of Fisheries and Oceans representative on the New Pacific Fisheries Resource Conservation Council. In February of 1999, he was awarded the Order of Canada for his discovery of the problem of acid rain in North America. As well, he was recently appointed as a Fellow of the Royal Society of Canada. His work on age determination included the recognition that many fish are long-lived and he has also contributed to the understanding of the impacts of climate on fish populations.
	Marie Adams Carroll	Marie Adams Carroll is the Vice President for Health Services, Arctic Slope Association. From 1996-1999 Marie was Chief Administrative Officer for the North Slope Borough and from 1986-1996 she worked in their Public Information Division. Marie Adams Carroll served as City of Barrow Manager from 1983-1986 and is former Executive Director for the Alaska Eskimo Whaling Commission from 1980-1983. Marie has also been a member of the Alaska Beluga Whale Committee since 1988.

TIME	Name	BIO
Panel 7 11:30- 12:30	Rob Bosworth	Rob Bosworth has been with the Department of Fish and Game since 1982 and spent most of his career with the Division of Subsistence. Rob has been Deputy Commissioner since 1995. Rob's academic background includes a Bachelors Degree in Biology and Environmental Studies from the University of California at Santa Cruz, and a Masters in Marine Affairs from the University of Washington. In his role as Deputy Commissioner Rob serves on the Oceans and Watershed's Symposium Steering Committee, the Marine Protected Areas Task Force, and the Invasive Species Work Group. Rob maintains an interest in the use of social science information in natural resource decision-making.
	Jim Balsiger	Jim Balsiger started his National Marine Fisheries Service career in 1972 as a biometrican in Seattle. He took a short time out from the sea to serve as an Assistant Professor of Forestry in Wisconsin before returning to NMFS where he has held several posts including Director of the Alaska Fisheries Science Center before his current post as the leader of NMFS in Alaska. He studied at Michigan Technological University and Purdue University, finishing at the University of Washington with a Doctorate in Quantitative Ecology and Natural Resource Management. Dr. Balsiger serves on many committees and councils, including the North Pacific Fisheries Management Council, North Pacific Research Board, Exxon Valdez Oil Spill Trustees Council, Pollock Conservation Co-op Board, North Pacific Anadromous Fisheries Commission, and the International Halibut Commission. Dr. Balsiger has carried out research on the condition of groundfish resources in the Bering Sea, Gulf of Alaska and Aleutians; sablefish; pollock; Pacific cod; perch; shrimp; salmon; king crab; tanner crab; the Japanese fisheries; incidental catch; fish stock reduction analysis; the economic and biological measures of the status of stocks; and other fisheries topics.
	Charlie Johnson	Charlie Johnson was born in White Mountain. He is the Executive Director of Alaska Nanuuq Commission, which represents the villages in the range of polar bear for co-management purposes. He is former President of Kawerak Inc., Bering Straits Native Corp., and former Chairman of AFN.
	Jim Ayers	Jim Ayers is the Director of the North Pacific Region Office of Oceana. Jim joined Oceana in January of this year. Prior to joining Oceana Jim served as Chief of Staff for Governor Tony Knowles. He served successfully in that position for seven years leading the Knowles Administration through a wide range of challenges from major legislation on education, welfare, and budget reform to the management of Alaska fire and fish disasters. Jim was a leader for the Knowles Administration in natural resource issues with a personal and professional focus on ocean and watershed management. Jim served as a member on the U.S. negotiating team for Persistent Organic Pollutants (POP's) in the negotiation of a POP's treaty in South Africa last year. Before joining the Governor's office in 1994, Mr. Ayers served as the Executive Director of the Exxon Valdez Trustee Council. As the Executive Director, Jim led the development of a comprehensive plan including the completion of the EIS and creation of a Research Endowment for the spill area. Jim served as the Director of the Alaska Marine Highway System from 1987-1991 and earlier as Director of Alaska's Coastal Management Program and Deputy Commissioner of the Alaska Department of Fish and Game. In addition, Mr. Ayers has had his own consulting firm, Alaska Strategies, since 1986; however, the firm takes no clients at this time due to Jim's commitment to Oceana and the Juneau High School baseball team. Jim holds a B.S. degree in Economics from Purdue University and an M.S. from University of Oregon. He served in the United States Marine Corps 1969-1971 and was twice awarded meritorious mast for administrative accomplishments.
	Trevor McCabe	Trevor McCabe is a life long Alaskan who spent eight years working on fisheries policy for U.S. Senator Ted Stevens before returning to Alaska in 1999. Mr. McCabe completed college at Harvard, and law school at Georgetown. He now represents Bering Sea pollock catcher/processors, a fleet which has reduced discards to less than one percent annually, and which is gradually being purchased by western Alaskans as part of the Community Development Quota Program.
	Pat Galvin	Patrick Galvin has served as Director of the Division of Governmental Coordination for three years. Division of Governmental Coordination is responsible for implementing the Alaska Coastal Management Program and coordinating the development of the Administration's natural resource and environmental policies. Prior to his appointment, Mr. Galvin was a private practice attorney specializing in corporate, municipal, tribal, and environmental law. He was raised in Southern California, received his law degree from the University of San Diego, and also has an MBA in Financial Planning and Taxation. He followed his bride to Alaska, her home state. As a busy father of four young kids, Pat spends most of his non-working hours at a ball field, fishing site, playground, or (in a moment of weakness) Chuck E Cheese.

