

# Xavier MOUY

46 Terry Lou Avenue  
East Falmouth, Massachusetts, U.S.A., 02536  
☎ +1 (305) 632-8098  
✉ [xavier.mouy@outlook.com](mailto:xavier.mouy@outlook.com)  
<https://xaviermouy.weebly.com>

## EDUCATION

---

- 2016-2022**      **Ph.D. in Earth and Ocean Sciences**  
University of Victoria, Victoria, Canada  
Advisors: Stan Dosso, Francis Juanes  
Thesis: Monitoring fish using passive acoustics.
- 2004-2007**      **M.Sc. in Oceanography (with distinction)**  
University of Québec at Rimouski, Institute of ocean sciences (ISMER), Rimouski, Canada  
Advisor: Yvan Simard  
Thesis: Automatic detection of whale calls and real-time implementation.
- 2001-2004**      **B.Sc. in Acoustics, Signal Processing and Vibration**  
Le Mans Université, Le Mans, France

## SKILLS

---

- Science:**
- Digital signal processing, machine learning, automatic signal detection
  - Passive acoustic localisation
  - Soundscape analysis, Acoustic noise measurements and analysis
  - Underwater and airborne acoustic modeling (Bellhop, RAM, Cadna, CATT-Acoustic)
  - Video processing
- Fieldwork:**
- Organisation and management of field measurement campaigns on water or on land
  - Design, deployment, retrieval, and maintenance of oceanographic moorings
  - Extensive experience with acoustic recorders
  - Real-time passive acoustic monitoring
- Business and Administration:**
- Project management
  - Proposal/grant writing
  - Business development
- Computer:**
- Windows, Linux
  - Python, Matlab, R
  - Audition/Cool Edit Pro, Ishmael, Pamguard, Raven, Syrinx, SpectraLab
  - LaTeX, Microsoft Office Suite

## PROFESSIONAL EXPERIENCE

---

- Sep 2024 – Present**      **Assistant Scientist**  
Applied Ocean Physics & Engineering, Woods Hole Oceanographic Institution (Woods Hole, MA, U.S.A.)
- Dec 2021 – Present**      **Research Affiliate**  
Biology department, University of Victoria (Victoria, BC, Canada)
- Aug 2023 – Sep 2024**      **Guest Investigator**  
Applied Ocean Physics & Engineering, Woods Hole Oceanographic Institution (*Woods Hole, MA, U.S.A.*)

**Dec 2021 – Sep 2024 Research Acoustician (NOAA Affiliate)**

*Passive Acoustics Branch, Northeast Fisheries Science Center (Woods Hole, MA, U.S.A.)  
Contracted through Integrated Statistics Inc.*

Selected projects:

- Development of deep learning algorithms to automatically detect minke whale calls in the North Atlantic.
- Monitoring of haddock in the Gulf of Maine using passive acoustics.
- Development of graphical interface software to efficiently explore and analyze large passive acoustic datasets.

**May 2007 – Sep 2021 Project Scientist, Acoustics**

*JASCO Applied Sciences (Victoria, British Columbia, Canada) from 2010 to 2021  
JASCO Applied Sciences (Halifax, Nova Scotia, Canada) from 2007 to 2010*

Responsibilities:

- Design, development, and testing of novel methods for passive acoustic monitoring of marine mammals (detection, classification, and localisation).
- Noise measurements.
- Soundscape analysis.
- Writing of scientific reports and articles.
- Preparation of systems for field trials and acceptance tests.
- Work at sea as lead scientist (average of 30 days per year).
- Project management.
- Business development, proposal writing.

Selected projects:

- *PortListen™ software (2015-2016)*: Co-creator of the PortListen™ web software that processes, visualizes, shares, and analyzes passive acoustic data in real-time on the web (see Mouy et al. 2015).
- *Port of Vancouver Listening Station (2014-2016)*: Leading the development of the software suite allowing to detect in real-time vocalizations from killer whale, humpback whale, Pacific white-sided dolphin, and fish, measure ambient noise, and automatically measure source level from vessels transiting in the Strait of Georgia.
- *Chukchi Sea Whale Migration Study (2007-2015)*: Developed novel methods for the automatic detection and classification of bowhead whales, belugas, and walrus sounds in the Chukchi Sea. Developed a technique allowing to localize walrus in 2D using a single hydrophone.
- *Sound Source Verifications (2007-2016)*: Measured and analysed sound from seismic exploration activities. Definition of safety zones for whales and pinnipeds based on American/Canadian regulations.

**Oct 2006 – Mar 2007 Research Assistant**

*Department of Fisheries and Oceans Canada (Mont-Joli, Québec, Canada).*

Responsibilities:

- Development of a noise measurement software.
- Analysis the temporal and spatial variability of the anthropogenic noise in the St. Lawrence Estuary.

