

Program

19 June, Sunday

1800 Icebreaker, *Institute of Marine Research, Nordnesgaten 50*

20 June, Monday

0900 Opening by the Director of IMR Nils Gunnar Kvamstø

Theme Session 1: Ocean climate and physical environment in the North Atlantic and their linkages to changing marine ecosystem

Chairs: Agnieszka Beszczynska-Möller and Kjell Arne Mork

0915 **Keynote:** *Larsen, Karin Margretha H:* North Atlantic Ocean climate in the recent decade

1000 *Galbraith, Peter S.* Gulf of St. Lawrence, Canada, undergoing warming conditions in the last decade

1015 *Dale, Alizée, Wallace, D. W. R., Gehlen, M.:* Contribution of physical nutrient supply to interannual nutrient variability in the Labrador Sea

1030 *Lavin, Alicia, Rodríguez, C., Villoria, A., Tel, E., Gonzalez-Pola, C., Somavilla, R.:* Data archaeology enlarge the Santander Standard Section.

1045 **Coffee/Tea**

1115 *Fontán, Almudena, Chifflet, M., Chust, G., Borja, Á., Esnaola, G., Ferrer, L., Franco, J., Larreta, J., Lejonaogitia, L., Revilla, M., Germán Rodríguez, J., Sáenz, J., Sagarmina, Y., Cotano, U., Boyra G., Santos, M., Álvarez, P., Muxika, I., Valencia, V.:* Variability in main physical processes controlling nutrient fluxes and its potential impact on phytoplankton biomass during the 2010-2019 decade: southeastern Bay of Biscay (Northeast Atlantic)

1130 *González-Pola, César, Somavilla, R., Ibañez, L., Graña, R., Vilorio, A., Álvarez, M., Rodríguez, C., Lavín, A.:* Recovery of conventional behavior of the eastern north Atlantic intergyre region in the 2010s after a transient flow reversal

1145 *Cyr, F., Galbraith, P. S., Bélanger, D.:* Seven decades of climate variability on the Newfoundland and Labrador shelf

1200 *Daly, Eoghan, Nolan, G., Berry, A., Büscher, J. V., Cave, R., Caesar, L., Cronin, M., Fennell, S., Lyons, K., McAleer, A., McCarthy, G., McGovern, E., McGrath, T., Uisce, A. F., O'Donnell, G., Thomas, R., Vaughan, M. L., White, M., Cusack, C.:* Decadal to seasonal scale water column variability in the Rockall Trough from model-enhanced transect timeseries

1215 *Hansen, Bogi, Erenbjerg, S. V., Eliassen, S.K., Larsen, K. M. H., Hátún, H.:* Competing effects of tidal mixing and air-sea heat flux on the primary production of the Faroe Shelf

1230 **Lunch**

1330 *Jónsson, Steingrímur, Ólafsdóttir, S. R., Macrander, A.:* Decadal variability in the ocean around Iceland in an era of anthropogenic climate change

1345 *Smedsrud, Lars H., Brakstad, A., Madonna, E., Muilwijk, M., Lauvset, S. K., Spensberger, C. Born, A., Eldevik, T., Drange, H., Jeansson, E., Li, C., Olsen, A., Skagseth, Ø., Slater, D. A., Straneo, F., Våge, K., Årthun, M.:* Nordic Seas Heat Loss, Atlantic Inflow, and Arctic Sea Ice cover over the last century