TIME	Name	BIO
12:30- 1:30	LUNCH Keynote Speaker Craig Dorman	Craig Dorman served in the Navy from 1962-1989, as UDT/SEAL and later manager of antisubmarine warfare programs. Dr. Dorman received his PhD while in the Navy through MIT/ Woods Hole Oceanographic Institute Joint Program. When he retired from the Navy he became Woods Hole Oceanographic Institute Director until 1993. Craig later went back to work with Department of Defense, and then to the Office of Naval Research, on Intergovernmental Personnel Act appointment from Pennsylvania State University where he was a senior scientist at their Applied Research Laboratory. At Office of Naval Research he ran international programs from London for a couple of years, then became Chief Scientist. He joined University of Alaska as VP Research in March this year.
1:30-2:30	Arliss Sturgulewski	Arliss Sturgulewski is a former State Senator. Arliss served in the Alaska State Senate from 1978 through 1992, when she chose not to stand for re-election. She is a trustee for the Anchorage YMCA, the University of Alaska Foundation and Sheldon Jackson College. She serves on the Advisory Council for the University of Alaska, Fairbanks, School of Fisheries and Ocean Sciences as well as numerous other boards and commissions.
2:30	Adjourn	

[DEC home air | water | land | food | oil, chemicals | public facilities, businesses | pollution prevention |



### Press release

June 3, 2002 DEC awards \$1 million in Alaska's Clean Water

Actions grants to help protect and restore the quality of Alaska's rivers, streams and lakes

Press releases

**ACWA** pages

DEC's Air and Water Quality pages

The Alaska Department of Environmental

Conservation awarded a total of \$987,315 to

community-based groups and local governments for 19 clean water

projects The grants will be used to clean up polluted waters or to protect

waters that are at risk from pollution or loss of fish habitat

This work is part of Alaska's Clean Water Actions (ACWA), a cohesive state program that unifies efforts to protect and improve water quality, water quantity, and fish habitat ACWA ensures that state efforts focus on areas of greatest need for protection and stewardship, and coordinates state efforts to clean up lakes and streams with pollution problems

This money supports local efforts to protect Alaska's waters," said DEC's Air and Water Quality Director Tom Chapple "DEC, Department of Fish & Game, Department of Natural Resources, and Division of Governmental Coordination have worked together to select in-the-stream projects that will immediately improve water quality and water protection for rivers, lakes, and streams Alaska waters are everyone's back yard and we want to keep them fishable, swimable, drinkable, and livable "

Lynn Kent, DEC Water Programs Manager, added, "Over the past decade, we have identified many streams and lakes damaged or threatened by pollution Local community stewardship is the best way to fix these problems The grants give communities the means to do that "

he ACWA grants require 40% matching funds or in-kind contribution from the community or organization. Funding for the grants is provided by the U.S. Environmental Protection Agency. A full list of the projects is attached.

For more information, contact Charles Fedullo at 907-269-3784

#### RECOVERY PROJECTS

1 Granite Creek Recovery, City and Borough of Sitka, \$41,970

Sitka will continue the restoration of Granite Creek, which has been identified as having long-term pollution problems. In 2001, with the help of an ACWA Grant, the City of Sitka developed the Granite Creek Restoration Strategy and began cleaning up the creek. This year, the City of Sitka will begin to implement a watershed recovery strategy, including sediment, nutrient, and stormwater controls, rerouting sediment-laden ditch water away from Granite Creek, applying innovative turbidity controls to settling pond effluents, and reestablishing key streamside buffers. Contact Hugh Bevin, 907-747-1813.

# 2 Lemon Creek Natural Sediment Assessment, University of Alaska Southeast, \$23,508

This project will help define natural non-point source sediment concentrations within Lemon Creek, where active glacial processes contribute to sediment problems. By better understanding how this natural process works, more realistic expectations and best management practices can be used for human-caused sediment in Lemon Creek. This project's results will also assist with flood control and bank stabilization projects proposed for Lemon Creek. Contact Cathy Connor, 907-465-6293.

### 3 Mendenhall Watershed Partnership, \$50,000

The Mendenhall Watershed Partnership is protecting and restoring several polluted streams in Mendenhall Valley through remediation, public education and involvement, and water quality monitoring. The Mendenhall Valley has several creeks with degraded habitat, lower fish runs, and impaired water quality due to Juneau's urban growth Restoring these creeks is a long-term challenge. Contact David Hanna, 907-586-6856.

# 4 Chena River and Noyes Slough Contaminant and Sedimentation Assessment, Boreochem Inc., \$61,281

This project gathers and evaluates existing information on Chena River and Noyes Slough into a geographic information system to provide citizens, agencies, and local governments with a management and planning tool to restore these polluted waters. A comprehensive picture of the watershed is essential to define future pollution controls. Contact Tim Thomas, 907-479-5459

## 5 Vanderbilt Creek Restoration and Education Project, Discovery Southeast, \$19,970

This project continues Discovery Southeast's work to restore Vanderbilt Creek, near Juneau A recovery plan and pollution control strategy for Vanderbilt Creek was developed in 1995 to deal with its turbidity, debris, sediment, and habitat modification problems Beginning in 2001 through an ACWA grant, area schools worked with DEC staff to monitor water quality and clean up the creek. This year's grant will implement non-point source pollution control measures on Vanderbilt.

Creek while helping students learn about water quality, stream habitat, and stewardship of Alaskan waters Contact Janice Carlile, 907-463-1500

# 6 Fairbanks Stormwater System Mapping, City of Fairbanks, \$120,000

Fairbanks will use this grant to complete a four-year project to map and develop a computerized management system for the City of Fairbanks Stormwater System, and to continue sampling stormwater out-falls that drain directly to the Chena River and Noyes Slough Contact Chris Haigh, 907-452-5913

#### PREVENTION AND RESTORATION PROJECTS

# 1 Cook Inlet Watershed Health Monitoring, Homer Soil and Water Conservation District, \$130,000

This project combines state and citizen efforts to gather accurate watershed information and supports community efforts to fix pollution problems before they cause long-term harm. The Cook Inlet area is Alaska's most populated region, with several polluted waterbodies and many more threatened with pollution. This project will continue to collect water quality information on heavily-used and threatened Lower Kenai Peninsula streams (Anchor River, Stariski, Ninilchik, Deep Creek) and ensures information gathered by community efforts is collected and interpreted accurately and objectively. Contact Shirley Schollenberg, 907-235-8177

### 2 Mat-Su Borough Water Quality Monitoring Program, Matanuska-Susitna Borough, \$41,242

This grant fund continued water quality monitoring of lakes in the Matanuska-Susitna Borough Local citizens are trained to collect water quality samples, which are analyzed at a local laboratory. The resulting information helps the State and the Borough identify where problems may be occurring or developing, and evaluate how well their management practices are protecting waterbodies. Rapid development in the Mat-Su Borough poses a pollution threat to many area streams and lakes. Contact Beth McKibben, 907-745-9854.

# 3 Copper River Watershed Fishwatch, Copper River Watershed Project, \$33,000

In cooperation with Alaska Department of Fish and Game, this project researches and develops a volunteer fish habitat-monitoring program to address increasing threats of degraded water quality and fish habitat from tourism and recreational use. This will result in a map of the Copper River watershed that identifies monitoring sites, important fish habitat areas that should be protected, and sites that are degraded and should be restored. Contact Kristin Smith, 907-424-3334

4 Water Quality Monitoring-Kenai Watershed, Kenai Watershed

Forum, \$66,000

For many years, agencies and citizens have voiced concern that pollution may be entering the Kenai River. This project continues a multi-agency and community monitoring and restoration effort and uses this year's grant for state-of-the-art-sampling to assess contamination and flow. The results will address concerns about pollutants entering the Kenai River and guide future water management actions. Contact Robert Ruffner, 907-260-5449.

# 5 Montana-Mendenhall Watershed Protection, University of Alaska Southeast, \$17,250

This project will identify potential pollutant sources in the watershed encompassing Montana Creek and the Mendenhall River, both of which are on the ACWA priority list. It will focus on sediment, lead, diesel fuel, and iron. Pollution controls for these pollutants are already in place, so this project will assess how well they're working and identify additional pollution sources. Contact Cathy Connor, 907-465-6293.

# 6 YRC Kenai Peninsula Restoration Program, Youth Restoration Corps, \$12,000

Using 12 local youths, Youth Restoration Corps will restore damaged stream banks causing pollution to enter streams YRC will also create a database of potential stream bank restoration sites on the Kenai Peninsula A committee made up of state, local, and federal resource agencies will review potential sites and prioritize them for restoration Contact Kelly Wolf, 907-262-1032

### 7 Recreational Impact Assessment and Restoration, Alaska Department of Fish and Game, Division of Habitat and Restoration, \$24,347

This project will evaluate non-point source pollution and habitat loss from recreational impacts on Willow, Deshka, Caswell, Kashwitna, Montana, and Clear Creeks, and the Talkeetna River in the Susitna Basin These waterways are highly accessible from the Parks Highway and sustain considerable recreational use, such as fishing and off-roadvehicle use Restoration plans will be developed to reduce nonpoint source pollution at recreation sites. Contact Gay Muhlberg, 907-267-2446

#### CLEAN WATER STEWARDSHIP PROJECTS

### 1 Biological Monitoring and Water Quality Assessment for SE Alaska, University of Alaska Anchorage Environmental and Natural Resources Institute, \$107,336

This project continues an effort begun in 2001 to identify Southeast Alaska streams which may be impacted by logging and other activities and provide a way to determine how well Southeast salmon restoration efforts work. In partnership with DEC and other agencies, UAA-ENRI has developed high quality methods to gather information on the

biological health of streams and used these methods on over 100 streams in the Cook Inlet area. Through this project, UAA-ENRI will expand the assessments to streams in Southeast Alaska. Contact Elaine Major, 907-257-2731

# 2 Kobuk Watershed Stewardship Project, Alaska Soil and Water Conservation District, \$15,386

This project will develop baseline water quality data for the Kobuk River Watershed. This provides needed information for any potential large-scale developments, such as mining, in the Kobuk area. No projects are scheduled to occur in the near future, but some could occur in several years. Although these projects would need individual permits, baseline information is also needed to assess cumulative impacts, particularly from the infrastructure and roads needed. This project will document watershed conditions, help develop local delivery of technical support, and increase local capacity for watershed stewardship. Contact Rachel Morse, 907-271-2424

#### **DATA COLLECTION PROJECTS**

# 1 Hydrologic Assessment of Shaw Creek Watershed, Alaska Boreal Forest Council, \$111,200

This project will complete a project begun in 2001 to gather critical hydrologic information for the Shaw Creek Watershed, which provides critical fish habitat. Shaw Creek Watershed is in the 35 mile stretch of the Tanana River that is the only known fall chum spawning and rearing habitat for the entire Bristol Bay fishery as well as the Yukon River commercial fisheries en-route to the Bay. The area is open to forestry harvest, mineral extraction, and is a proposed crossing for a natural gas pipeline and the railroad. Baseline information on groundwater-surface water interactions is needed to guide sustainable development. This year's grant will be used to complete the information gathering and develop an evaluation of the results into a final report. Contact Janice Dawe, 907-474-3478

### 3 Ecological Impacts of Stream Fords, University of Alaska Anchorage Environmental and Natural Resources Institute, \$36,592

All-terrain vehicle crossings can cause significant stream degradation Little information exists on these impacts on water quality. This project will measure suspended, bedload, and transported sediment associated with ATV crossings in high priority streams of the lower Kenai. Peninsula Research will also test a biotic index designed to detect sedimentation impairment in streams and measure the impact of sediment on food resources. Contact Dan Rinella, 907-257-2534

# 4 Citizen Environmental Monitoring Program, Anchorage Waterways Council, \$60,000

Anchorage has more polluted streams and lakes than anywhere else in

Alaska Restoring these waterbodies is a long-term challenge This project will collect valuable water quality data from each creek in Anchorage identified on the ACWA Draft Priority List. The Anchorage Waterways Council connects residents to their local water resources, uses credible protocols to inventory baseline water, detects and reports changes in water quality, and tracks water quality trends. Contact Holly Kent, 907-277-9287

# 5 Little Susitna & Cottonwood Creek Watershed, Wasilla Soil and Water Conservation District, \$20,475

Rapid development in the Wasilla area poses a pollution threat to the Little Susitna and Cottonwood Creek drainages. This project coordinates and expands the Citizen's Environmental Monitoring Program on these high priority watersheds to determine where problems exist. The project provides training and re-certification of citizen monitors to collect reliable data and share it with the community, resource agencies, and local government. Contact Craig Trytten, 907-373-7495

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## DEC NEWS RELEASE

Alaska Department of Environmental Conservation 555 Cordova. Anchorage, Alaska 99501 Phone: (907) 269-3784 Fax: 269-7600 www.state.ak.us/dec/

June 19, 2002

DEC announces winners of student/teacher contest that will send 4 students and a teacher to Youth Watershed Summit in Maryland.

Citing the importance of working to protect Alaska's waters, Alaska Department of Environmental Conservation Commissioner Michele Brown today announced the winners of a student/teacher Alaska Oceans and Watersheds contest. The winners will attend a National Youth Watershed Summit in Maryland in October.

The teacher selected to lead the Alaska team is Nathan Burnham, a geology teacher at West High School. The student winners are Kristin Shake, a sophomore at West High School in Anchorage; Katharine Wien, a junior at Wasilla High School; Amy Vander Zwaag, a junior at Delta High School; and Jessica Johnson, a senior at West High School in Anchorage.

Over the summer, this team will create a project to be presented in October at the National Youth Watershed Summit in Edgewater, Maryland. The three day summit will include students and teachers from across the nation. It will consist of a series of educational and work group sessions on technical and policy issues concerning watershed protection. It will also include field workshops in Chesapeake Bay.

These students were selected from an outstanding pool of applicants from all across Alaska. They were chosen by a team of judges: DEC Commissioner Brown, DEC Water Programs Manager Lynn Kent, Coney Danitz from the Department of Education and Early Development, EPA Alaska Director Marcia Combes, and Alaska Youth for Environmental Action member Andrew Merrill.

Commissioner Brown said, "Individuals and Alaska communities have to be informed and involved in watershed planning so they can make the right choices to protect our streams, lakes, and rivers. These students are already informed and involved citizens. I am confident that the information that these students learn will benefit them, will benefit us, and will benefit the state of Alaska."

Amy Vander Zwaag, 16, from Delta Junction, entered the contest because she believes that "all of us, whether or not we know it, affect our watersheds everyday." Jessica Johnson has a similar

philosophy, and encouraged Alaskans to "learn about our watersheds, inform our community and work together as students and Alaskan residents to create a cleaner watershed environment"

Katharine Wien said, "I think the topic of watersheds is great for a national summit, and I'm very happy and honored to win" Kristin Shake added, "I believe that this conference will be an opportunity for us to gain additional knowledge and an understanding of our watersheds and how to protect them I look forward to sharing this information with others"

Transportation, food, and lodging will be provided by America's Clean Water Foundation, which is hosting the summit with the Smithsonian Environmental Research Center and the Federal Government Details on the contest and a link to the national Youth Watershed Summit are available on DEC's website at http://www.state.ak.us/dec

For more information, contact Charles Fedullo at 269-3784

###

### **BIOGRAPHIES OF CONTEST WINNERS**

### Nathan Burnham, Eagle River

Nathan Burnham is geology and biology teacher at West High School He has a BA in Geological Sciences from the University of Maine, a Master of Science in Environmental Quality Sciences from UAA, and a Master of Arts in Secondary Teaching from UAA. He has served as an officer in the US Army and is currently a Major in the Alaska Army National Guard Before becoming a teacher he also worked as a consultant. For the last year, Nathan has been working on creating the Westchester Lagoon Environmental Monitoring Program, which is designed to link science and math through a year long multi-phased environmental study on Westchester Lagoon and the lower Chester Creek Watershed in Anchorage

### Kristen Shake, Anchorage

Kristen is 15 years old and will be a sophomore at West High School next fall. She is active in volleyball, and has diverse academic interests, ranging from metalworking to language arts. Kristen has excellent graphic arts skills, which will serve the team well, as well as keen observation skills and an interest in education. In her application, Kristen wrote, "Education is one of the key components of an environmental program. If people know about the ecosystem around them, they will learn to lessen their impacts on it."

### Katharine Wien, Wasilla

Katharine is 16 years old and will be a junior at Wasilla High School next year. She is a competitive soccer player, she works part-time, and she is President of the Alaska chapter of Business Professionals of America, a high school club. Katharine is also very involved in her school's student government. Her academic interests are far-reaching and diverse, including journalism, ecology, and world history. Katharine has many ideas for how to protect her watersheds, including "keeping our yards clean, putting trash where it belongs, recycling more, composting yard waste and animal waste, cleaning up oil drips in our driveways, making sure our septic systems work right, and not dumping household chemicals down the drain."

#### Jessica Johnson, Anchorage

Jessica is 17 years old and will be a senior at West High School next fall. She is involved with her school's swim team, and she manages the school's track and field team. Jessica also loves animals, and works at a local veterinary clinic. Academically, Jessica is interested in anatomy, geology, psychology, and English. Jessica believes that "by incorporating the information from the Youth Summit, we will make people aware of the state of America's watersheds."

#### Amy Vander Zwaag

Amy is a 17-year old junior from Delta Junction. She is very interested in language arts courses, including writing, reading, and Russian. Amy works at the local library, and plans to study library science and elementary education after high school. At school, Amy is involved with the local 4-H club, the school's Pep Band, and other youth groups. Before entering the contest, Amy says that she "knew very little about my watershed and wanted to learn" Now, Amy is eager to attend the summit and learn more about watersheds from across the country so that she can influence others in her community. In her free time, Amy trains a guide dog and enjoys kayaking and road trips.

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For more information, contact Charles Fedullo at 269-3784

###

# Global 200 Ecoregions

# The Bering Sea



**MAJOR** 

**HABITAT TYPE:** 

Polar and subpolar marine

**BIOGEOGRAPHIC** 

**REGION:** 

Arctic Ocean and seas

LOCATION:

Northern Pacific Ocean (Russia and the

United States)

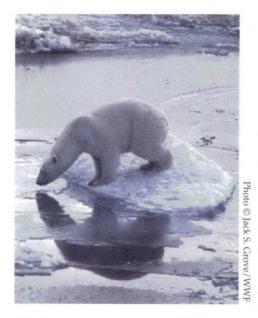


One of the richest and most diverse subpolar and polar marine ecosystems in the world, the Bering Sea covers 885,000 square miles of the northern Pacific Ocean and reaches its greatest depth at slightly more than 15,000 feet. The sea connects to the Arctic Ocean through the 53-mile-wide Bering Strait, which is a critical area for marine life migrating to and from summering grounds in the Chukchi Sea and elsewhere in the Arctic Ocean.

A distinguishing feature of this Global 200 ecoregion is its ice pack, which creates habitat for a large number of marine mammals. The ice edge is significant for its abundance of micro-algae, a major energy source for a diversity of species. The ice also provides a surface on which seals, sea lions, and walruses can rest and bear their young in an isolated environment with easy access to the food supply.

# **BIODIVERSITY**

The Bering Sea plays an important part in the life cycle of some of the world's largest salmon populations, which spend their adult life in the Bering Sea before migrating up the rivers of Alaska and Russia's Kamchatka Peninsula to spawn. The sea also supports huge seabird populations, including nearly 10 million murres and auklets. The sea is one of the world's most productive and biologically diverse marine ecosystems with more than 400 species of fish, crustaceans, and mollusks. Indeed, more than half of the U.S. fish catch comes from the Bering Sea.



The largest carnivore on Earth, the polar bear (*Thalarctos* maritimus) feeds primarily on ringed seals.

# THE BOUNTIFUL BERING SEA

- Source of more than half of the U.S. fish catch
- One of the world's most productive and biologically diverse marine ecosystems
- One of the world's largest seabird colonies
- Home of the endangered bowhead and northern right whales



#### WWF'S LIVING PLANET CAMPAIGN

Through its Living Planet Campaign,
WWF aims to make the remaining days
of this century a turning point in the
worldwide struggle to preserve species
and habitats. The campaign calls on
governments, corporations, and others
to take significant actions to help
preserve the world's endangered
spaces—places we call the Global
200; to protect endangered species;
and to address the global threats that
put all living things in harm's way.
To learn more about the Living Planet
Campaign, visit the WWF Web site at
www.worldwildlife.org or write to us.

# THE GLOBAL 200

The Global 200 are outstanding examples of the Earth's diverse terrestrial, freshwater, and marine habitats—areas where the Earth's biological wealth is most distinctive or rich, where its loss will be most severely felt, and where we must fight the hardest for conservation.

Fifty species of birds and 25 species of marine mammals inhabit this sea, including the endangered bowhead (*Balaena mysticetus*) and northern right (*Eubalaena glacialis*) whales, the bearded seal (*Erignathus barbatus*), the ribbon seal (*Histriophoca fasciata*), and the polar bear (*Thalarctos maritimus*).

Illustrating the tremendous ecological values of this ecoregion are the Bering Sea's Pribilof Islands, which are often called the "Galápagos of the North" because of their exceptional abundance of marine organisms. The Pribilofs' estimated 2.5 million birds are among the world's largest seabird colonies.

The diversity of habitats across the broad continental shelf, including the Bering Sea's highly productive "Green Belt" and the deepwater basin, give this ecoregion its extraordinarily rich marine biodiversity.

# THE THREAT

A combination of changes in the physical environment and more than a century of intense human exploitation have caused significant changes in the Bering Sea ecosystem. In recent decades, coastal residents, fishermen, and biologists have documented precipitous declines in Steller sea lions, northern fur seals, and seabirds such as red-legged kittiwakes and spectacled eiders. One explanation may be the effect that commercial fisheries have had on both target species and species killed as bycatch, and the resulting alterations in the basic structure of the ecological community.

Other threats to the ecoregion include overfishing, coastal mining, pollution from shipping, and the effect of climate change on the Bering Sea's ice edge, which provides critical habitat to a number of Bering Sea species. Diminished ice cover could greatly reduce the habitat of seals, walruses, and polar bears.

Threats looming on the horizon include the development of oil and gas reserves in the sea and logging and mining in key Bering Sea watersheds such as the Yukon-Kuskokwim basin.

# Let's leave our children a living planet



World Wildlife Fund 1250 24th Street, N.W. Washington, D.C. 20037



# THE SEABIRD TISSUE ARCHIVAL AND MONITORING PROJECT



The analysis of seabird tissues, particularly eggs, has played an important role in environmental monitoring in Europe and Canada. The Canadian Wildlife Service (CWS) collects, banks, and analyzes eggs and tissues from northern Atlantic and Pacific seabirds as part of its Wildlife Toxicology Program. (Mineau *et al.* 1984, Elliott 1985, and Wakeford and Kasserra 1997). Eggs are particularly useful for temporal and spatial monitoring of persistent organic pollutants [e.g., polychlorinated biphenyls (PCBs), chlorinated pesticides, dioxins] and mercury. For example, the CWS successfully documented temporal changes in PCBs and pesticides in the Great Lakes by analyzing banked herring gull (*Larus argentatus*) eggs (Mineau *et al.* 1984, Wakeford and Kasserra 1997). Also, eggs from alcids (seabirds belonging to the family Alcidae that include murres, murrelets, auklets, guillemots, and puffins) were identified as key materials for circumpolar monitoring of persistent organic pollutants (POPs) by all arctic nations participating in the International Arctic Monitoring and Assessment Programme (AMAP) Phase II - Years 1998-2003 (AMAP Scientific Experts Workshop, Girdwood, Alaska, April 1998).

Although the first AMAP report on the state of the arctic environment summarizes information on POPs and mercury from seabirds living in northern regions, it is limited to Canada and Scandinavia (AMAP, 1998). This report, which is presently being revised, contains data indicating that piscivorous seabirds feeding near the top of the marine food web (e.g., cormorants, puffins, kittiwakes) have higher concentrations of PCBs in their eggs than those feeding at lower levels (e.g., eiders). POPs levels in seabird eggs were higher in the Scandinavian arctic than in the Canadian arctic and, within Canada, levels were greater in the high eastern arctic regions than in the lower western arctic regions. Also, PCB concentrations approaching levels known to affect hatching success were found in thick-billed and common murre (*Uria lomvia* and *U. aalge*), puffin (*Fratercula* spp.), black guillemot (*Cepphus grylle*), and black-legged kittiwake (*Rissa tridactyla*) eggs from northern latitudes in Canada and Norway (AMAP 1998).

Few data exist on POPs in colonial seabirds nesting in Alaska. Kawano *et al.* (1988) reported chlordane concentrations in thick-billed murres collected in the North Pacific and Gulf of Alaska in 1980 and 1982. The only other (and more comprehensive) information on organochlorine residues in Alaskan seabirds was obtained in the 1970s (see Ohlendorf *et al.* 1982). Extrapolating POPs and mercury values from the Canadian arctic database is not appropriate, because sources for Alaska are different. Atmospheric and oceanic transport of contaminants from Southeast Asia eastward and northward into the Gulf of Alaska and Bering Sea, and the oceanic transport of other substances eastward along the northern and eastern coasts of Siberia and into the Chukchi and Bering seas probably affect overall contaminant levels and patterns in Alaskan seabirds. Local sources from existing and former military installations may also play roles in Alaskan pollutant patterns.

More than 95% of the seabirds breeding in the continental United States breed at Alaskan colonies in the Gulf of Alaska and Bering and Chukchi seas (USFWS 1992), and about 80% of the Alaskan birds' nest on Alaska Maritime National Wildlife Refuge (AMNWR) land (G.V. Byrd, pers. comm.). In 1998 and 1999, the U.S. Geological Survey Biological Resources Division (USGS-BRD), AMNWR, and the National Institute of Standards and Technology (NIST) initiated a joint project to develop and test protocols for

<sup>&</sup>lt;sup>1</sup> Ohlendorf et al. (1982) analyzed common murre eggs from Middleton, Bogoslof, and St. George islands, and both common and thick-billed eggs from Ugaiushak Island. He also analyzed black-legged kittiwake eggs from Middleton Island and Bluff, and fork-tailed storm-petrels (O. furcata) from East Amatuli Island. Compounds reported from these early POPs analyses include DDE, dieldrin, heptachlor epoxide, osychlordane, HCB, and PCBs.

collecting, processing, transporting, and banking seabird tissues, including eggs, collected at several AMNWR colonies. Based on the results of this work, a 100-year-long monitoring program named the Seabird Tissue Archival and Monitoring Project (STAMP; see York *et al.* 2001) was established in 1998. STAMP is currently collecting and cryogenically storing common and thick-billed murre and black-legged kittiwake eggs from 11 AMNWR and 2 privately owned seabird colonies for future research, and it is also analyzing aliquots from the banked eggs for temporal and spatial monitoring of persistent bioaccumulative contaminants at these Alaskan nesting locations.<sup>2</sup>







Black-legged Kittiwakes on Nests incubating Eggs (a typical 2-egg clutch can be seen at top-center)

Protocols for collecting, sampling, processing, transporting, and banking murre eggs were developed and tested in 1998–1999 (see York et al. 2001), when murre eggs were obtained from Cape Lisburne in the Chukchi Sea, Little Diomede Island in Bering Strait, St. George Island in the southern Bering Sea, Bogoslof Island in the Aleutian Islands, East Amatuli Island in the northern Gulf of Alaska, and St. Lazaria Island in the southeastern Gulf of Alaska. Once testing was completed, protocols were modified as needed for use during long-term studies of POPs and mercury levels in Alaskan murres (e.g., see Becker et al. 2001a, 2001b; Christopher et al. 2001; Kucklick and Vander Pol 2001; Vander Pol et al. 2001). After baseline data sets have been developed for the complete suite of STAMP colonies, eggs will be periodically collected from the nesting locations and checked for potentially harmful contaminants (tentatively, about every 5 years). As funding becomes available, the long-term STAMP program will be methodically expanded to monitor levels of POPs and mercury in other seabirds breeding in the Gulf of Alaska and Bering and Chukchi seas. STAMP is currently adding black-legged kittiwakes (Rissa tridactyla) to its list of sampled species. Other species tentatively identified for inclusion in the monitoring program include glaucous and glaucous-winged gulls (Larus glaucescens and L. hyperboreus), storm-petrels (Oceanodroma spp.), and auklets (Aethia spp.).

Preliminary analytical results suggest that there are substantial geographical differences between concentrations of anthropogenic contaminants in murre eggs from Gulf of Alaska and Bering Sea colonies. Common murre eggs from St. Lazaria and East Amatuli islands in the Gulf of Alaska were found to contain significantly higher concentrations of total mercury ( $691 \pm 19$  and  $665 \pm 253$  ng/g dry

<sup>&</sup>lt;sup>2</sup> STAMP sampling sites currently include Cape Lisburne and Cape Thompson in the eastern Chukchi Sea; Little Diomede Island in Bering Strait; Bluff in Norton Sound; St. Lawrence and St. George islands in the Bering Sea; Bogoslof Island in the Aleutains; Chowiet, Kodiak, East Amatuli, Middleton, and St. Lazaria islands in the Gulf of Alaska; and Shoup Bay in Prince William Sound.

weight, respectively) than those from St George Island in the Bering Sea and Little Diomede Island in Bering Strait ( $85 \pm 27$  and  $178 \pm 68$  ng/g dry weight, respectively) Samples from these eggs will be analyzed for methyl mercury to determine what proportion of the total mercury consists of this toxic organic form

Total PCBs, as expressed by the sum of 43 individual PCB congeners, and 4,4'-DDE were higher in the eggs of common murres from the Gulf of Alaska colonies (St Lazaria and East Amatuli islands) than those from the Bering Sea (Little Diomede, St George, and Bogoslof islands) Total PCBs were significantly higher in the St. Lazaria eggs ( $1970 \pm 800$  ng/g lipid weight) and 4,4'-DDE was significantly higher in both the St Lazaria and East Amatuli eggs ( $2440 \pm 800$  and  $1560 \pm 740$  ng/g lipid weight, respectively) than the eggs from the other locations. The contribution of 4,4'-DDE to the total concentration of POPs was twice as high in the St Lazaria and East Amatuli eggs as it was in the eggs from the three Bering Sea colonies. Also, HCB was significantly lower in the St Lazaria eggs (i.e.,  $316 \pm 72$  ng/g lipid weight) and this contaminant increased westward and northward, with the highest concentrations occurring in eggs from Little Diomede ( $685 \pm 190$  ng/g lipid weight)

There also appeared to be differences between common and thick-billed murres. For example, eggs from both species were collected at Bogoslof and St. George islands, and concentrations of 4,4°-DDE were higher in the thick-billed murre eggs than in the common murre eggs in both cases ( $1040 \pm 225$  vs.  $712 \pm 140$  ng/g lipid weight at Bogoslof Island and  $1374 \pm 631$  vs.  $594 \pm 150$  ng/g lipid weight at St. George Island, respectively)

Regional differences in individual POPs contributions to total POPs levels in the eggs were tested using principal components analysis. Results indicated that there were both colony and species specific differences in regional patterns of contamination. A geographic gradient appeared to be present in the patterns, with the largest differences occurring between the northern Bering Sea and Gulf of Alaska common murre colonies, while values from Bogoslof Island in the Aleutians fell between these levels. The higher chlorinated PCB congeners tended to show significant geographic differences compared to the less chlorinated congeners. This was expected, because highly chlorinated congeners are more resistant to metabolic breakdown and tend to be conserved and more reflective of bioaccumulation differences. Differences in pollutant patterns were also found between common and thick-billed murres at the same nesting locations (St. George and Bogoslof islands)

In summary, preliminary STAMP program analyses indicate that there are major differences in patterns of anthropogenic contaminants among Alaskan seabird colonies. As additional data become available from STAMP sampling sites, they will be compared with previous analyses and relevant historical information from the northern North Pacific and North Atlantic oceans to help define the boundaries of the differences and learn how they may be related to known sources, transport processes, and bioaccumulation patterns in Alaskan marine ecosystems

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# makingWAVES

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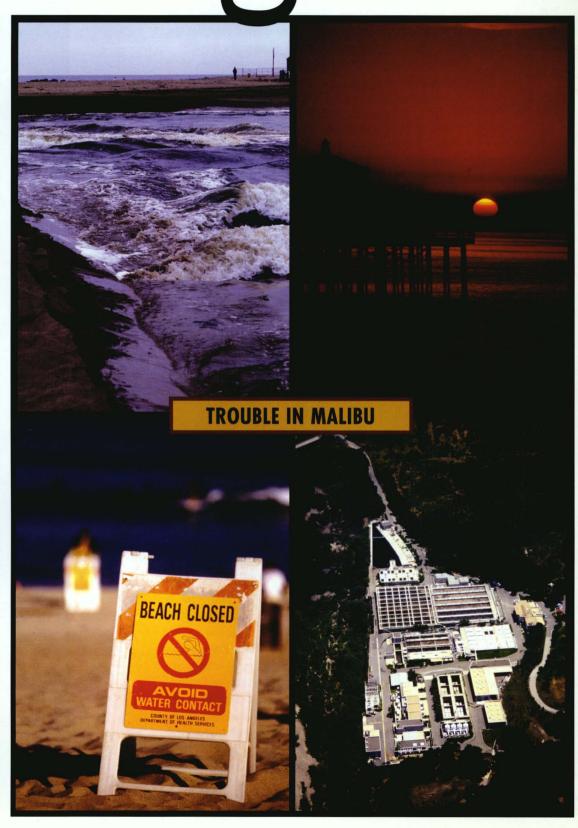
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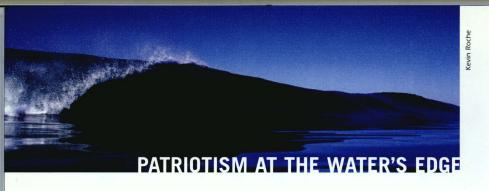
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3RD ANNUAL MEMBERSHIP DRIVE

NEW RETAIL PROGRAM MEMBERS





"There's no mystery to marine pollution. The worst problem today is the huge quantity of raw sewage and industrial effluent spewed into the sea, with no thought to consequences, from coastal cities all over the world" -Stjepan Keckes, U.N. Environment Program News, 1988

Boy, are we wealthy. Odds are, if you are reading these words you had enough disposable income to join the Surfrider Foundation. Even if you coughed up only fifteen dollars for a student membership-not to mention a surfboard-your ability to spend money on the "luxury" of joining an environmental organization puts you somewhere around the richest 8% of the people in the world today. I know it might not always feel like that, but we in the west, and in America in particular, are very fortunate compared to much of the world. It's difficult to worry about protecting the environment when you cannot even guarantee the safety of your family, or count on where your next meal is coming from.

I have found myself being humbled quite frequently these last six months, mostly because I've come to realize how rich I am, in choices. I have the precious luxury of choice. I can choose to work for change in a free country, without my life being threatened, unlikely to be shot at, or jailed and tortured (though I did have friends tear-gassed, man-handled, and jailed in Seattle last year), or putting my family or my job at risk, by being an environmental activist. This is not the case in many countries. There, activists put more on the line when they protest. With more to lose, they are not just volunteers, they are truly warriors.

As Paul Naudé points out in his Power of One profile, there are places in the world where "the water was so thick with pollution that the wave was breaking in slow motion." However flawed some of our environmental laws might be, and how hard we have to fight to get them improved and followed, at least we have them, and a democratic environment within which to work. Paul Naudé's work with Billabong and SIMA (Surf Industry Manufacturers Association) shows how conscientious stewardship within our capitalist system can give back to help steward our recreational environments.

In his column, Chris Evans recounts how much we have accomplished with that purest power of one, the Surfrider volunteer. I ask you to join with me in promising to do a little bit more this year, to honor others who given so much. Joseph Sax, in a 1971 Conservation Foundation Newsletter said it best, "The only real force with long-lasting effects are groups of people in their own communities, who have involved themselves in problems that affect their communities, and have pursued hard and diligently, and who then begin to see the power of persistent, well-informed local action." Here's to persistent, well-informed local action, all over the globe.

-Joe Mozdzen (jmozdzen@surfrider.org)

urfrider Foundation is a non-profit environment on dedicated to the protection and enjoymer is waves, oceans and beaches for all people, ervation, activism, research, and education.

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# blueplanet quarterly

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