**Jun – Dec 2006 Research Assistant**

*Underwater acoustics lab, University of Québec at Rimouski (Rimouski, Québec, Canada).*

Responsibilities:

- Analysis of passive acoustic data collected by the research program ArcticNet.
- Development of signal processing methods for the automatic detection of marine mammal calls in underwater recordings from the Arctic Ocean.
- Bibliographic review of DIFAR systems for passive acoustic localisation of marine mammals.

## FIELDWORK EXPERIENCE

---

Selection of field trips since 2007 (out of approximately 30).

**Nov. 2023 Field Scientist** (field station). Deployment of audio-video arrays off Lizard Island, QLD, Australia. Time in the field: 15 days.

**May-Dec. 2019 Lead Scientist.** Deployment of 14 audio-video arrays off Vancouver Island, BC, Canada. Cumulated time in the field: 40 days.

**Nov. 2014 Lead Scientist** onboard the M/V Inlet Provider. Deployment of 4 acoustic recorders off Prince Rupert, BC, Canada. Time at sea: 9 days.

**Jul. 2013 Lead Scientist** onboard the M/V Westward Wind. Deployment of 30 acoustic recorders in the northeastern Chukchi Sea, AK, U.S.A. Time at sea: 14 days.

**Jul. 2013 Shipboard Scientist** onboard the R/V Norseman 2. Real-time acoustic monitoring and tagging of walrus in the northeastern Chukchi Sea in collaboration with USGS. Time at sea: 14 days.

**Apr. 2013 Lead Scientist** onboard the M/V Ocean Royal. Deployment of 5 acoustic recorders in northern BC, Canada. Time at sea: 7 days.

**Oct. 2012 Shipboard Scientist** onboard the M/V Westward Wind. Recovery of 30 AMAR acoustic recorders and deployment of 8 AURAL recorders in the northeastern Chukchi Sea, AK, U.S.A. Time at sea: 13 days.

**May. 2012 Lead Scientist** onboard the M/V Dream Catcher. Real-time acoustic monitoring of seismic surveys and belugas in Cook Inlet, AK, U.S.A. Time at sea: 19 days.

**Apr. 2012 Field Scientist** (land-based). Real-time monitoring of pile driving activities and deployment of oceanographic equipment (acoustic recorders, CTD, ADCP) in the Hudson River, NY, U.S.A. Time in the field: 23 days.

**Aug. 2009 Lead Scientist** (land-based). Monitoring of pile driving activities in the Penobscot River, ME, U.S.A. Time in the field: 9 days.

**Aug. 2008 Lead Scientist** onboard the R/V Alpha Helix. Sound source characterization of seismic airguns in the western Beaufort Sea, AK, U.S.A. Time at sea: 10 days.

**Jul. 2008 Lead Scientist** onboard the M/V Annika Marie. Sound source characterization of 10 oil and gas support vessels off Prudhoe Bay, AK, U.S.A. Time at sea: 8 days.

**Jan. 2008 Field Scientist** (land-based). Acoustic level measurements of explosive trenching activities in the Athabasca River, AB, Canada. Time in the field: 10 days.

## PEER-REVIEWED PUBLICATIONS

---

Arranged chronologically (\* indicates equal contribution).

31. Chapuis, L., Burca, M., Gridley, T., **Mouy, X.**, Nath, A., Nedelec, S., Seeyave, S., Theriault, J., Urban, E., Williams, R., Zimmer, W.M.X., 2024. "Development of a Low-Cost Hydrophone for Research, Education, and Community Science," OCEANS 2024 - Halifax, Halifax, NS, Canada, 2024, pp. 1-7. <https://doi.org/10.1109/OCEANS55160.2024.10754094>
30. Bellon, G., Selbmann, A., Wensveen, P., Rasmussen, M., Laute, A., **Mouy, X.**, Samarra, F.I.P., 2024. "Killer whale (*Orcinus orca*) occurrence in Icelandic waters revealed by passive acoustic monitoring," Marine Mammal Science, e13211. <https://doi.org/10.1111/mms.13211>
29. Chicco, C., Papale, E., Wensveen, P.J., **Mouy, X.**, Samarra, F.I.P., 2024. "Using acoustic monitoring to reveal nearly year-round presence of humpback whales (*Megaptera novaeangliae*) in the waters of southern Iceland," Marine Mammal Science, e13198. <https://doi.org/10.1111/mms.13198>
28. **Mouy, X.**, Archer, S.K., Dosso, S., Dudas, S., English, P., Foord, C., Halliday, W., Juanes, F., Lancaster, D., Van Parijs, S., Haggarty, D., 2024. "Automatic detection of unidentified fish sounds: a comparison of traditional machine learning with deep learning," Frontiers in Remote Sensing 5, 1439995. <https://doi.org/10.3389/frsen.2024.1439995>
27. Murchy, K.A., Rountree, R.A., **Mouy, X.**, Juanes, F., 2023. "Preliminary examination of sounds produced by Pacific salmon (*Oncorhynchus spp.*) during their fall spawning migration," Journal of the Acoustical Society of America 154, 2665-2675. <https://doi.org/10.1121/10.0021970>
26. Van Parijs, S.M., DeAngelis, A.I., Aldrich, T., Gordon, R., Holdman, A., McCordic, J.A., **Mouy, X.**, Rowell, T.J., Tennant, S., Westell, A., Davis, G.E., 2023. "Establishing baselines for predicting change in ambient sound

- metrics, marine mammal, and vessel occurrence within a US offshore wind energy area," ICES Journal of Marine Science, 2023, fsad148, <https://doi.org/10.1093/icesjms/fsad148>
25. Kanes, K. S. J., Dosso, S.E., Lado Insua, T.L., **Mouy, X.**, Bateman, A., 2023. "Seasonal and diel patterns in Pacific white-sided dolphin (*Lagenorhynchus obliquidens*) pulsed calls near Barkley Canyon," Marine Mammal Science, 1–16. <https://doi.org/10.1111/mms.13055>
  24. **Mouy, X.**, Black, M., Cox, K., Qualley, J., Dosso, S., Juanes, F., 2023. "Identification of fish sounds in the wild using a set of portable audio-video arrays," Methods in Ecology and Evolution 14, <https://doi.org/10.1111/2041-210X.14095>.
  23. Diogou, N., Halliday, W. D., Dosso, S. E., **Mouy, X.**, Niemi, A., Insley, S. J., 2023. "Bowhead whale year-round acoustic presence and habitat associations in the Amundsen Gulf, Western Canadian Arctic, 2018–2019," Progress in Oceanography 213, 103004. <https://doi.org/10.1016/j.pocean.2023.103004>.
  22. Frouin-Mouy, H. \*, **Mouy, X.** \*, Pilkington, J., Küsel, E., Nichol, L., Doniol-Valcroze, T., Lee, L., 2022. "Acoustic and visual cetacean surveys reveal year-round spatial and temporal distributions for multiple species in northern British Columbia, Canada," Scientific Reports 12, 19272. <https://doi.org/10.1038/s41598-022-22069-4>.
  21. Halliday, W. D., Brittain, S. A., Niemi, A., Majewski, A. R. **Mouy, X.**, Insley, S. J., 2022. "The underwater soundscape of Minto Inlet, Northwest Territories, Canada," Arctic 75, 462–479. <https://doi.org/10.14430/arctic76400>
  20. Booy, K. V., **Mouy, X.**, Ferguson, S. H., and Marcoux, M., 2021. "Spatio-temporal summer distribution of Cumberland Sound beluga whales (*Delphinapterus leucas*) in Clearwater Fiord, Nunavut, Canada," Arctic Science 7, 394–412. <https://doi.org/10.1139/as-2019-0031>.
  19. Insley, S. J., Halliday, W. D., **Mouy, X.**, and Diogou, N., 2021. "Bowhead whales overwinter in the Amundsen Gulf and Eastern Beaufort Sea," R. Soc. Open Sci. 8, 202268. <https://doi.org/10.1098/rsos.202268>.
  18. **Mouy, X.**, Black, M., Cox, K., Qualley, J., Mireault, C., Dosso, S., and Juanes, F., 2020. "FishCam: A low-cost open-source autonomous camera for aquatic research," HardwareX 8, e00110. <https://doi.org/10.1016/j.ohx.2020.e00110>.
  17. Halliday, W. D., Pine, M. K., **Mouy, X.**, Kortsalo, P., Hilliard, R. C, Insley, S. J, 2020. "The coastal Arctic marine soundscape near Ulukhaktok, Northwest Territories, Canada," Polar Biology 43, 623–636. <https://doi.org/10.1007/s00300-020-02665-8>.
  16. Halliday, W. D., Scharffenberg, K., MacPhee, S. Hilliard, R. C., **Mouy, X.**, Whalen, D., Loseto, L. L., and Insley, S. J., 2019. "Beluga Vocalizations Decrease in Response to Vessel Traffic in the Mackenzie River Estuary," Arctic 72, 337–346. <https://doi.org/10.14430/arctic69294>.
  15. Burnham, R.E., Duffus, D.A., and **Mouy, X.**, 2019. "The presence of large whale species in Clayoquot Sound and its offshore waters," Continental Shelf Research 17, 15–23. <https://doi.org/10.1016/j.csr.2019.03.004>.
  14. Frouin-Mouy, H., **Mouy, X.**, Berchok, C.L., Blackwell, S.B., and Stafford, K.M., 2019. "Acoustic occurrence and behavior of ribbon seals (*Histiophoca fasciata*) in the Bering, Chukchi, and Beaufort seas," Polar Biology 42, 657–674. <https://doi.org/10.1007/s00300-019-02462-y>.
  13. Halliday, W.D., Pine, M.K., Insley, S.J., Soares, R.N., Kortsalo, P., and **Mouy, X.**, 2019. "Acoustic detections of Arctic marine mammals near Ulukhaktok, Northwest Territories," Canadian Journal of Zoology 97, 72–80. <https://doi.org/10.1139/cjz-2018-0077>.
  12. **Mouy, X.**, Rountree, R., Juanes, F., and Dosso, S., 2018. "Cataloging fish sounds in the wild using combined acoustic and video recordings," Journal of the Acoustical Society of America 143, EL333–EL339. <https://doi.org/10.1121/1.5037359>.
  11. Burnham, R.E., Duffus, D.A., and **Mouy, X.**, 2018. "Gray Whale (*Eschrichtius robustus*) Call Types Recorded During Migration off the West Coast of Vancouver Island," Front. Mar. Sci. 5, 1–11. <https://doi.org/10.3389/fmars.2018.00329>.
  10. Archer, S.K., Halliday, W.D., Riera, A., **Mouy, X.**, Pine, M.K., Chu, J.W.F., Dunham, A., Juanes, F., 2018. "The first description of a glass sponge reef soundscape reveals fish calls and elevated sound pressure levels," Marine Ecology Progress Series 595, 245–252. <https://doi.org/10.3354/meps12572>.
  9. Halliday, W.D., Insley, S.J., de Jong, T., and **Mouy, X.**, 2017. "Seasonal patterns in acoustic detections of marine mammals near Sachs Harbour, Northwest Territories," Arctic Science 4, 259–278. <https://doi.org/10.1139/AS-2017-0021>.
  8. Burnham, R.E., Palm, R.S., Duffus, D.A., **Mouy, X.**, and Riera, A., 2016. "The combined use of visual and acoustic data collection techniques for winter killer whale (*Orcinus orca*) observations," Global Ecology and Conservation 8, 24–30. <https://doi.org/10.1016/j.gecco.2016.08.001>.
  7. Frouin-Mouy, H., **Mouy, X.**, Martin, B., and Hannay, D., 2016. "Underwater acoustic behavior of bearded seals (*Erignathus barbatus*) in the northeastern Chukchi Sea, 2007–2010," Marine Mammal Science 32, 141–160. <https://doi.org/10.1111/mms.12246>.
  6. **Mouy, X.**, Mouy, P.A., Hannay, D., and Dakin, T., 2015. "JMesh - A Scalable Web-Based Platform for Visualization and Mining of Passive Acoustic Data," in Data Mining Workshop (ICDMW), 2015 IEEE International Conference on, pp.773–779, 14–17 Nov. 2015. <https://doi.org/10.1109/ICDMW.2015.193>.

5. Hannay, D., Delarue, J., **Mouy, X.**, Martin, B., Leary, D., and Oswald, J., 2013. "Marine mammal acoustic detections in the northeastern Chukchi Sea, September 2007–July 2011," *Continental Shelf Research* 67, 127-146. <https://doi.org/10.1016/j.csr.2013.07.009>.
4. **Mouy, X.**, Hannay, D., Zykov, M., and Martin, B., 2012. "Tracking of Pacific walrus in the Chukchi Sea using a single hydrophone," *Journal of the Acoustical Society of America* 131, 1349-1358. <https://doi.org/10.1121/1.3675008>.
3. **Mouy, X.**, Bahoura, M., and Simard, Y., 2009. "Automatic recognition of fin and blue whale calls for real-time monitoring in the St. Lawrence," *Journal of the Acoustical Society of America* 126, 2918-2928. <https://doi.org/10.1121/1.3257588>.
2. **Mouy, X.**, Leary, D. Martin, B., and Laurinoli, M., 2008. "A comparison of methods for the automatic classification of marine mammal vocalizations in the Arctic," *New Trends for Environmental Monitoring Using Passive Systems*, 2008. <https://doi.org/10.1109/PASSIVE.2008.4786984>.
1. Simard, Y., Bahoura, M., Park, C.W., Rouat, J., Sirois, M., **Mouy, X.**, Seebaruth, D., Roy, N., and Lepage, R., 2006. "Development and experimentation of a satellite buoy network for real-time acoustic localization of whales in the St. Lawrence," *OCEANS 2006*. <https://doi.org/10.1109/OCEANS.2006.307052>.

## BOOK CHAPTERS

---

2. Yurk, H., O'Neill C., Quayle, L.S, Vagle, S., **Mouy, X.**, Austin, M., Wladichuk, J., Morrison, C. and LeBlond, W.T., 2023. "Adaptive Call Design to Escape Masking While Preserving Complex Social Functions of Calls in Killer Whales." *In: The Effects of Noise on Aquatic Life*. Popper, A.N., Sisneros, J., Hawkins, A.D., Thomsen, F. (eds.), Springer, Cham. [https://doi.org/10.1007/978-3-031-10417-6\\_187-1](https://doi.org/10.1007/978-3-031-10417-6_187-1)
1. **Mouy, X.**, Oswald, J., Leary, D., Delarue, J., Vallarta, J., Rideout, B., Mellinger, D., Erbe, C., Hannay, D., and Martin, B., 2013. "Passive Acoustic Monitoring of Marine Mammals in the Arctic" (Chapter 9). *In: Detection, Classification and Localisation of Marine Mammals using Passive Acoustics: 2003 – 2013, 10 years of International Research*. Adam, O., and Samaran, F. (eds.), Dirac NGO, Paris, France, pp. 185-224.

## CONFERENCE PROCEEDINGS

---

8. Rountree, R., Burchard, K. A., Goudey, C. A., **Mouy, X.**, and Juanes, F., 2020. "Passive Acoustic Monitoring of Haddock in the Gulf of Maine: Preliminary Results," *Proc. Mtgs. Acoust.* 37, 070011. <https://doi.org/10.1121/2.0001257>.
7. De Clerck, S., Samarra, F. I. P., Svavarsson, J., **Mouy, X.**, and Wensveen, P.J., 2020. "Noise influences the acoustic behavior of killer whales, *Orcinus orca*, in Iceland," *Proc. Mtgs. Acoust.* 37, 040003. <https://doi.org/10.1121/2.0001219>.
6. Hannay, D.E., **Mouy, X.**, and Li, Z., 2016. "An automated real-time vessel sound measurement system for calculating monopole source levels using a modified version of the ANSI/ASA S12.64-2009," *Canadian Acoustics* 44, 166-167. <https://jcaa.caa-aca.ca/index.php/jcaa/article/view/3002/0>.
5. Riera, A., Rountree, R.A, **Mouy, X.**, Ford, J.K., and Juanes, F., 2016. "Effects of anthropogenic noise on fishes at the SGaan Kinghla-Bowie Seamount Marine Protected Area," *Proc. Mtgs. Acoust.* 27, 010005. <https://doi.org/10.1121/2.0000245>.
4. Dewey, R., Dakin, T., **Mouy, X.**, and Urazghildiiev, I., 2015. "A regional hydrophone network: Monitor, detect and track," 2015 Underwater Acoustics Conference and Exhibition. Crete, Greece.
3. Moloney, J., Hillis, C., **Mouy, X.**, Urazghildiiev, I., and Dakin, T., 2014. "Autonomous Multichannel Acoustic Recorders on the VENUS Ocean Observatory," *IEEE Oceans - St. John's*, Sep 14-19, 1-6 pp. <https://doi.org/10.1109/OCEANS.2014.7003201>.
2. Martin, B., Kowarski, K., **Mouy, X.**, and Moors-Murphy, H., 2014. "Recording and identification of marine mammal vocalizations on the scotian shelf and slope," *IEEE Oceans - St. John's*, Sep 14-19, 1-6 pp. <https://doi.org/10.1109/OCEANS.2014.7003212>.
1. Racca, R., Delarue, J., Frouin-Mouy, H., Hannay, D.E., Martin, B., **Mouy, X.**, and Wladichuk, J., 2014. "Acoustic monitoring of marine mammals in the Chukchi Sea – Three case studies," 2014 Underwater Acoustics Conference and Exhibition. Rhodes, Greece, 1-6.

## SELECTED TECHNICAL REPORTS

---

- Scharffenberg, K, MacPhee, S., **Mouy, X.**, Whalen, D., Loseto, L., 2023. Automated Detection of Beluga Vocalizations in Kugmallit Bay in 2019 to Contextualize Results of Concurrent Aerial Surveys. *Can. Tech. Rep. Fish. Aquat. Sci.*
- Mouy, X.** 2021. Developing an Automatic Fish Sound Detector for British Columbia. Document 02308, Version 1.0. Technical report by JASCO Applied Sciences for Fisheries and Oceans Canada.
- Mouy, X.**, Wladichuk, J.L., and Austin, M.E., 2020. Modelling Acoustic Detection Ranges of Resident Killer Whales. Document 02241, Version 1.0. Technical report by JASCO Applied Sciences for Fisheries and Oceans Canada.

- Frouin-Mouy, H. and **Mouy, X.**, 2020. Analysis of narwhal calls recorded off Bruce Head, Nunavut: Exploratory analysis of mother-calf contact calls based on visual and passive acoustic data. Document 02245, Version 1.0. Technical report by JASCO Applied Sciences for Golder Associates Ltd.
- Mouy, X.**, Kowarski, K., Küsel, E.T., Maxner, E., Frouin-Mouy, H., and Austin, M., 2019. Passive Acoustic Analysis of Hydrophone Data: Gwaii Haanas National Park Reserve and Haida Heritage Site. Technical report by JASCO Applied Sciences for Parks Canada.
- Austin, M., and **Mouy X.**, 2018. Modelling Acoustic Detection Ranges of Southern Resident Killer Whales. Technical report by JASCO Applied Sciences for Fisheries and Oceans Canada.
- McPherson, C., Delarue, J., Whitt, C., Maxner, E., Kowarski, K., and **Mouy, X.**, 2017. Acoustic Monitoring in the Cook Strait Region, New Zealand. Technical report by JASCO Applied Sciences for NIWA.
- Mouy, X.**, Frouin-Mouy, H., Gosselin, J., Delarue, J., and Martin, B., 2013. Shell LNG Underwater Noise Studies: Field Measurements Report. Technical report by JASCO Applied Sciences for Shell Canada.
- Mouy, X.**, MacGillivray, A., Vallarta, J., Martin, B., and Delarue, J., 2012. Ambient Noise and Killer Whale Monitoring near Port Metro Vancouver's Proposed Terminal 2 Expansion Site: July–September 2012. Technical report by JASCO Applied Sciences for Hemmera.
- Delarue, J., Martin, B., **Mouy, X.**, MacDonnell, J., Vallarta, J., Chorney, N. E., and David Hannay, 2011. Northeastern Chukchi Sea Joint Acoustic Monitoring Program 2009-2010. Technical report by JASCO Applied Sciences for ConocoPhillips Company, Shell Exploration & Production Company, and Statoil USA E&P, Inc.
- Mouy, X.**, McCrodan, A., and Hannay, D., 2011. GXT 2010 SPAN and OBC Acoustic Characterization of Seismic Sources - Comprehensive Report. Technical report by JASCO Applied Sciences for GX Technology.
- Mouy, X.**, and Zykov, M., 2009. Underwater Acoustic Monitoring of Pile Driving Activities in the Penobscot River, Bangor, Maine. Technical report by JASCO Applied Sciences for RMT Inc.
- Mouy, X.**, Hannay, D., 2008. Pressure Monitoring of Trenching Blast for Pembina's Athabasca River Pipeline Crossing. Technical report by JASCO Applied Sciences for Pembina Pipeline Corporation.
- Mouy, X.**, Warner, G., MacDonnell, C., Hannay, D., 2008. Underwater Sound Level Measurements of Research Vessel from the Shell 2008 Operations in Prudhoe Bay, Alaska. Technical report by JASCO Applied Sciences for Shell Exploration & Production Company.
- Mouy, X.**, MacDonnell, J., Hannay, D., 2007. Acoustic Level Measurements of Airgun Sources from Shell's 2007 Chukchi Sea Seismic Program. Technical report by JASCO Applied Sciences for Shell Exploration & Production Company.

## SELECTED CONFERENCE PRESENTATIONS

---

Selection out of 46 presentations.

- Mouy, X.**, Black, M., Cox, K., Qualley, J., Mireault, C., Dosso, S., and Juanes, F., 2022. "Comparison of three portable volumetric arrays to localize and identify fish sounds in the wild," 182<sup>nd</sup> Meeting of the Acoustical Society of America, Denver, CO. May 23-27. Best student paper award in animal bioacoustics.
- Mouy, X.**, 2022. "Collocated acoustic and video data to identifying fish sounds in the wild," Ocean Networks Canada & MERIDIAN workshop on Machine Learning Advances for Marine Acoustics and Imagery Data, online, Nov. 1-3. Invited talk.
- Mouy, X.**, Cabrera De Leo, F., Juanes, F., and Dosso, S., 2018. "Acoustic estimation of the biodiversity of fish and invertebrates," 4<sup>th</sup> World Conference on Marine Biodiversity, Montreal, QC, May 13-16.
- Mouy, X.**, Rountree, R., Burchard, K., Juanes, F., and Dosso, S., 2018. "Analysis of Haddock (*Melanogrammus aeglefinus*) sounds recorded in the Northwest Atlantic," 175<sup>th</sup> Meeting of the Acoustical Society of America, Minneapolis, MN, May 7-11. Best student paper award in animal bioacoustics.
- Mouy, X.**, 2016. "Possible fish sounds recorded in the Salish Sea," 2016 Salish Sea Ecosystem Conference, Vancouver, Canada, April 14-16.
- Mouy, X.**, Ford, J., Pilkington, J., Kanes, K., Riera, A., Dakin, T., and Mouy, P. A., 2015. "Automatic Marine Mammal Monitoring off British Columbia, Canada," 7<sup>th</sup> International DCLDE Workshop, La Jolla, CA, July 13-16.
- Mouy, X.**, Delarue, J., Martin, B., and Hannay D., 2012. "Pacific Walrus vocal repertoire in the northeastern Chukchi Sea: call type description and relative proportion in time and space," 164<sup>th</sup> Meeting of the Acoustical Society of America, Kansas City, Missouri, 23 -26 Oct.
- Mouy, X.**, Oswald, J. N., Delarue, J., Leary, D., Hannay, D., Martin, B. S., Mellinger, D. K., 2011. "Development of a grunt detector for monitoring walrus (*Odobenus rosmarus divergens*) in the eastern Chukchi Sea," 19<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, Tampa, Florida, 27 Nov – 2 Dec.

## OPEN-SOURCE HARDWARE AND SOFTWARE

---

*FishCam*: A low-cost open-source autonomous camera for aquatic research. CC-BY Attribution 4.0 International License. <https://osf.io/f6rwt>

*FishSound Finder*: Software for detecting fish sounds automatically. BSD-3-Clause License. <https://fishsound-finder.readthedocs.io>.

*Ecosound*: Python package to facilitate the analysis of passive acoustic data (in progress). BSD-3-Clause License. <https://ecosound.readthedocs.io>.

*SoundScope*: Python-based software (GUI) facilitating the visualization and manual verification of detections from bioacoustics detectors. BSD-3-Clause License. <https://github.com/xaviermouy/SoundScope>.

## **AWARDS / SCHOLARSHIPS**

---

- 2022** - Best Student Paper Award in Animal Bioacoustics, Acoustical Society of America (Denver meeting).
- 2020** - Second place of the Three Minute Thesis (3MT) competition, University of Victoria.
- 2019** - UVic Graduate Award, University of Victoria.
- 2018** - Best Student Paper Award in Animal Bioacoustics, Acoustical Society of America (Minneapolis meeting).
- 2018** - Underwater acoustics and signal processing student travel award, Canadian Acoustical Association.
- 2018** - Recipient of a Trident underwater drone, Science Exploration Education Initiative.
- 2017** - UVic President's Research Scholarship, University of Victoria.
- 2017** - NSERC Postgraduate Doctoral Scholarship.
- 2016** - MITACS Accelerate fellowship.
- 2006** - Fessenden graduate student prize in underwater acoustics, Canadian Acoustical Association.

## **TEACHING / MENTORING**

---

- Supervised students**
- Anne Smith (May-Aug 2022): College Supported Internship with NOAA. Research topic: Detecting haddock spawning activity in the Gulf of Maine using passive acoustics.
  - Makana Terry (May-Aug 2021): Coop term with the University of Victoria and Ocean Networks Canada. Research topic: Analysis of active acoustic data from the Fish Acoustics Experiment in the Strait of Georgia.
  - Madeleine Thompson (May-Aug 2021): Coop term with the University of Victoria and Ocean Networks Canada. Research topic: Analysis of video data from the Fish Acoustics Experiment in the Strait of Georgia.
  - Courtney Evin (Sep-Dec 2019): Directed Studies and Research in Marine Biology (BIOL490D) at the University of Victoria. Research topic: Underwater acoustics and soundscape analysis.
  - Emie Woodburn (Sep-Dec 2019): Directed Studies and Research in Marine Biology (BIOL490D) at the University of Victoria. Research topic: Underwater acoustics and soundscape analysis.

- Mentored students**
- Katrin Booy (2018): M.Sc., University of Manitoba.
  - Kristen Kanes (2018): M.Sc., University of Victoria.
  - Katrina Nicholich (2013): M.Sc., University of Western Washington.
  - Barbara Koot (2012): M.Sc., University of British Columbia.

- Supervisory Committees**
- Darienne Lancaster (present): Ph.D., University of Victoria (supervisory committee member).
  - Allison Noble (present): Ph.D., Louisiana Universities Marine Consortium (supervisory committee member).
  - Brittanie Spriel (present): M.Sc., University of Victoria (supervisory committee member).
  - Thomas Barbedette-Gerard (2024), M.Sc., Ecole Normale Supérieure de Lyon (external examiner).
  - Madalina Ilinca Matei (2022), M.Sc., University of St. Andrews (external examiner).

- Teaching**
- Guest lecturer in the course Marine Bioacoustics (FW561), Oregon State University, Aug 2024.
  - Guest lecturer in the course Acoustic Ecology (ZOOL740), University of New Hampshire, Apr 2024.
  - Guest lecturer in the course Ocean Acoustics (EOS516), University of Victoria, Mar 2024.
  - Guest lecturer in the course Coastal Conservation (GEOG304), University of Victoria. Jan. 2019.

## **PROFESSIONAL ACTIVITIES / WORKING GROUPS**

---

- Active member of the Acoustical Society of America (ASA):
  - Chair of the Technical Committee on Animal Bioacoustics (2024-present)
  - Member of the Technical Committee on Animal Bioacoustics (2016-present)
  - Member of the organizing committee for the ASA meeting in Victoria, BC, Canada (2018)
  - Technical Program Organizer (TPO) for the meetings Acoustics in Focus (2021) and Acoustics 23 Sydney (2023).
  - Member of the ASA ANSI standards working group S3/SC1 WG07 on Acoustic Metadata for Passive Acoustic Monitoring (2017-present).
  - Organized and chaired three special sessions at ASA meetings.
  - Member of ASA ad hoc committees for ASA prizes and awards.
- Member of the International Quiet Ocean Experiment (IQOE) Task Team on Low-Cost Hydrophones for Research, Education, and Citizen Science (2023-present).

- Member of the IQOE working group Global Library of Underwater Biological Sounds - GLUBS (2023-present).
- Member of a working group led by Parks Canada to define ocean noise metrics in Canada (2018-present).
- Peer reviewer for the Journal of the Acoustical Society of America, Applied Acoustics, Marine Mammal Science, IEEE Journal of Oceanic Engineering, Scientific Reports, New Zealand Acoustics, HardwareX, Endangered Species Research, and Journal of Ecoacoustics.

## TRAINING

---

- 2019** - Scientific diving (theory), Canadian Association for Underwater Science.  
**2019** - Dive accident management, University of Victoria.  
**2019** - Oxygen first aid for SCUBA diving injuries, Divers Alert Network.  
**2018** - Foundations of Project Management, Mitacs.  
**2018** - Emergency First Aid for industry (OFA level 1 equivalent), St. John Ambulance.  
**2018** - Workplace Hazardous Materials Information System (WHMIS).  
**2015** - Basic Offshore Safety Induction & Emergency Training (BOSIET), Survival Systems Training Limited.  
**2010** - Basic Survival Training (BST), Survival Systems Training Limited.  
**2010** - Marine Emergency Duties A1, Survival Systems Training Limited.  
**2010** - DONUT Famil./Skyscape/Helicopter Underwater Egress Training, Survival Systems Training Limited.  
**2010** - Helicopter Underwater Escape Breathing Apparatus training, Survival Systems Training Limited.

## SCIENTIFIC OUTREACH

---

- 2018 – 2021** Organizer of the *Pint of Science* annual outreach festival in Victoria, BC, Canada.  
**2018 – 2019** Subject matter expert in the educational show *OrcaLive* by LiveIt, broadcasted live in 74 French immersion classrooms across British Columbia, Canada (Oct. 2018, Feb. 2019).  
**2016 - Present** Speaker for the organization *Skype A Scientist* to promote science (via video conferencing) in schools worldwide.  
**2016 - Present** Participation to several events in local communities and schools (K-12) to promote STEM.  
**2016** Contributor to “The Let’s Talk Science Challenge Student Handbook”.

## SELECTED MEDIA COVERAGE

---

- 2024** *What does the fish say? Researchers are on a quest to log all fish sounds*, Science News. Vol. 205, No. 5.  
**2023** *Scientists eavesdropping on fish to unlock their underwater ways*, Canada’s National Observer.  
**2020** *Évaluer la santé des écosystèmes marins avec le son*, Radio-Canada radio show Les années lumière.  
**2020** *Bioacoustics - Voices of the Ocean, Lumières* webinar (featured guest).  
**2019** *Xavier Mouy*, Lodestar section of the Journal of Ocean Technology, Vol. 14, No. 3.  
**2017** *Le chant des poissons selon Xavier Mouy*, Radio-Canada radio show Les années lumière.  
**2017** *Spying scientists listen in on fish conversations*, CBC radio show Quirks & Quarks.  
**2017** *Industry in walrus territory*, The Circle magazine (WWF), Jul. 2017.  
**2017** *Quiet please, the fish are flirting*, Hakai Magazine.