- 1400** *Gjelstrup, Caroline V. B., Sejr, M. K., de Steur, L., Christiansen, J. S., Granskog M. A., Koch, B., Møller E. F., Winding, M. H. S., Stedmon C. A.*: Warm meets fresh: Thinning of Polar water layer and shoaling of Atlantic water on the Northeast Greenland shelf
- 1415** *Skagseth, Øystein, Broms, C., Gundersen, K., Hátún, H., Kristiansen, I., Kjell Arne Mork, K. A., Petursdottir, H., Søiland, H.*: Variability in Atlantic and Arctic waters in the Norwegian Basin and ecosystem implication
- 1430** *Ingvaldsen, Randi Brunvær, Assmann, K. M., Primicerio, R., Fossheim, M., Polyakov, I. V.*: Physical manifestations and ecological implications of Arctic Atlantification
- 1445** *Jones, Elizabeth, Chierici, M., Lødemel, H. H., Mourgues, C.*: Ocean acidification variability in the Atlantic and Arctic influenced Norwegian waters
- 1500** *Gimenez, Jose Luis, Boersma, M., Wiltshire, K. H.*: Marine Heatwaves: The new normal? A multiple baseline approach
- 1515** **Coffee/Tea**
- 1545** *Hátún, Hjálmar, da Silva, T., Skagseth, Ø., Grønkjær, P.*: Physical Drivers of Biogeographical Shifts in the Northeastern Atlantic – and Adjacent Shelves
- 1600** *Wiltshire, Karen Helen, Amorim, F., Lemke, P., Rick, J., Gimenez, L., Boersma, M., Guignard M., Kirstein, I. V.*: Ecologically relevant scales of temperature in the North Sea
- 1615** *Trifonova, NedaIvova, Scott, B., De Dominicis, M., Waggitt, J., Wolf, J.*: Indicators for whole ecosystem responses to separate climate from anthropogenic change in coastal seas

Theme Session 2: Decadal change and trends in North Atlantic/sub-Arctic plankton and their ecosystems

Chairs: Luis Valdés, Todd O'Brien

- 1630** **Keynote:** *Bode, Antonio*: Plankton in the new millennium: synchronic multidecadal trends and regime shifts
- 1715** *O'Brien, ToddD., Members of the ICES Working Group on Zooplankton Ecology (WGZE), members of the ICES Working Group on Phytoplankton and Microbial Ecology (WGPME)*: Changes and trends in North Atlantic plankton: A time-series-based overview from the ICES zooplankton and phytoplankton ecology working groups
- 1730** *Browman, Howard*: ICES publication special issue
- 1745** **Break**

1800 – 2000 Poster Session A

21 June, Tuesday

- 0830** *Guignard, Maité S., Maarten Boersma, M., Wiltshire, K. H.*: Shifting ecological niches of phytoplankton and zooplankton under environmental change
- 0845** *Balkoni, Areti, Wiltshire, K. H.*: What drives phytoplankton bloom dynamics at Helgoland Roads?
- 0900** *Clarke, Dave, Bresnan, E., Andersen, P., Anderson, D., Andree, K., Campás, M., Cembella, A., Davidson, K., De Rijke, M., Eikrem, W., Fernández, L., Fernández-Tejedor, M., Garces, E., Goncalves, A., Jacobsen, S., Karlson, B., Kobos, J., Kremp, A., Kulis, D., Lemoine, M. Lewis, A., Marnan, L., Mazur-Marzec, H., McKenzie, C., McKinney, A., Miller, P., Naustvoll, L. J., Pazos, Y., Poelman, M., Provoost, P., Siano, R., Sildever, S., Silva, A., Suikkanen, S., Swann, S., Vaiciute, D., Vila, M., Enevoldsen, H.*: Regional changes in harmful algal events in the North Atlantic area from 2010 – 2019

- 0915** *Leitao, Emma, Brennan, C. E., Gentleman, W. C., Maps, F., Johnson, C. L.*: Environmental variability shapes copepod life history: What we learn from optimizing a *C. finmarchicus* population model in the northwest Atlantic
- 0930** *Kristiansen, Inga, Hátún, H., Eliassen, S. K., Jacobsen, J. A., Eilif Gaard, F., Petursdóttir, H.*: Spatial variability of the feeding conditions for the Norwegian spring spawning herring in May
- 0945** *Broms, Cecilie, Børsheim, K. Y., Skagseth, Ø., Utne, K. R., Surma, S., Skogen, M. D., Lam, M. E., Pétursdóttir, H., Melle, W., Kristiansen, I., Gundersen, K., Pitcher, T. J., Libungan, L. A., Fiksen, Ø., Ólafsdóttir, A.*: Effects of bottom-up and top-down processes on lower trophic levels in the Norwegian and adjacent seas during the last decade
- 1000** *Karlson, Bengt, Johansen, M., Karlberg, M., Skjevik, A. T.*: Long term changes in the diversity and biogeography of phytoplankton communities in the Skagerrak-Kattegat, NE Atlantic
- 1015** **Coffee/Tea**
- 1045** *Szeligowska, Marlena, Trudnowska, E., Boehnke, R., Błachowiak-Samołyk, K.*: Inter-annual variability in particles and zooplankton in the warming Arctic fjord (Isfjorden, West Spitsbergen)
- 1100** *Holland, Matthew M., McQuatters-Gollop, A.*: Decadal variability in the response of plankton lifeforms and taxa to environmental drivers
- 1115** *da Silva, Edson F. F., Counillon, F., Brajard, J., Korosov, A., Pettersson, L., Samuelsen, A., Keenlyside, N.*: Twenty-one years of phytoplankton bloom phenology in the Barents, Norwegian and North seas
- 1130** *Skjoldal, Hein Rune*: Size-fractionated zooplankton biomass in the Barents Sea ecosystem: changes during four decades of warming and four capelin collapses (1980-2020)
- 1145** *Vad, Johanne, Puerta P., Head E., Kenchington T., Kenchington E.*: Temporal trends in zooplankton community composition and life stage abundances on the Scotian Slope during 1999-2019
- 1200** *Deschamps, Margot, Boersma M., Meunier C., Di Pane J.*: Evidence of major shift in the copepod functional community of the southern North Sea in the late 80s: environmental factors and potential repercussions on the food web
- 1215** *Di Pane, Julien, Wiltshire, K. H., McLean, M. J., Boersma, M., Meunier, C. L.*: Environmentally induced functional shift in phytoplankton communities and its consequences for ecosystem functioning
- 1230** *Marques, Raquel, Otto, S. A., Di Pane, J., Boersma, M., Kröncke, I., Meunier, C., Möllmann, C., Neumann, H., Wiltshire, K. H., Renz, J.*: Long-term shifts in taxonomic and functional biodiversity of the meso-/macrozooplankton community in the Southern North Sea, mediated by environmental and anthropogenic changes

1245 **Lunch**

Theme Session 4: Expanding horizons: assessing decadal changes and incorporating Social-Ecological Systems in the North Atlantic

Chairs: Caroline Cusack and Silvana Birchenough

- 1345** **Keynote:** *Charles, Anthony*: Understanding and incorporating human dimensions of marine social-ecological systems
- 1430** *Townhill, Bryony L., Reppas-Chrysovitsinos, E., Sühring, R., J. Halsall, C. J., Mengo, E., Sanders, T., Dähnke, K., Crabeck, O., Kaiser J., Birchenough, S. N. R.*: Pollution in the Arctic Ocean: An overview of multiple pressures and implications for ecosystem services

- 1445** *Beckensteiner, Jennifer, Charles A., Villasante, S., Le Grand, C., Thébaud, O.*: Resilience for whom and according to what criteria? An examination of adaptation to changes in the Bay of Biscay anchovy fishery
- 1500** *Liu, Xiaozhi, Costello, C., Heino, M., Ojea, E.*: Shifting stocks and the consequences of non-adaptive transboundary fisheries agreements
- 1515** **Coffee/Tea + Poster session B**
- 1615** *Quillet, Etienne, Plante, S., Pigeon, L. E.*: Influence of the social representations on actors' adaptation strategies of the redfish (*Sebastes* spp.) fishery in the face of social ecological changes in the Gulf of St. Lawrence (Canada)
- 1630** *Lam, Mimi E, Perryman, H. P., Surma, S., Pitcher, T. J.*: Inserting Values in Ecosystem-based Fisheries Management
- 1645** *Buttay, Lucie, Solvang, H., Planque, B.*: Combining social and ecological time series to describe long-term dynamics of the Norwegian Sea ecoregion.
- 1705** **Early career networking activities**
- 1900** **Symposium Dinner at the Aquarium of Bergen, Nordnesbakken 4**

22 June, Wednesday

Theme Session 3: Trends and drivers of decadal variability in fish and invertebrates

Chairs: Kathy Mills, Sigrid Lehuta and Tara Marshall

- 0830** **Keynote:** *Hollowed, Anne B*: Scientific advancements in the study of the impacts of climate change and decadal variability on marine ecosystems and options for future management of living marine resources
- 0915** *Planque, Benjamin, Favreau, A., Husson, B., Mousing, E. A., Hansen, C., Broms, C., Lindström, U., Sivel, E.*: Reconstructing trophic interactions in the Norwegian Sea pelagic food-web over multiple decades.
- 0930** *Merillet, Laurene, Skogen, M. D., Vikebø, F., Jørgensen, L. L.*: Fish communities of subarctic fjords show early signals facing climate change compared to benthic communities: the example of the Porsangerfjord, Norway.
- 0945** *Silvar-Viladomiu Minto, C., Lordan, C., Brophy, D., Bell, R., Collie, J., David G. Reid, D. G.*: Stochastic modelling of fish recruitment productivity in the Celtic Seas Ecoregion
- 1000** *Mills, Kathy E., Kerr, L. A., Nye, J. A.*: Emergence of climate change effects on Northeast U.S. fish populations and communities
- 1015** *Le Bris, Arnault*: Decadal variability in the American lobster fishery across the Northwest Atlantic
- 1030** **Coffee/Tea**
- 1100** *Jónsdóttir Ingibjörg G., Björnsson, B., Ragnarsson, S. A., Elvarsson, B. P., Sólmundsson, J.*: Distribution and condition of haddock following population expansion
- 1115** *Vad, Johanne, Puerta P., Kenchington T., Head E., Kenchington E.*: Temporal trends in demersal fish and invertebrate abundances on the Scotian Slope during 1999-2019
- 1130** *Polo, Julia, Pecuchet, L., Hidalgo, M., Primicerio, R., Sainz-Bariain, M., Punzón, A., López-López, L.*: Disentangling the effects of fishing and climate in benthic-demersal communities by assessing their vulnerability

- 1145** *Ottersen, Geir Holt, R. H.*: Barents Sea cod recruitment less affected by temperature variability when spawning stock includes old, large fish
- 1200** *Vollset, Knut Wiik, Urdal, K., Kjell Utne, K., Thorstad, E. B., Sægvog, H., Raunsgard, A., Skagseth, Ø., Lennox, R. J., Østborg, G. M., Ugedal, O., Jensen, A. J., Bolstad, G. H., Fiske, P.*: Evidence of an ecological regime shift in the North-east Atlantic revealed from the unprecedented reduction in marine growth of Atlantic salmon
- 1215** *Ólafsdóttir, Anna H., Guðnason, K., da Silva, T., Pétursdóttir, H., Ólafsdóttir, S.*: Location of the arctic front east of Iceland during summer impacts mackerel migration into Icelandic waters.
- 1230** **Lunch**
- 1330** *Frank, Kenneth T, Petrie, B., Leggett, W. C.*: Temporal evolution of critical traits, trophic interactions and their relationship to cod stock collapse and recovery
- 1345** *dos Santos Schmidt, Thassya C., Slotte, A., Ólafsdóttir, A. H., Nøttestad, L., Jansen, T., Jacobsen, J. A., Homrum, E. Í., Eliassen, S. K., Smith, L., Bjarnason, S., Lusseau, S. M., Ono, K., Hølleland, S., Thorsen, A., Kjesbu, O. S.*: Atlantic mackerel (*Scomber scombrus*) migrates farther north to spawn under the current warm climate scenario
- 1400** *Utne, Kjell Rong, Skagseth, Ø., Thorstad, E., Wennevik, V.*: Northeast-Atlantic salmon post-smolt – geographic variation in marine feeding and the effect a changing ecosystem
- 1415** *Peñas-Torramilans, Raquel, Castelle, B., Outeiral, R., Santiago, T., Seoane, P., Vázquez, E., Weidberg, N.*: Study of wave trends along the Galician coast and evaluation of their potential impact on the quality of the stalked barnacle, *Pollicipes pollicipes*
- 1430** *Henriksen, Ole, Rindorf, A., Mosegaard, H., Payne, M. R., van Deurs, M.*: Get up early: Revealing behavioural responses of sandeel to ocean warming using commercial catch data
- 1445** **Summary of sessions and closing remarks**
- 1515** **Adjourn**

Posters

Theme Session 1: Ocean climate and physical environment in the North Atlantic and their linkages to changing marine ecosystem

1. Ólafsdóttir, A., Arneberg, P., Planque, B., Anker-Nilsen, T., Bjarnason, S., Broms, C., Børsheim, K. Y., Eliassen, S., Frie, A. K., Hallfredsson, E., Hansen, C., Homrum, E. Í., Høines, Å., Libungan, L., Liu, X., Lorentsen, S. H., van der Meeren, G., Mell: A summary of ecosystem status and trends for the Norwegian Sea
2. Sandøy, A. B., Mousing, E. A., Budgell, W. P., Hjøllo, S. S., Skogen, M. D., Ådlandsvik, B.: Barents Sea plankton production and controlling factors in a fluctuating climate
3. Sammartino, S., García-Lafuente, J., Nadal-Arizo, I., Sánchez-Leal, R.: How biomass diel migration affects the reliability of currents measurements in the Strait of Gibraltar?
4. García-Lafuente, J., Sammartino, S., Sánchez-Leal, R., Nadal-Arizo, I., Naranjo, C.: Increased warming trend of the Mediterranean outflow into the North Atlantic Ocean
5. Sánchez-Leal, R., Bellanco, M. J., González-Pola, C., Sammartino, S., García-Lafuente, J., Naranjo, C., Vargas-Yañez, M., Roque, D., Bruno, M.: Thermohaline and transport variability in the Gulf of Cadiz in the 2010s
6. Cyr, F., Galbraith, P. S., Bélanger, D.: Seven decades of climate variability on the Newfoundland and Labrador shelf
7. Skjelvan, I., Lauvset, S., Johannessen, T., Gundersen, K., Skagseth, Ø.: Decadal trends in Ocean Acidification from the Ocean Weather Station M in the Norwegian Sea
8. Assmann, K. M., Husson, B., Ingvaldsen, R. B., Fossheim, M., Primicerio, P.: Asymmetric Atlantification in the Barents Sea and its effect on the ecosystem
9. Wakamatsu, T., Raj, R.: On the prolonged summer spring bloom period in the Norwegian Sea during 2010-2019.
10. Saes, M., Gjelstrup, C. V. B., Stedmon, C. A.: Separating annual, decadal and regional change in sea surface temperature in the Northeastern Atlantic and Nordic Seas
11. del la Barra, P., van Leeuwen, S., Bijleveld, A., Bom, R., Camphuysen, K., Dekinga, A., Dekker, R., Ens, B., Jan van Gils, J., Holthuijsen, S., ten Horn, J., van Leeuwen, A., van der Molen, J., Peck, M., Piersma, T., Philippart, K., van der Veer, H: Long-term shifts in main drivers of coastal food webs
12. Mork, K. A., Skagseth, Ø., Søiland, H.: Water mass properties and distribution in the Nordic Seas during the 2010s, and in relation to the changes during the last 50 years
13. Walczowski, W., Merchel, M., Wieczorek, P.: Ocean climate changes in the north-eastern Greenland Sea from synoptic and Lagrangian measurements
14. Büscher, J. V., McGrath, T., McAleer, A., Fennell, S., McGovern, E., Cusack, C., Rachel R. Cave, R. R.: Decadal trend and seasonal variability of the aragonite saturation in the Rockall Trough, Northeast Atlantic
15. Beszczynska-Möller, A., Walczowski, W., Grynczel, A.: Modifications of Atlantic inflow along the Fram Strait Branch to the Arctic Ocean from ship-borne and moored observations in the last two decades
16. Koul, V., Brune, S., Baehr, J., Schrum, C.: Decadal trends in the North Atlantic Subpolar Gyre and their impact on marine environment of the Barents Sea

Theme Session 2: Decadal change and trends in North Atlantic/sub-Arctic plankton and their ecosystems

17. *Gundersen, K., Lien, V. S.*: Declining silicate and nitrate concentrations in the Nordic Seas
18. *Gluchowska, G., Ormańczyk, M.R., Patula, W., Strzelewicz, A., Kwaśniewski, S.*: A boreal breeze in the functional structure of arctic zooplankton
19. *Jacobsen, S., Gaard, E., Hátún, H.*: Decline in pre-bloom *Calanus finmarchicus* egg production on the Faroe shelf since the 1990s
20. *Aarflot, J. M., Hjøllø, S. S., Strand, E., Skogen, M. D.*: Transportation and predation control structures the distribution of a key calanoid in the Nordic Seas
21. *Uriarte, I., Iriarte, A., Villate F., Barroeta, Z., Bidegain, G.*: Patterns of variations in the neritic copepod community of the Basque coast (Bay of Biscay) during the last two decades (1998-2020) in relation to climate teleconnection and local environmental variables
22. *Ndah. A. B., Kirstein, I. V., Meunier, C., Wiltshire, K. H., Boersma, M.*: Helgoland Roads – A stepwise approach to unravel potential zooplankton indicators
23. *González Cabrera, C., Romero P., Moya F., García-Martínez M.C., Baldo P., Llopes M., Vilas C., González-Ortegon E, Jiménez M.P., Sánchez-Leal R.*: The evolution of the zooplankton community in the Gulf of Cádiz, SW Iberian Peninsula
24. *Børsheim, K. Y., Skagseth, Ø., Mork, K. A.*: Primary production in the Norwegian Sea
25. *Petursdottir, H., Gislason, A., Silva, T.*: Zooplankton variability in the waters around Iceland
26. *van Bortel, L., van den Oever, A.*: Phytoplankton trends in the Noordwijk transect
27. *Kwasniewski, S., Gluchowska, M., Olszewska, A., Walczowski, W., Carstensen, J.*: Vertical distribution of zooplankton and climate variability – A decadal glimpse from the West Spitsbergen Current
28. *Dutz, J., Huwer, B., Dierking, J.*: Phenological variations of zooplankton in the central Baltic Sea during a decade of warming
29. *Chen, E. Y.S., Blachowiak-Samołyk, K., Trudnowska, E.*: Planktonic ostracods at the gateway to a changing Arctic: Decadal variability of abundance, biodiversity, and vertical distribution in Kongsfjorden
30. *Bélanger, D., Cyr, F.*: Seasonal and decadal variation in zooplankton community composition in coastal Newfoundland waters
31. *Falkenhaug, T., Johannessen, T.*: Decadal trends in gelatinous zooplankton along the Norwegian Skagerrak coast
32. *Hubert, Z., Epinoux, A., Gallot, C., Cornille, V., Louchart, A., Bonato, S., Crouvoisier, M., Bruaut, M., Lebourg, E., Delarbre, J., Dédécker, C., Caillault, E. P., Hébert, P. A., Wacquet, G., Artigas, L. F.*: Decennial phytoplankton dynamics in the Strait of Dover by applying an automated in vivo approach
33. *Vilas, C., Baldo F., Gonzalez-Ortegon E., van Bergeijk S., Cabrera S., Ramirez A., Cardenas P., Cañavate P.*: Decadal variability 2010-2021 of zooplankton community at the Guadalquivir estuary (Southern Spain)
34. *Clarke, D., Yamanaka, T., Cusack, C., Kelly, J.*: Review of changes in phytoplankton species occurrence, abundance and distribution in Irish Coastal Waters 2010-2019.
35. *Balazy, K., Trudnowska, E., Boehnke, R., Dąbrowska, A. M., Jakubas, D., Wojczulanis-Jakubas, K., Darecki, M., Szeligowska, M., Blachowiak-Samołyk, K.*: How does the dynamics of primary production affect the availability of food for seabirds in the fluctuating high-Arctic environment?

Theme Session 3: Trends and drivers of decadal variability in fish and invertebrates

36. *González-Ortegón, E., Cuesta, J. A., Baldó, F., Vilas, C.*: Trends in the species composition at the southernmost estuary of the Atlantic coast of Europe
37. *Ottersen, G., Holt, R. H.*: Barents Sea cod recruitment less affected by temperature variability when spawning stock includes old, large fish
38. *Vaughan, L., Minto, C., Reid, D., Cusack, C., Poole, R., Stokes, D., Lynam, C., Brophy, D.*: Impacts of climate change on commercial fish stocks in Irish waters
39. *Vilas, C., Simon, F.W., Baldo, F., Ramos, F., Gonzalez-Ortegon, E., Drake, P., Vasseur, D.*: Multidecadal (1997-2020) telecoupling of water management for terrestrial agriculture and a marine fishery at Southern Spain
40. *Eliassen, S. K., