

**Sheyna Wisdom**  
**AOOS Executive Director**

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**2021-Present                    Executive Director, Alaska Ocean Observing System (AOOS)**

- Develops and implements the Regional Coastal Observing System (RCOS) for Alaska as part of the national Integrated Ocean Observation System (IOOS), guided by a board made up of federal and state resource agencies, marine research entities and marine industries.
- Responsible for overall management of the AOOS Regional Association.
- Develops and implements AOOS governance, strategic, regional, business, and education and outreach plans, and implements the policies and priorities adopted by the AOOS Board.

**Professional Preparation**

University of San Diego, San Diego, CA	Marine Science	M.S.	2000
Eastern New Mexico University, Portales, NM	Biology	B.S.	1995

**Other Appointments**

**12/2010-12/2020            General Manager/Program Manager, Fairweather Science, LLC, Anchorage, AK.**

- As General Manager, responsible for all aspects of business, financial, data management, and personnel management for a company of 5-10 scientists since inception in 2010. Program manager for multiple marine research/operations programs in the Arctic. Responsible for obtaining and complying with all relevant Federal, state, and local permits as well as data management. Primary stakeholder interface for regulatory agencies, industry clients, scientists, vessel operators, Alaska Native stakeholders, and communities throughout Alaska. Developed safety training protocol specifically for projects. I was primarily responsible for budget development and management ranging from \$200,000 to \$25,000,000.

**02/2001-11/2010            Senior Biologist/Noise Analyst, URS Corporation, San Diego, CA & Anchorage, AK.**

- Project manager of multi-disciplinary projects ranging in contract amount of \$1000-\$1.4M, all aspects of permitting projects across the US, expensive experience in large and small-scale project management and use of sound level measurement and analytics.

**03/2001-03/2002            Research Associate, Scripps Institution of Oceanography, Marine Physical Laboratory, San Diego, CA.**

- Assisted with analyses of cetacean sound production in Channel Islands under Dr. John Hildebrand.

**03/2000-02/2001            Biologist, Gulf South Research Corporation, Baton Rouge, LA.**

- Project manager and biologist for NEPA projects in the southeast region of the US.

**02/1997-02/2000            Research Assistant, Hubbs-Sea World Research Institute, San Diego, CA.**

- Research Assistant to Dr. Don Hunsaker in multi-year project assessing fixed and rotary winged aircraft effects on passerines (least Bell's vireo, southwestern willow flycatcher) on two U.S. Marine Corps bases in southern California. Extensive field work, vegetation surveys, use of noise level meters, GPS navigation. Research Assistant/Graduate Student to Dr. Ann Bowles in a study on vocal and behavioral development in a rehabilitated gray whale calf at SeaWorld San Diego, conducted natural playbacks, determined behavioral ethogram and vocal repertoire. Research Assistant/Field Team Leader with Drs. Ann Bowles, Pam Yochem, Brent Stewart, and James Sumich for a study on vocal development in wild gray whales in Laguna San Ignacio, Baja California Sur, Mexico. Conducted boat-based hydrophone surveys, behavioral sampling, use of small boats.

