Publications of Science Branch, Northwest Atlantic Fisheries Centre (Fisheries and Oceans Canada, Newfoundland and Labrador Region): 2017-2018

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Les rapports manuscrits contiennent des renseignements scientifiques et techniques qui constituent une contribution aux connaissances actuelles, mais qui traitent de problèmes nationaux ou régionaux. La distribution en est limitée aux organismes et aux personnes de régions particulières du Canada. II n'y a aucune restriction quant au sujet; de fait, la série reflète la vaste gamme des intérêts et des politiques de Pêches et Océans Canada, c'est-à-dire les sciences halieutiques et aquatiques.

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Les rapports manuscrits sont produits à l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre.

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ABSTRACT

Rideout, R. M., and Murphy, H. M. 2020. Publications of Science Branch, Northwest Atlantic Fisheries Centre (Fisheries and Oceans Canada, Newfoundland and Labrador Region): 2017-2018. Can. Manuscr. Rep. Fish. Aquat. Sci. 3194: v + 32 p.

This report provides a complete list of publications authored (entirely or partially) by researchers at the Northwest Atlantic Fisheries Centre (Fisheries and Oceans Canada, Newfoundland and Labrador Region, Science Branch) in 2017 and 2018. The listing includes primary peer-reviewed publications, as well as contributions to books, advisory documents and technical reports. In 2017 and 2018, NAFC staff contributed to a total of 220 publications. Publications in primary scientific journals and science advisory documents were equally represented (each n=100) and accounted for 91% of total publications. Science staff at NAFC also contributed to numerous corporate-authored reports by other DFO regions and regional fisheries management organizations (e.g. NAFO, ICES) that are not accounted for in the lists provided here. All science staff classifications (170 SE-RES, BI, PC and EG in 2017-2018) were used to calculate the publication rate. The overall publication rate was 0.65 publication per staff member per year, and the publication rate in primary peer-reviewed science journals was 0.29 publication per staff member per year. The aims of compiling this publication report are to showcase the breadth of expertise and scientific contributions made by DFO Science staff in the NL Region, and to foster collaborations among sections and divisions.

RÉSUMÉ

Rideout, R. M., and Murphy, H. M. 2020. Publications of Science Branch, Northwest Atlantic Fisheries Centre (Fisheries and Oceans Canada, Newfoundland and Labrador Region): 2017-2018. Can. Manuscr. Rep. Fish. Aquat. Sci. 3194: v + 32 p.

Ce rapport présente une liste des publications rédigées, en totalité ou en partie, par des chercheurs du Centre des pêches de l'Atlantique Nord-Ouest (Pêches et Océans Canada, région de Terre-Neuve-et-Labrador, Direction des sciences) en 2017 et en 2018. Cette liste contient des articles publiés dans des publications principales évaluées par des pairs ainsi que des contributions à des livres, à des avis et à des rapports techniques. En 2017 et en 2018, le personnel du Centre des pêches de l'Atlantique Nord-Ouest (CPANO) a contribué à 220 publications, dont un nombre égal (n=100 dans tous les cas) d'articles publiés dans des publications principales évaluées par des pairs et d'avis scientifiques. Ces documents représentaient 91 % du nombre de publications totales. Le personnel scientifique du CPANO a par ailleurs contribué à un de nombreux rapports organisationnels rédigés par d'autres régions du MPO ou par des organisations régionales de gestion des pêches (p. ex. l'Organisation des pêches de l'Atlantique Nord-Ouest et le Conseil international pour l'exploration de la mer) qui ne figurent pas sur la liste du rapport. Le taux de publication a été calculé à partir du nombre de postes dans la classification des sciences (170 SE-RES, BI, PC et EG pour 2017-2018). Le taux de publication global est de 0,65 publication par employé par année tandis que le taux de publication dans les publications scientifiques principales évaluées des pairs se chiffre à 0,29 publication par employé par année. En compilant ces publications sous forme de rapport, on souhaite mettre en valeur l'ampleur de l'expertise et des contributions scientifiques du personnel des Sciences du MPO dans la région de Terre-Neuve-et-Labrador, et favoriser la collaboration entre secteurs et divisions.

INTRODUCTION

Science staff at the Northwest Atlantic Fisheries Centre (NAFC) include nationally and internationally recognized researchers who collaborate with government scientists and academia from across Canada and the World. Scientists at NAFC work in diverse research fields ranging from ecology to chemistry and on a wide range of organisms from microscopic phytoplankton to megafauna such as whales. The diversity in scientific expertise allows for interesting and productive collaborations among NAFC scientists. An important resource to continue to foster collaborations across disciplines is the production of an annual report dedicated to acknowledging and summarizing the breadth of research taking place within NAFC.

Comprehensive reviews of NAFC science publications were produced for 1931-1984 (Coady and Maidment 1985) and 1985-2000 (Coady et al. 2002). Although the intent was to continue producing annual reviews (Coady and Maidment 1985), there has been no update on NAFC publications since 2000. Currently, only publications where NAFC Science staff are the senior author are subject to an internal review process and are tracked by Departmental staff while contributions by NAFC staff to publications that are led by non-NAFC researchers are typically not tracked. Recent attempts have been made to collate publication lists for management purposes (e.g. to evaluate resource allocation). These publication lists were not circulated to staff and were not used for communicating and recognizing the quantity, quality, and diversity of scientific research conducted at NAFC. The aim of this report is to return to the intent of the earlier publication reports by producing a summary of scientific literary contributions by NAFC Science staff in 2017 and 2018. The lack of a summary report covering the period 2001-2016 is unfortunate, but it is our intent to produce regular publication reports going forward.

PUBLICATION LISTS

The publication lists compiled here include primary publications in peer-reviewed scientific journals, advisory documents, contributions to books and book sections, and technical reports. The compilation of these lists relied to a large extent on self-reporting by staff. For primary publications, the Department maintains records of publications that were led by DFO employees. Self-reporting was the best way to account for primary publications that were contributed to, but not led by, DFO science staff. Science staff were under no obligation to self-report their publications for this report. For a small number of research scientists who did not self-report their publications (we focused on research scientists under the assumption that most, if not all, publications will include a research scientist in the list of authors), their publication lists were created by searching online databases such as Google Scholar and ResearchGate. Failure to self-report is likely to have increased the probability that the publication tally is underestimated.

In order to be included in the publication lists in this report (see Appendix 1), a publication must have included at least one author who was employed at NAFC. Publications by retired staff that maintained emeritus status were also included in the publication lists. Publications by staff based on research conducted prior to their employment in Science Branch are included in the publication lists if it is clearly indicated on the publication that their current address is NAFC Science Branch. The final date on the publication must be 2017 or 2018. There were numerous instances when the final date on the publication was different than the date included in the self-reported lists. In some cases this resulted in publications not being included in this report.

PUBLICATION CATEGORIES

Primary publications – Primary publications are those reporting original findings in peer-reviewed scientific journals.

Advisory documents – DFO Science staff are responsible for providing scientific advice with respect to the sustainable harvest of aquatic resources, as well as other anthropogenic activities related to aquatic species and habitats. For researchers at NAFC, science advice is provided primarily through Canadian Science Advisory Secretariat (CSAS) documents (available at http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/index-eng.asp) and through Northwest Atlantic Fisheries Organization (NAFO) documents (available at https://www.nafo.int/Library/Science/SC-Documents). CSAS advisory documents are produced in response to science advice requested by Fisheries and Oceans Canada Resource Managers. CSAS documents include Science Advisory Reports (SAR), Science Responses (SRP), and Research Documents. SARs generally provide a clear summary of analyses and advice for managers and other clients. SRPs are typically produced either in response to urgent and unforeseen requests for scientific information/advice or to respond to a request for which advisory precedents already exist. Research Documents provide a more detailed and technical description of the data and analyses used in the provision of the science advice than the SARs and SRPs. SARs and SRPs are assigned corporate authorship (i.e. DFO), while Research Documents are assigned authorship to individuals who contributed to the research . All three types of documents are included in this report; however, only SARs and SRPs that were led by the NL Region (as indicated both in the document header and on the CSAS website) are included in this report. NAFC science staff regularly contribute to the production of advisory documents from other DFO regions, so the publications listed in this report will be an underestimate of the true number of literary contributions of NAFC Science staff. CSAS also produces Proceedings documents to track scientific discussions/decisions that take place during advisory processes. Although these are given DFO corporate authorship, they are largely produced by non-DFO personnel who are contracted to rapporteur advisory meetings. They are not included in this report.

On Canada's East Coast, fish stocks and fisheries that either extend outside of Canada's Exclusive Economic Zone (EEZ) (i.e. straddling stocks) or are entirely outside Canada's EEZ (e.g. on the Flemish Cap) are managed by NAFO. Within NAFO, the Scientific Council (SC) produces science advice in response to requests from either the Commission or NAFO contracting parties. Details of the analyses supporting the science advice are generally documented in NAFO Research Documents. Numerous staff at NAFC are members of the SC and NAFO Research Documents co-authored by NAFC staff are included in this report as advisory documents. NAFO advice documents and working group reports that do not have individual authorship assigned to them are not included in the publication lists. Any NAFC authored contributions from other regional fisheries management organizations (e.g. ICES) are also included as advisory documents in this report.

Book/Book chapters – Authorship of book chapters and editorship by NAFC Science staff were included in the publication list. In some cases an individual may have multiple contributions in the same book (i.e. editor and author of a chapter; author of multiple chapters).

Technical reports – Technical reports contain scientific and technical information that contributes to existing knowledge but is not normally appropriate for primary literature. Typical

publications in this category are Canadian Technical Report of Fisheries and Aquatic Sciences and Canadian Data Report of Fisheries and Aquatic Sciences.

Publications not included

Published abstracts, working papers, and posters were not included in the publication lists presented here. Proceedings documents were also not included unless they were published as a special book or technical report.

Analyses

Publications by Category

There were 220 publications produced by NAFC science staff during 2017-2018 (Table 1). Over the two-year period, there were an equal number of contributions in the form of primary publications and advisory documents, with exactly 100 contributions of each publication category. These two publication categories accounted for 91% of the total publications. Technical reports and book/book chapters accounted for the remaining 9%.

Table 1: Number of publications by NAFC Science branch in 2017 and 2018 by publication category (percentage of total publications in brackets)

Year	Primary Publications	Advisory Documents	Technical Reports	Books and Chapters	Total
2017	44 (41.1)	52 (48.6)	4 (3.7)	7 (6.5)	107
2018	56 (49.6)	48 (42.5)	5 (4.4)	4 (3.5)	113
Total	100 (45.5)	100 (45.5)	9 (4.1)	11 (5.0)	220

Advisory documents were primarily CSAS documents (67%) and NAFO documents (32%) (Table 2). Only one ICES report was authored by NAFC staff in 2017-2018. CSAS documents published by NAFC staff were predominately Research Documents (43.3%) followed by Science Advisory Reports (35.8%) and Science Responses (20.1%). Unlike CSAS advisory documents, NAFO and/or ICES reports with corporate authorship were not included in this report.

Top ten scientific journals

Scientists in the NL region in 2017-18 published in 56 international journals, compared to 85 international journals over a 35 year period from 1950-1984 (Coady and Maidment, 1985) and 250 international journals over a 16 year period from 1985-2000 (Coady et al., 2002). The top ten journals for primary publications for the three time periods are listed in Table 3. The *Canadian Journal of Fisheries and Aquatic Sciences* was the most common outlet for research by NAFC staff in all three time periods, although its popularity decreased from 22% of NAFC journal publications in 1985-2000 to only 7% in 2017-2018. The only other journal to be represented in the top ten for all three time periods was the *ICES Journal of Marine Science*, which ranked as the second most utilized journal in 2017-2018. The *Journal of Northwest Atlantic Fishery Science*, which ranked as the second most popular journal over both the 1950-1984 and 1985-2002 time periods, did not appear in the top ten utilized journals in 2017-2018. The list of the top ten journals for 2017-2018 contains seven journals that did not appear in the top ten lists from the two previous time periods. These results were likely influenced by the

creation of new journals, including open-access online journals, changes in departmental research priorities and the research interests of newer Science staff. For example, the 2017-2018 publications list is well represented by contributions in the fields of genomics/biotechnology and aquatic invasive species.

Table 2: Breakdown of types of advisory documents published by Science staff at NAFC during 2017-2018 (percentage of total publications in brackets).

Year	CSAS SAR	CSAS SSR	CSAS Res Doc	NAFO Res Doc	ICES Report	Total
2017	11(21.2)	7 (13.5)	18 (34.6)	15 (28.8)	1 (1.9)	52
2018	13 (27.1)	7 (14.6)	11 (22.9)	17 (35.4)	0	48
Total	24 (24.0)	14 (14.0)	29 (29.0)	32 (32.0)	1 (1.0)	100

Table 3: Top ten scientific journals where Science Branch staff published their work over three time periods represented by this and previous publication reports.

Rank	1950-1984[1]	1985-2002[2]	2017-2018
1	Can J Fish Aquat Sci[3]	Can J Fish Aquat Sci (22%)	Can J Fish Aquat Sci (7%)
2	J Northw Atl Fish Sci[4]	J Northw Atl Fish Sci (6%)	ICES J Mar Sci (7%)
3	Can J Zool	ICES J Mar Sci (4%)	Ecol Indic (5%)
4	ICES J Mar Sci	Can J Zool (3%)	Evol Appl (5%)
5	Nat Can	N Am J Fish Manage (3%)	Fish Res (5%)
6	Carboh Res	Mar Ecol Prog Ser (2%)	Ecol Evol (4%)
7	Can Field Nat	J Fish Biol (2%)	Mol Ecol Resour (4%)
8	Bull Environ Contam Toxicol	Fish Res (2%)	Ecol Freshw Fish (3%)
9	Trans Am Fish Soc	Fish Bull (2%)	Front Mar Sci (3%)
10	Comp Biochem Physiol	Trans Am Fish Soc (2%)	Manag Biol Invasion (3%)

[1]from Coady and Maidment (1985), note this report does not associate percentages with each journal
[2]from Coady et al. (2002)
[3]formerly Journal of the Fisheries Research Board of Canada
[4]formerly ICNAF Research Bulletin

Publications Rates

The total number of publications produced is largely influenced by financial investment in research programs and associated staffing levels. Hence, the number of publications produced at NAFC would best be expressed relative to the number of employees, as was done in previous reports (Coady and Maidment, 1985, Coady et al., 2002), and would allow for tracking of publication rates over time.

Numerous factors make publication rates from the two previous reports not comparable to publication rates calculated in this report. For example, the categories of publications included in this report differ from previous reports i.e. previous reports include ‘popular science articles’ as well as articles that outside parties created under contract from DFO. In addition, the format of certain advisory documents has changed over time. CSAS research documents used to

have anonymous authorship while each section of the report had authorship assigned to it. This resulted in several publication contributions being listed from the same report, similar to individual book chapters being listed. The current practice of assigning authorship to the overall advisory document, and not the individual sections, influences the number of listed contributions by NAFC staff and reduces the publication rates relative to the two earlier reports.

In addition to these issues, previous reports based their calculation of publication rates only on the number of staff in positions that typically contributed to data analyses and/or scientific writing (e.g. SE-RES and BI) and excluded technical staff in their calculations. We consider that limitations in data collection (typically performed by technical staff) can be an important constraint on the production of scientific literature by NAFC staff. Therefore, technical staff are included in the calculation of publication rates in this report.

Relevant staff contributing to scientific publications are listed in Table 4 and publication rates are calculated as number of publications per science staff per year. A complete staffing list is provided in Appendix 2. As per Coady et al. (2002), visiting post-doctoral fellows employed by Science Branch are included as staff as are Scientist Emeritus positions following retirement. Visiting scientists from other laboratories as well as casual and contract employees are not listed. Although the publication rates calculated here are not comparable to those in previous reports, we believe this approach will allow for a more meaningful comparison of publication rates going forward.

Table 4: Classification and number of Science staff employed in Science Branch (NL region) in 2017-18.

Classification	Definition	Number of Science staff
SE-RES	Research scientist	35
BI	Biologist	40
PC	Physical scientist	14
EG	Technician	81
Total		170

In 2017-2018, there were a total of 170 Science staff (there may be slight differences between years but we assume this number is constant for both years). 220 publications over the 2017-2018 period translates into a publication rate of 0.65 publications per staff member per year. The publication rate with respect to primary journal articles was 0.29 publications per staff member per year. As previously emphasized, these numbers should not be compared with previous reports without accounting for significant differences in calculation methodology.

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Coady, L.W., Maidment (1985) Publications of the Fisheries Research Branch, Northwest Atlantic Fisheries Centre, St. John's, Newfoundland - 1931-1984. Canadian Manuscript Report of Fisheries and Aquatic Sciences No. 1790.

APPENDIX 1. LIST OF PUBLICATIONS FOR 2017-2018

2017 Primary Publications

1. Baulier, L., Morgan, M.J., Lilly, G.R., Dieckmann, U., Heino, M., Miller, K.M. (2017) Reproductive investment in Atlantic cod populations off Newfoundland: Contrasting trends between males and females. *Facets* **2,** 660-681. https://doi.org/10.1139/facets-2017-0005.
2. Best, K., McKenzie, C., Couturier, C. (2017) Reproductive biology of an invasive population of European green crab, *Carcinus maenas*, in Placentia Bay, Newfoundland. *Management of Biological Invasions* **8,** 247-255. https://doi.org/10.3391/mbi.2017.8.2.12
3. Chen, C., Mao, Z., Han, G., Li, T., Wang, Z., Tao, B., Wang, T., Gong, F. (2017) Optimal PAR intensity for spring bloom in the Northwest Pacific marginal seas. *Ecological Indicators* **72,** 428-435. http://dx.doi.org/10.1016/j.ecolind.2016.08.044
4. Chen, C., Mao, Z., Tang, F., Han, G., Jiang, Y. (2017) Declining riverine sediment input impact on spring phytoplankton bloom off the Yangtze River Estuary from 17-year satellite observation. *Continental Shelf Research* **135,** 86-91. http://dx.doi.org/10.1016/j.csr.2017.01.012
5. Cormier, R., Kelble, C.R., Anderson, M.R., Allen, J.I., Grehan, A., Gregersen, Ó., Link, J. (2017) Moving from ecosystem-based policy objectives to operational implementation of ecosystem-based management measures. *ICES Journal of Marine Science* **74,** 406-413. https://doi.org/10.1093/icesjms/fsw181
6. Cyr, F., Tedetti, M., Besson, F., Beguery, L., Doglioli, A.M., Petrenko, A.A., Goutx, M. (2017) A New Glider-Compatible Optical Sensor for Dissolved Organic Matter Measurements: Test Case from the NW Mediterranean Sea. *Frontiers in Marine Science* **4**. https://doi.org/10.3389/fmars.2017.00089
7. Dalley, K.L., Gregory, R.S., Morris, C.J., Cote, D. (2017) Seabed Habitat Determines Fish and Macroinvertebrate Community Associations in a Subarctic Marine Coastal Nursery. *Transactions of the American Fisheries Society* **146,** 1115-1125. https://doi.org/10.1080/00028487.2017.1347105
8. Dempsey, D.P., Koen-Alonso, M., Gentleman, W.C., Pepin, P. (2017) Compilation and discussion of driver, pressure, and state indicators for the Grand Bank ecosystem, Northwest Atlantic. *Ecological Indicators* **75,** 331-339. http://dx.doi.org/10.1016/j.ecolind.2016.12.011
9. Dempson, B., Schwarz, C.J., Bradbury, I.R., Robertson, M.J., Veinott, G., Poole, R., Colbourne, E. (2017) Influence of climate and abundance on migration timing of adult Atlantic salmon (*Salmo salar*) among rivers in Newfoundland and Labrador. *Ecology of Freshwater Fish* **26,** 247-259. https://doi.org/10.1111/eff.12271
10. DePiper, G.S., Gaichas, S.K., Lucey, S.M., Pinto da Silva, P., Anderson, M.R., Breeze, H., Bundy, A., Clay, P.M., Fay, G., Gamble, R.J., Gregory, R.S., Fratantoni, P.S., Johnson, C.L., Koen-Alonso, M., Kleisner, K.M., Olson, J., Perretti, C.T., Pepin, P., Phelan, F., Saba, V.S., Smith, L.A., Tam, J.C., Templeman, N.D., Wildermuth, R.P., Schmidt, J. (2017) Operationalizing integrated ecosystem assessments within a multidisciplinary team: lessons learned from a worked example. *ICES Journal of Marine Science* **74,** 2076-2086. https://doi.org/10.1093/icesjms/fsx038

11. Dias, J., McKenzie, C., Wells, F., Pederson, J., Carlton, J., Campbell, M. (2017) Keeping up with marine bioinvasions: Building bridges, crossing borders and moving forward at the International Conference on Marine Bioinvasions. *Management of Biological Invasions* **8,** 137-140. https://doi.org/10.3391/mbi.2017.8.2.01

12. Dixon, H.J., Dempson, J.B., Sheehan, T.F., Renkawitz, M.D., Power, M. (2017) Assessing the diet of North American Atlantic salmon (Salmo salar L.) off the West Greenland coast using gut content and stable isotope analyses. *Fisheries Oceanography* **26,** 555-568. https://doi.org/10.1111/fog.12216

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16. Gomez, C., Lawson, J., Kouwenberg, A.L., Moors-Murphy, H., Buren, A., Fuentes-Yaco, C., Marotte, E., Wiersma, Y.F., Wimmer, T. (2017) Predicted distribution of whales at risk: identifying priority areas to enhance cetacean monitoring in the Northwest Atlantic Ocean. *Endangered Species Research* **32,** 437-458. https://doi.org/10.3354/esr00823

17. Guan, L., Dower, J.F., McKinnell, S.M., Pepin, P., Pakhomov, E.A., Hunt, B.P.V. (2017) Interannual variability in the abundance and composition of spring larval fish assemblages in the Strait of Georgia (British Columbia, Canada) from 2007 to 2010. *Fisheries Oceanography* **26,** 638-654. https://doi.org/10.1111/fog.12223

18. Hamoutene, D., Perez-Casanova, J., Burt, K., Lush, L., Caines, J., Collier, C., Hinks, R. (2017) Early life traits of farm and wild Atlantic salmon *Salmo salar* and first generation hybrids in the south coast of Newfoundland. *Journal of Fish Biology* **90,** 2271-2288. https://doi.org/10.1111/jfb.13304

19. Han, G., Ma, Z., Chen, N., Chen, N., Yang, J., Chen, D. (2017) Hurricane Isaac storm surges off Florida observed by Jason-1 and Jason-2 satellite altimeters. *Remote Sensing of Environment* **198,** 244-253. http://dx.doi.org/10.1016/j.rse.2017.06.005

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21. Jeffery, N.W., DiBacco, C., Wringe, B.F., Stanley, R.R.E., Hamilton, L.C., Ravindran, P.N., Bradbury, I.R. (2017) Genomic evidence of hybridization between two independent invasions of European green crab (*Carcinus maenas*) in the Northwest Atlantic. *Heredity* **119,** 154-165. https://doi.org/10.1038/hdy.2017.22

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APPENDIX 2. LIST OF INDETERMINATE AND TERM SCIENCE STAFF 2017-2018

Name	Position	Section	Division
Adamack, Aaron	SE-RES	Pelagics	Aquatic Resources
Anderson, M. Robin	SE-RES	Ecological Sciences	Environmental Sciences
Bailey, Wade	EG	Oceanography	Environmental Sciences
Baker, Krista	BI	Shellfish	Aquatic Resources
Banoub, Joseph H	SE-RES	Special Projects	Director's Office
Banoub, Judith E	EG	Ecological Sciences	Environmental Sciences
Barry, Carol	DA-CON	Data Management	Business Services
Blades, Lindsay	EG	Groundfish	Aquatic Resources
Bloom, Marc	EG	Salmonids	Aquatic Resources
Boucher, Megan	EG	Pelagics	Aquatic Resources
Bourne, Christina	BI	Pelagics	Aquatic Resources
Bradbury, Ian	SE-RES	Salmonids	Aquatic Resources
Brattey, John	SE-RES	Groundfish	Aquatic Resources
Buren, Alejandro	SE-RES	Marine Mammals	Aquatic Resources
Butler, Wilson	GL-WOW	Salmonids	Aquatic Resources
Caines, Don	EG	Salmonids	Aquatic Resources
Carroll, Marlene	AS	Director's Office	Director's Office
Chafe, Robert	EG	Groundfish	Aquatic Resources
Chen, Nancy	EG	Oceanography	Environmental Sciences
Clarke, Garnet T.	EG	Salmonids	Aquatic Resources
Clarke, Keith D.	BI	Ecological Sciences	Environmental Sciences
Cochrane, Neila M	EG	Salmonids	Aquatic Resources
Coffey, William	EG	Shellfish	Aquatic Resources
Colbourne, Eugene B.	PC	Oceanography	Environmental Sciences
Collins, Roanne	BI	Marine Fish Species at Risk	Aquatic Resources
Cook, Wanda	AS	Business Services	Business Services
Cossitt, T. Augustine	EG	Groundfish	Aquatic Resources
Cote, David	SE-RES	Ecological Sciences	Environmental Sciences
Coughlan, Elizabeth	BI	Shellfish	Aquatic Resources
Craig, Joseph	PC	Oceanography	Environmental Sciences
Croft, Jason	EG	Fisheries Sampling	Aquatic Resources
Cross, Shannon	EG	Aquaculture	Aquatic Resources
Cuff, Andrew	PC	Ecological Sciences	Environmental Sciences
Cuff, Lizabeth	EG	Hydrographic Projects	Hydrography
Cyr, Frederic	PC	Oceanography	Environmental Sciences
Dalley, Kate	BI	Ecological Sciences	Environmental Sciences
Davidson, Fraser	SE-RES	Oceanography	Environmental Sciences

Name	Position	Section	Division
Davis, Ben	SE-REM	Div Mgr Aquatic Resources	Aquatic Resources
Dawson, Frank	EG	Pelagics	Aquatic Resources
DeGruchy, Wayne	EG	Groundfish	Aquatic Resources
Dempson, J. Brian	SE-RES	Salmonids	Aquatic Resources
Donnet, Sebastien	PC	Aquaculture	Aquatic Resources
Doody, Chelsea	EG	Hydrography	CHS
Doyle, Gina	EG	Oceanography	Environmental Sciences
Drover, Dwight	EG	Aquaculture	Aquatic Resources
Duffy, Steven	EG	Salmonids	Aquatic Resources
Duggan, Charmaine	AS	Administrative Coordinator	Business Services
Dwyer, Karen	BI	Groundfish	Aquatic Resources
Edison, Wayne C.	EG	Groundfish	Aquatic Resources
Evans, Geoff	SE-RES	Shellfish	Aquatic Resources
Favaro, Corinna	PC	Ecological Sciences	Environmental Sciences
Fiander, Darlene	EG	Shellfish	Aquatic Resources
Foley, Jessica	EG	Marine Mammals	Aquatic Resources
Forward, Robert	EL	Pelagics	Aquatic Resources
Fraser, Sandra	EG	Oceanography	Environmental Sciences
Fudge, D. Lloyd	EG	Salmonids	Aquatic Resources
Gilkinson, Kent	SE-RES	Ecological Sciences	Environmental Sciences
Goulet, Pierre	BI	Marine Mammals	Aquatic Resources
Grant, Carole	BI	Salmonids	Aquatic Resources
Greene, Brian Joseph	EG	Groundfish	Aquatic Resources
Gregory, Robert	SE-RES	Ecological Sciences	Environmental Sciences
Hamoutene, Dounia	SE-RES	Aquaculture	Aquatic Resources
Han, Guoqi	SE-RES	Oceanography	Environmental Sciences
Hanlon, Jacqueline	BI	Ecological Sciences	Environmental Sciences
Harding, Karen	AS	Business Services	Business Services
Hart, Denise	AS	Div Mgr Environmental Sciences	Environmental Sciences
Hawkins, Paula	EG	Ecological Sciences	Environmental Sciences
Hayes, J.C. Luke	EG	Fisheries Sampling	Aquatic Resources
Healey, Brian	BI	Groundfish	Aquatic Resources
Higdon, Jennifer	EG	Oceanography	Environmental Sciences
Higdon, Paul	EG	Fisheries Sampling	Aquatic Resources
Holden (Wells), Jennifer	PC	Oceanography	Environmental Sciences
Holloway, Chris	EG	Marine Fish Species at Risk	Aquatic Resources
Holloway, Denise	EG	Ecological Sciences	Environmental Sciences

Name	Position	Section	Division
Hynick, Elaine	EG	Shellfish	Aquatic Resources
Ings, Danny	BI	Groundfish	Aquatic Resources
Inkpen, Todd T.	EG	Fisheries Sampling	Aquatic Resources
Jamieson, Robyn	BI	CSA Office	Environmental Sciences
Kelland, Sueann	CR	Fisheries Sampling	Aquatic Resources
Kelly, Craig	EG	Ecological Sciences	Environmental Sciences
Kelly, Nick	BI	Salmonids	Aquatic Resources
Kenny, Sharon	EG	Aquaculture	Aquatic Resources
Koen Alonso, Mariano	SE-RES	Ecological Sciences	Environmental Sciences
Lavers, Jerry G.	EG	Fisheries Sampling	Aquatic Resources
Lawson, Jack	SE-RES	Marine Mammals	Aquatic Resources
Leamon, Heidi	CR	Div Mgr Aquatic Resources	Aquatic Resources
Lee, Eugene	BI	Groundfish	Aquatic Resources
Lewis, Sara	BI	Oceanography	Environmental Sciences
Loughlin, Kristin	BI	Ecological Sciences	Environmental Sciences
Lundrigan, Paula	EG	Pelagics	Aquatic Resources
Lush, Lynn	BI	Aquaculture	Aquatic Resources
Ma, Zhimin	PC	Oceanography	Environmental Sciences
Mabrouk, Gehan	BI	Aquaculture	Aquatic Resources
Maddigan, Trevor	EG	Marine Fish Species at Risk	Aquatic Resources
Maddock-Parsons, Dawn M	BI	Fisheries Sampling	Aquatic Resources
Maillet, Gary	BI	Oceanography	Environmental Sciences
Malone, Kent	PC	Hydrography	Hydrography
Manning, Joseph	EN-SUR	Div Mgr Hydrography	Hydrography
Mansour, Atef	SE-REM	Div Mgr Environmental Sciences	Environmental Sciences
Marshall (Burt), Kimberly	EG	Aquaculture	Aquatic Resources
Matheson, Kyle	EG	Ecological Sciences	Environmental Sciences
McCallum, Barry R.	EX	Regional Director Science	Director's Office
McKenzie, Cynthia	SE-RES	Ecological Sciences	Environmental Sciences
Meade, James	BI	CSA Office	Environmental Sciences
Mercer, Jennifer	EG	Ecological Sciences	Environmental Sciences
Miri, Carolyn M.	BI	Marine Fish Species at Risk	Aquatic Resources
Molloy, Bonny	CR	Business Services	Business Services
Molloy, Brittany	EG	Hydrographic Projects	Hydrography
Molloy, Greg	EG	Science Vessel Support	Director's Office

Name	Position	Section	Division
Morgan, M. Joanne	SE-RES	Groundfish	Aquatic Resources
Morris, Corey	SE-RES	Ecological Sciences	Environmental Sciences
Morris, Sean	EG	Hydrographic Projects	Hydrography
Morris, Vicki L	EG	Salmonids	Aquatic Resources
Mowbray, Fran K.	BI	Pelagics	Aquatic Resources
Mullowney, Darrell	BI	Shellfish	Aquatic Resources
Murphy, Hannah	SE-RES	Pelagics	Aquatic Resources
Murphy, Jennifer	AS	Div Mgr Aquatic Resources	Aquatic Resources
Murray, Harry	SE-RES	Aquaculture	Aquatic Resources
Newton, Brianna	EG	Ecological Sciences	Environmental Sciences
Noseworthy, Brenda A	CR	Fisheries Sampling	Aquatic Resources
Ollerhead, Neil	PC	Ecological Sciences	Environmental Sciences
Osborne, David	BI	Shellfish	Aquatic Resources
O'Toole, Maggie	EG	Hydrography	Hydrography
Paddle, Todd	EG	Fisheries Sampling	Aquatic Resources
Pantin, Julia	BI	Shellfish	Aquatic Resources
Parkhouse, Shelley	EG	Hydrographic Projects	Hydrography
Parrill, Erika	BI	CSA Office	Director's Office
Parsley, Paulette M.	DA-CON	Data Management	Business Services
Parsons, Glenn	PG	Business Services	Business Services
Payne, Jerry F.	SE-RES	Ecological Sciences	Environmental Sciences
Pedersen, Eric	SE-RES	Shellfish	Aquatic Resources
Pennell, Curtis J.	EG	Ecological Sciences	Environmental Sciences
Pepin, Pierre	SE-RES	Oceanography	Environmental Sciences
Peters, Carol Ann	EG	Fisheries Sampling	Aquatic Resources
Pirie-Hay, Donald	EG	Salmonids	Aquatic Resources
Pittman, Dwayne	EG	Groundfish	Aquatic Resources
Poole, Rebecca	BI	Salmonids	Aquatic Resources
Porter, Dan	EG	Groundfish	Aquatic Resources
Porter, Geraldine	DA-CON	Salmonids	Aquatic Resources
Power, Don J.	BI	NAFO Sr Advisor	Director's office
Pye, Brittany	PC	Physical Scientist	Environmental Sciences
Quilty, Scott	EG	Shellfish	Aquatic Resources
Ratsimandresy, Andry	SE-RES	Aquaculture	Aquatic Resources
Regular, Paul	SE-RES	Groundfish	Aquatic Resources
Richards, E. Dale	BI	CSA Office	Director's Office
Rideout, Rick	SE-RES	Groundfish	Aquatic Resources
Robar, Ashley	EG	Oceanography	Environmental Sciences
Robertson, Martha	SE-RES	Salmonids	Aquatic Resources

Name	Position	Section	Division
Ruttgaizer, Greg D	EG	Fisheries Sampling	Aquatic Resources
Ryder, Jeffrey E.	EG	Business Services	Business Services
Salvo, Flora	Post-Doctoral Fellow	Aquaculture	Aquatic Resources
Samson, Maitland	EG	Salmonids	Aquatic Resources
Sargent, Phil	EG	Ecological Sciences	Environmental Sciences
Senciall, David R	PC	Oceanography	Environmental Sciences
Shelton, Peter A.	SE-RES	Div Mgr Aquatic Resources	Aquatic Resources
Sheppard, George V.	EG	Science Vessel Support	Director's Office
Sheppard, Lee	EG	Marine Mammals	Aquatic Resources
Silveira Mello, Luiz	BI	Marine Fish Species at Risk	Aquatic Resources
Simpson, Mark	BI	Marine Fish Species at Risk	Aquatic Resources
Sinnott, David	EG	Hydrographic Projects	Hydrography
Skanes, Katherine	BI	Shellfish	Aquatic Resources
Slaney, Barry	EG	Pelagics	Aquatic Resources
Smickersgill, Allan	EG	Hydrographic Projects	Hydrography
Smith, Gary N	EG	Sailing Directions	Hydrography
Snook, Stephen	PC	Oceanography	Environmental Sciences
Snooks, Marty	EG	Groundfish	Aquatic Resources
Soontiens, Nancy	SE-RES	Oceanography	Environmental Sciences
Squires, Brad E.	EG	Pelagics	Aquatic Resources
Stansbury, Donald	BI	Shellfish	Aquatic Resources
Stenson, Garry B.	SE-RES	Marine Mammals	Aquatic Resources
Stockwood, Bonnie	EG	Marine Mammals	Aquatic Resources
Storch, Ana (Arnannguaq)	EG	Marine Fish Species at Risk	Aquatic Resources
Street, David E	EN-SUR	Hydrographic Projects	Hydrography
Sullivan, Darrin J.	EG	Shellfish	Aquatic Resources
Sutton-Pande, Vanessa	BI	Oceanography	Environmental Sciences
Templeman, Nadine	EG	Aquaculture	Environmental Sciences
Thomson, Jaime	EG	Groundfish	Aquatic Resources
Thornhill, David	EG	Hydrographic Projects	Hydrography
Thurston, Danielle	AS	Div Mgr Environmental Sciences	Environmental Sciences
Tipple, Keith	EG	Shellfish	Aquatic Resources
Tucker, Krista	PC	Ecological Sciences	Environmental Sciences
Upward, Peter	EG	Groundfish	Aquatic Resources
Varkey, Divya	SE-RES	Groundfish	Aquatic Resources

Name	Position	Section	Division
Vaters, Bradley	EG	Marine Fish Species at Risk	Aquatic Resources
Veinott, Geoff I.	SE-RES	Salmonids	Aquatic Resources
Walsh, Art D.	EG	Salmonids	Aquatic Resources
Wareham, Vonda	BI	Ecological Sciences	Environmental Sciences
Warren, Margaret	BI	Ecological Sciences	Environmental Sciences
Wells, Nadine	BI	Ecological Sciences	Environmental Sciences
Wells, Terri	EG	Ecological Sciences	Environmental Sciences
Whalen, Robert R.	EG	Ecological Sciences	Environmental Sciences
Wheeland, Laura	BI	Groundfish	Aquatic Resources
Xu, Jinshan	PC	Pelagics	Aquatic Resources