## Products

- K. Lomac-MacNair, **S. Wisdom**, J. Pedro de Andrade, J.E. Stepanuk, M. Anderson, A. Zoidis, and E. Eduardo. 2022. Large whale occurrence in northeastern Chukchi and Southern Beaufort Seas from Vessel Surveys, 2008-2014. *Northwestern Naturalist* 103:136-153.
- S.P. Woodruff, J.J. Blank, **S.S. Wisdom**, R.R. Wilson, G.M. Durner, T.C. Atwood, C.J. Perham, and C.H. Pohl. 2022. Evaluating the efficacy of aerial infrared surveys to detect artificial polar bear dens. *Wildlife Society Bulletin* e1324. <https://doi.org/10.1002/wsb.1324>.
- K. Lomac-MacNair, **S. Wisdom**, J. Pedro de Andrade, J.E. Stepanuk, and E. Eduardo. 2021. Polar bear behavioral response to vessel surveys in northeastern Chukchi Sea, 2008-2014. *Ursus* 32e8: 1-14. URL: <https://doi.org/10.2192/URSUS-D-20-00023.2>
- M. Owen, A. M. Pegano, **S. Wisdom**, BJ Kirschoffer, A. E. Bowles, and Caitlin O'Neill. 2020. Estimating the audibility of industrial noise to denning polar bears. *Journal of Wildlife Management*. 1-13.
- S. Sitkiewicz, **S. Wisdom**, K. Leonard, and B. Sharp. 2020. Marine mammal sightings in lower Cook Inlet in the fall of 2019. Poster presented at Alaska Marine Science Symposium, January 2020, Anchorage, AK.
- Migura, M., S. Sitkiewicz, K. Leonard, and **S. Wisdom**. 2020. Float-by sampling: development of a simple and quick methodology for vessel-based PSOs to collect biological samples from floating marine mammal carcasses. Poster presented at Alaska Marine Science Symposium, January 2020 and Wildlife Society Conference, February 2020, Anchorage, AK.
- Sitkiewicz, S., W. Hetrick, M. Branson, B. Sharp, and **S. Wisdom**. 2019. Cook Inlet beluga whale (*Delphinapterus leucas*) intra-annual presence, sighting trends, and behaviors near Beluga, Alaska. Poster presented at Alaska Marine Science Symposium, January 2019, Anchorage, AK.
- Blank, J., **S. Wisdom**, and J. Cunningham. 2018. A comparison of different UASs for applications in the Arctic. Poster presentation at Alaska Marine Science Symposium, January 2018, Anchorage, AK.
- Hetrick, W., C. Hesselbach, M. Branson, and **S. Wisdom**. 2018. Polar Bear (*Ursus maritimus*) behavioral response to vessel presence in the Chukchi and Beaufort Seas. Poster presentation at Alaska Marine Science Symposium, January 2018, Anchorage, AK.
- S. Wisdom**, E. Ede, and W. Hetrick. 2017 Effective communication strategies with Alaska Native Communities: Lessons Learned 2008-2016. Presented at the 2017 Alaska Marine Science Symposium, January 2017, Anchorage, AK.

- McFarland, S., **S. Wisdom**, and W. Hetrick. 2017. Assessing disturbance responses of marine mammals to vessels in the Bering, Chukchi, and Beaufort Seas. Presented at the 2017 Alaska Marine Science Symposium, January 2017, Anchorage, AK.
- Danielson, S., C. Hauri, R. Hopcroft, C. Lalande, C. Janzen, M. McCammon, A. McDonnell, K. Stafford, Kate, P. Winsor, and **S. Wisdom**. 2016. A multi-disciplinary and multi-institutional approach to long-term and high-resolution Arctic marine monitoring. Presented at 2016 Arctic Observing Summit, March 2016, Fairbanks, AK.
- McFarland, S., L. Aerts, and **S. Wisdom**. 2015. Assessing disturbance of Pacific walrus (*Odobenus rosmarus divergens*) to vessel presence in the Chukchi Sea. Presented at the 2015 Society for Marine Mammalogy Biennial Conference, December 2015, San Francisco, CA.
- Owen, M.A., **Wisdom, S.**, Kirschoffer, B.J., O'Neill, C., Swaisgood, R.R., and A.E. Bowles. 2015. Transmission of vehicular noise into sub-nivean dens: Implications for noise disturbance of denning polar bears. Poster session presented at 2015 Society for Marine Mammalogy Biennial Conference; 2015 December, San Francisco, CA.
- Ferguson, M., J. Clarke, A. Harcombe, W. Hetrick, and **S. Wisdom**. 2014. A New Bird in the Alaskan Arctic: Lessons learned during coordination of manned and unmanned aerial operations in 2013 and 2014. Poster session presented at: 2015 Alaska Marine Science Symposium; 2014 January 19-23; Anchorage, AK.
- Aerts, L.A., McFarland, A.E., Watts, B.H., Lomac-MacNair, K.S., Seiser, P.E., **Wisdom, S.**, Kirk, A.V., Schudel, C.A. 2013. Marine mammal distribution and abundance in the offshore northeastern Chukchi Sea during the open-water season. *Continental Shelf Research* 67: 116-126.
- Day, R. H., T. J. Weingartner, R. R. Hopcroft, L. A. M. Aerts, A. L. Blanchard, A. E. Gall, B. J. Gallaway, D. E. Hannay, B. A. Holladay, J. T. Mathis, B. L. Norcross, J. M. Questel, and **S. S. Wisdom**. 2013. The offshore northeastern Chukchi Sea: a complex high-latitude system. *Continental Shelf Research* 67: 147-165.
- Day, R.H., C.L. Rea, A.M. Macrander, and **S. Wisdom**. 2012. The Chukchi Sea Environmental Studies Program: An Overview. Alaska Marine Science Symposium, Anchorage, AK.
- Day, R.H., L.A. M. Aerts, A.L. Blanchard, A.E. Gall, B.J. Gallaway, B.A. Holladay, D. Hannay, R.R. Hopcroft, J.T. Mathis, B.L. Norcross, T.J. Weingartner, **S. Wisdom**, C.L. Rea, A. M. Macrander, and S. Eldoy. 2012. The Offshore Northeastern Chukchi Sea: A Complex High-Latitude Ecosystem. 3rd U.S.-Canada Oil & Gas Research Forum, Anchorage, Alaska. November 2012. Oral presentation given by Sheyna.
- Day, H., C.L. Rea, A.M. Macrander, and **S. Wisdom**. 2011. The Chukchi Sea Environmental Studies Program: An Overview. Alaska Marine Science Symposium, Anchorage, AK.
- Day, R.H., C.L. Rea, A.M. Macrander, and **S. Wisdom**. 2010. The Chukchi Sea Environmental Studies Program: An Overview. 2nd U.S. – Canada Oil & Gas Research Forum, Calgary, Canada.
- Jung, Jae-Byung, A.B. Kulinchenko, P.K. Simpson, **S. Wisdom**, and L. Butler. 2009. Underwater Noise Survey In Support of Port of Anchorage Marine Terminal Redevelopment Project. 38th International Congress and Exposition on Noise Control Engineering, INTER-NOISE 2009.
- Wisdom, S.** 2008. Assessing Noise Impacts on Wildlife under NEPA. Invited speaker at the 156th Meeting of the Acoustical Society of America, Miami, FL, November 2008.

- Southam, A.L., J. Isaacs, **S. Wisdom**, R. Kleinleder, T. Brelsford, and S.K. Davis. 2007. A Systematic Approach to Cumulative Effects Analysis on Bowhead Whales. Poster presented at the 16th Biennial Conference on the Biology of Marine Mammals, South Africa, December 2007.
- Bowles, A.E. and **S. Wisdom**. 2005. The '60-dB Rule' for Birds: An Example of the Application of a Weighting Function in Environmental Impact Mitigation, Invited Speaker at the 150th Meeting of the Acoustical Society of America, Minneapolis, Minnesota, October 2005.
- Guerra, M., A. Thode, **S. Wisdom**, J. Jurban, and J.L. Sumich. 2005. Diurnal vocal activity of gray whales in Laguna San Ignacio, BCS, Mexico. Oral presentation at the 150th Meeting of the Acoustical Society of America, Minneapolis, MN and poster presentation at the 15th Biennial Marine Mammal Conference, San Diego, CA.
- Wisdom, S.**, A.E. Bowles, and K.E. Anderson. 2001. Development of Behavior and Sound Repertoire of a Rehabilitating Gray Whale. *Aquatic Mammals* 27:239-254.
- Wisdom, S.**, A.E. Bowles, and J. Sumich. 1999. Development of Sound Production in Gray Whales, Oral Presentation at the 13th Biennial Conference on the Biology of Marine Mammals, Maui, Hawaii, November 1999.

### **Collaborators and Other Affiliations**

Rob Bochenek, Axiom Data Science, LLC; Seth Danielson, University of Alaska, Fairbanks (UAF); Kris Holderied, NOAA Kasitsna Bay Laboratory; Scott Pegau, Oil Spill Recovery Institute; Katrina Hoffman, Prince William Sound Science Center; Kate Stafford, Oregon State University; Catherine Berchok, NOAA Marine Mammal Laboratory

### **Affiliations**

- IOOS Association Board Finance Committee
- ACCAP Advisory Board, 2021-present
- Cook Inlet Beluga Whale Task Force, Habitats and Threats Committee, 2018-2020, 2022-2024
- Prince William Sound Science Center Research Board, 2017-2019, 2020-2022
- Arctic Waterways Safety Committee vessel operator seat, 2017-2019
- North Slope Science Initiative (NSSI) Science & Technical Advisory Panel (STAP), appointed 2016-2018
- Arctic Research Consortium of the United States (ARCUS), member since 2016; Development Committee member 2017-2018

### **Professional Memberships**

- Acoustical Society of America, Member since 1998
- Society for Marine Mammalogy, Member since 1998
- Wildlife Society, Member since 2019
- Alaska Association of Environmental Professionals, Member 2006-2020
- California Association of Environmental Professionals, 2001-2006

### **Training**

- Project Management Certification, 2008
- Learning as Leadership, 2014

- Basic Adult CPR/First Aid
- Bear Safety Awareness Training
- Cold Water Survival Training, Learn to Return, 2008, 2010, 2012, 2014, 2018, 2020

**Carol D. Janzen, Ph.D.**

**Observations System Manager/Director of Operations and Development**

Janzen@aos.org

AOOS, 1007 West 3rd Ave, Anchorage, AK 99501, USA

Work Telephone: 907-644-6717 or Mobile: 907-891-6543; Email: janzen@aos.org

**06/2015 – Present                      Observations Systems Manager/Director of Operations and Development, Alaska Ocean Observing System (AOOS)**

- Reports directly to and works with the AOOS Executive Director developing the AOOS program, including the strategic and asset build-out plans and observing asset allocation.
- Responsible for the observation systems management across the region and coordinates closely with the AOOS data management team (Axiom), AOOS funded scientists, and technical staff to ensure sound data collection, management and data dissemination practices are followed for all AOOS projects and data sharing initiatives.
- Develops and implements AOOS data collection and management policies/procedures, maintains the AOOS asset inventories, and completes AOOS environmental compliance requirements for the IOOS program.

**Professional Preparation**

University of Washington, Seattle	Oceanography	B.S.	1986
University of Delaware, Newark	Physical Oceanography	M.S.	1996
University of Delaware, Newark	Physical Oceanography	Ph.D.	2000
University of Wales, Bangor, UK	Physical Oceanography	Post Doc	2002

**Other Appointments**

**07/2006-06/2015                      *Senior Oceanographer, Sea-Bird Electronics, Inc, WA, USA***

- Senior scientist and key supporting role to all branches within the company, providing subject matter expertise in oceanography, marine and aquatic sciences, limnology, and associated instrumentation application/project execution, including sensor data forensics.

**11/2002–08/2006                      *Research Scientist-Physical Oceanographer, School of Marine Sciences, University of Maine, ME, USA***

- Principal investigator on oceanographic projects in the coastal Gulf of Maine, responsible for proposal writing, project management, planning/leading and executing oceanographic research, data analysis and preparing technical publications/reports, and presentations. Lead for ACT Sensor Evaluation projects and workshops.

**09/2000–10/2002                      *Physical Oceanographer (Post-Doctoral Researcher), School of***

- Ocean Sciences, University of Wales (Bangor), UK
- Post Doctoral Fellow on the European Union oceanography projects with an international team of oceanographers, leading research related to eutrophication concerns in coastal waters. Lead and participated in observational research cruises, and coordinated international turbulence and mixing workshop.

**06/1993–08/2000                      *Research Assistant/Teaching Assistant (M.S. 1996, Ph.D. 2000), Graduate College of Marine Studies, Univ. of Delaware, DE, USA***

- Conducted independent research on coastal oceanographic processes. Principal Scientist on multiple field investigations, leading field logistics, technical reports, publications and

presentations. Teaching Assistant for oceanography courses. NSF Coastal Oceanography Graduate Fellow (1996-2000). Sea-Grant Award for excellence in Masters Research.

**01/1989-06/1993**      *Ecology Supervisor, Wash. State Dept. of Ecology, WA, USA*

- Unit Leader for the Washington State Department of Ecology Ambient Marine Monitoring Program. Developed, managed, implemented and improved statewide marine monitoring initiatives, incorporated modern technologies and analytical methods into the observing and research program, and added oceanography staff. Lead on program management and field logistics. Initiated local community observing efforts for harmful algal blooms with shellfish growers in Puget Sound.

**05/1985-12/1988**      *Assistant Scientist-Oceanographer, Envirosphere Company, WA, USA*

- Oceanographer on interdisciplinary coastal projects in the Beaufort Sea, Alaska assessing the impacts of gravel-filled causeways on the coastal ecosystem, leading QA/QC protocols for data collection and analyses and standard operating protocols for field logistics. Served as a field technician on Taiwan Power air quality monitoring program, collaborating with an international team. Lead report production activities for multi-million dollar projects.

**03/1984-08/1984**      *Oceanographer-Intern, URS Engineers, WA, USA*

## **Products**

**Janzen C.**, M. McCammon, T. Weingartner, H. Statscewich, P. Winsor, S. Danielson and R. Heim, 2019. Innovative Real-Time Observing Capabilities for Remote Coastal Regions. *Front. Mar. Sci.* 6:176. doi: 10.3389/fmars.2019.00176, <https://www.frontiersin.org/articles/10.3389/fmars.2019.00176/full>

A. Gisler, I. Azeem, E. Stromberg, A. Reynolds, G. Crowley, **C. Janzen**, and M. McCammon, 2018. Monitoring Ocean Water Level in Remote Shoreline Locations Using GPS Reflectometry. *Proc. SPIE 10631, Ocean Sensing and Monitoring X*, 1063111 (25 May 2018); <https://doi.org/10.1117/12.2305157>

Murphy, D., **C. Janzen**, 2017. Advances in In-Situ Ocean Measurements. In: *Observing the Oceans in Real Time*. Ed: R. Venkatesan, A. Tandon, E. D'Asaro, M.A. Atmanand. SPRINGER OCEAN, pp.141-162, <https://doi.org/10.1007/978-3-319-66493-4>

**Janzen, C.**, N. Larson, D. Murphy, 2016. Long-term accuracy, stability of Argo CTDs. *Sea Technology*, Vol 57, no. 2, February 2016, pp. 44-48.

**Janzen, C.D.**, M. McCammon, H. Kent, D. Dugan, R. Bochenek, W. Koeppen, 2016. The Alaska Ocean Observing System's Past and Future Presence in the Arctic. *IEEE Conference Publication, Oceans 2016 MTS/IEEE, Monterey, CA, USA, September 19-22, 2017.*

Murphy, D.J., **C. D. Janzen**, 2015. Designing CTDs to meet the challenges of monitoring climate change in the ocean, *Marine Technology Society Journal*, May/June 2015, Vol 49, No. 3, pp. 50-55.

**Janzen, C.**, 2011. Improving CTD data from gliders by optimizing sample rate and flow past sensors. In: *Ocean News and Technology*, Vol. 17, Issue 7, pp. 22-23.

**Janzen, C.**, and E. Creed, 2011. Physical oceanographic data from Seaglider trials in stratified coastal waters using a new pumped payload CTD. *IEEE Conference Publication, OCEANS 2011 MTS/IEEE, Kona, Hawaii, USA, September 19-23, 2011.* Reprint with permission:

- [http://www.seabird.com/technical\\_references/PhysOcDataFromSeagliderTrials\\_JanzenCreed\\_MTS2011.pdf](http://www.seabird.com/technical_references/PhysOcDataFromSeagliderTrials_JanzenCreed_MTS2011.pdf)
- Edwards, B., **C. Janzen**, D. Murphy, N. Larson, 2010. Calibration response and hysteresis in deep sea dissolved oxygen measurements. *Journal of Atmospheric and Oceanic Technology*, 27(5). DOI:10.1175/2009JTECHO693.1
- Janzen, C.**, 2009. Considerations for CTD spatial and temporal resolution on moving platforms. In: *Ocean News and Technology*, Vol. 15, Issue 6, pp. 54-55. Reprint with permission: <http://www.seabird.com/sites/default/files/documents/ResolutionOnMovingPlatformsReprint.pdf>
- Janzen, C.D.**, J.H. Simpson, M.E. Inall, F. Cottier, 2005. Across-sill circulation near a tidal mixing front in a broad fjord. *Continental Shelf Research*, 25, pp. 1805-1824.
- Janzen, C.D.**, Jim Churchill, Neal Pettigrew, 2005. Observations of bay/shelf exchange between eastern Casco Bay and the western Gulf of Maine. *Deep-Sea Research Part II: Special Issue: The Ecology and Oceanography of Toxic *Alexandrium fundyense* Blooms in the Gulf of Maine*, Vol. 52, Issue 19-21 September-October 2005, pp. 2411-2429. DOI 10.1016/j.dsr2.2005.06.032
- Pettigrew, N.R., J.H. Churchill, **C.D. Janzen**, L.J. Mangum, R.P. Signell, A.C. Thomas, D.W. Townsend, J.P. Wallinga, and H. Xue, 2005. The kinematic and hydrographic structure of the Gulf of Maine Coastal Current. *Deep-Sea Research Part II: Special Issue: The Ecology and Oceanography of Toxic *Alexandrium fundyense* Blooms in the Gulf of Maine*, Ed. D.M Anderson, D.W. Townsend, D.J. McGillicuddy, and J.T. Turner. Vol. 52, Issue 19-21 September-October 2005, pp. 2369-2391. DOI 10.1016/j.dsr2.2005.06.033
- Arneborg, Lars, **Carol Janzen**, Bengt Liljebladh, Tom P. Rippeth, John H. Simpson, and Anders Stigebrandt, 2004. Spatial variability of diapycnal mixing and turbulent dissipation rates in a stagnant fjord basin, *Journal of Physical Oceanography*, 34, 1679-1691
- Janzen, C.D.**, K.-C. Wong, 2002. Wind forced dynamics at the estuary-shelf interface of a large coastal plain estuary. *Journal of Geophysical Research*, Vol. 107, No.C10.
- Janzen, C.**, and K.-C. Wong, 1998. On the low frequency transport process in a shallow coastal lagoon, *Estuaries*, 21(4), 754-766.
- Eisner, L.B., **C.D. Janzen**, S.L. Albertson, S.A. Bell, and J.A. Newton, 1994. 1992 Budd Inlet Seasonal Monitoring Report. Prepared for the Washington State Department of Ecology and the Puget Sound Water Quality Authority, Pub. No. 94-132. Olympia, WA.
- Janzen, C.D.**, and L.B. Eisner, 1993. Marine Water Column Ambient Monitoring Program Annual Data Report for Wateryear 1992. Prepared for the Washington State Department of Ecology and the Puget Sound Water Quality Authority, Pub.No.93-041.
- Janzen, C.D.**, 1992. Marine Water Column Ambient Monitoring Plan, Final Report. Prepared for the Washington State Department of Ecology and the Puget Sound Water Quality Authority, Pub.No.92-23, Olympia, WA.
- Short, K.S., **C.D. Janzen**, C.J. Van Zee, and D.J. Hanzlick, 1991. *Oceanography*. In: 1987 Final Report for the Endicott Environmental Monitoring Program, Volume 3, Part II, Chapter 3. Prepared for by EnviroSphere Company for the U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.
- Janzen, C. D.**, K. S. Short, L. E. Hachmeister, 1991. Long-term marine water quality and climatological trends in the Pacific Northwest. Oral presentation and Paper, Oceans' 91 Conference, Oceanic Engineering Society, Institute of Electrical and Electronics



Engineers, Honolulu, HI. 1991 IEEE Oceans Proceedings, Vol. 2, No. 91CH3063-5, pp. 1044-1048.

**Janzen, C. D.**, P. L. Striplin, 1991. Marine water and sediment monitoring in Washington. Oral presentation and Paper, Oceans' 91 Conference, Oceanic Engineering Society, Institute of Electrical and Electronics Engineers, Honolulu, HI. 1991 IEEE Oceans Proceedings, Vol. 2, No. 91CH3063-5, pp. 1037-1043.

### **Synergistic Activities**

Contributions to the science of learning: Collaborator on development of The National Strategy for Sustained Network of Coastal Moorings (McArthur, S., K. Bailey, C. Janzen, R. Morrison, T. Murphy, J. Newton, S. Ruberg, U. Send, 2017-

([https://cdn.ioos.noaa.gov/media/2017/12/NationalStrategyforSustainedNetworkofCoastalMoorings\\_FINAL\\_pdf](https://cdn.ioos.noaa.gov/media/2017/12/NationalStrategyforSustainedNetworkofCoastalMoorings_FINAL_pdf)); Developed/administered Sea-Bird Scientific's Graduate Student Equipment Loan Program (2006-2015); Instructor for academic and professional training courses on oceanographic instrument use and data processing best practices (2006-2016); Graduate co-advisor for University of Maine (Orono) M.S. Student Laura Brothers (2006) and M.S. Greg Sinnott (2012); Guest lecturer for undergraduate and graduate physical oceanography courses at University of Delaware and University of Maine (1996-2006). Marine science teacher training for K1-12 oceanography and environmental science curriculum (1989-1993).

Service to state and national organizations: Proposal review panelist for NOAA and NSF (2021, 2022); Industry representative on the NANOOS Governing Council (2007-2015); Oceanographic Instrumentation Committee Chair for Marine Technology Society (2011-2020); Guest editor of MTS Journal on polar research instrumentation and methods (MTSJ, 2014, 48(5)); Contributing author of the "Environment 2010 Report" to the Washington State Governor's office.

Development/Refinement of Research Tools: Conduct instrument performance assessments and testing in the lab and field for research, ocean sensor companies, and ocean observing initiatives (ongoing); develop/evaluate data processing and sampling implementation protocols; developed calibration/validation methodologies for QA/QC of multi-parameter ocean instrumentation; Ocean sensor industry and ocean science expert for QARTOD (Quality Assurance of Real Time Ocean Data).

### **Collaborators and Other Affiliations**

Rob Bochenek, Axiom Data Science, LLC; Seth Danielson, University of Alaska, Fairbanks (UAF); Jeremy Kasper (UAF); Erik Stromberg, Orion Space Science, LLC; Joannes Westerink, University of Notre Dame; Shiway Wang, Exxon Valdez Oil Spill Trustees Council; Nathan Wardwell, JOA Surveys, LLC; James Behrens, CDIP (Coastal Data Information Program), UCSD; David J. Murphy, Sea-Bird Scientific, WA; Neal Pettigrew, University of Maine.

### **Professional Memberships**

- American Geophysical Union (1992 - \*)
- Marine Technology Society (2007 - \*)
- CERF-Coastal and Estuarine Research Federation (1998 - 2013)

**Graduate Advisors (5)**

- Kuo-C. Wong, M.S., Ph.D. Advisor, University of Delaware, DE, emeritus
- Richard Garvine, M.S., Ph.D. Co-Advisor, University of Delaware, DE, deceased
- Marlene Noble, Ph.D. Co-Advisor, USGS (United States Geological Survey), CA, emeritus
- Steve Lentz, Ph.D. Co-advisor, WHOI (Woods Hole Oceanographic Institution), MA
- Richard Geider, M.S. Co-advisor, University of Essex, School of Biological Sciences, UK

**Postdoctoral Advisors (1)**

- John Simpson, Post-Doctoral Advisor, Bangor University (Wales), School of Ocean Sciences, Retired

**Served as Thesis Advisor and Postgraduate-Scholar Sponsor**

Laura Brothers, M.S. Co-Advisor, University of Maine; now at USGS, Woods Hole, MA

Gregg Sinnett, M.S. Co-Advisor, University of Maine; now at Scoot Science, Santa Cruz, CA

Neil Fisher, Postgraduate-Scholar Sponsor, University of Maine, ME

**Rob Bochenek**  
**AOOS Data Manager/Information Architect**

rob@axiomdatascience.com

Axiom Data Science, LLC, 1016 W 6th Ave Anchorage, AK 99501

Phone: 907.230.0304

**2010 – Present      AOOS Data Manager/Contractor w/Axiom Data Science (Axiom)**

- Founder and CEO of Axiom (2006), an informatics and software development firm, providing full-time contractual data management services to AOOS since 2010.
- Reports directly to the AOOS Executive Director and works closely with AOOS staff to implement the AOOS Data Management and Communications Subsystem, directing the management and dissemination of ocean and coastal observation data.
- Responsible for management of AOOS data operations across the region, including development and maintenance of the AOOS Data Portals and visualization tools, ensuring the AOOS Data Subsystem meets IOOS, NCEI, OBIS DMAC requirements for interoperability, best practices, quality assurance/quality control, and QARTOD implementation.

**Professional Preparation**

University of Michigan, Ann Arbor, MI; Aerospace Engineering; B.S.E., 2001

**Other Appointments**

- 2021 – Present Technical Lead, Southern California Coastal and Ocean Observing System, San Diego, CA
- 2019 – Present Cyberinfrastructure Team, National Science Foundation, Ocean Observatories Initiative (OOI)
- 2018– Present Technical Lead for Office of Naval Research Animal Telemetry Network DAC
- 2017– Present Information Manager, National Science Foundation, North Gulf of Alaska LTER Site
- 2015– Present Technical Lead, Southeast Coastal Ocean Observing Regional Association, Charleston, SC
- 2013 – Present Technical Lead, Central and Northern California Ocean Observing System (CenCOOS), Moss Landing, CA
- 2010 – Present Technical Lead, Alaska Ocean Observing System (AOOS), Anchorage, AK
- 2006 – Present Information Architect, Axiom Consulting and Design, Anchorage, AK
- 2003 – 2006 Data Systems Manager, Exxon Valdez Oil Spill Trustee Council (EVOSTC), Anchorage, AK
- 2001 – 2002 Analyst Programmer, Alaska Department of Fish & Game, Anchorage, AK

**Products**

Bochenek, R.B, M. McCammon, B. Stone. (2019). AOOS Ocean Data Explorer. Accessible from <https://portal.aos.org>.

Bochenek, R.B, W. Woodward, B. Stone. (2019). Animal Telemetry Network, Data Assembly Center data portal. Accessible from <https://portal.atn.ioos.us/>

Bochenek R.B., T. Vance, B. Stone. (2019). IOOS Environmental Sensor Map. Accessible from: <https://sensors.ioos.us/>

Bochenek R.B., G. Canonico, B. Stone. (2019). Marine Biodiversity Observation Network (MBON) and Arctic MBON. Accessible from: <https://mbon.ioos.us/>

Lopez, J., J. Austin, W. Koeppen, and Bochenek, R.B (2018). AIS Vessel Traffic Data Products and Arctic Oil Spill Risk Assessment (OSRA) Products. Accessible from: <http://ais.axds.co>. and <https://osra.axds.co/>.

Bochenek, R.B., B.Stone, J. Austin (2018). Using Vessel Tracking Data to Prioritize Bathymetric Surveying in a Rapidly Changing Arctic. Accessible from <https://aoots.org/ais-4-bathy/> (website) and <https://pac.portal.aoots.org/> (web portal).

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### **Synergistic Activities**

- 2012 – Present Develop and maintain AOOS Data Assembly Center, CeNCOOS Data Assembly Center, SECOORA Data Assembly Center, IOOS Environmental Sensor Map, Marine Biodiversity Observation Network Portal, Animal Telemetry Data Assembly Center, and other association products
- 2012 – Present Funded under the NOAA High Performance Computing program for exploratory research in applying HPC concepts to serving and visualizing gridded multidimensional models and observational data sets
- 2011 – Present Member of the IOOS Sensor Observation Service standardization Committee
- 2010 – Present Member of the Alaska Data integration Working Group (ADIWG) focused on developing frameworks for interchange of scientific information across Alaskan Agencies.
- 2008 – 2010 Development of the Prince William Sound Data Portal, a tool for scientists, educators and the public to visualize four dimensional fisheries data

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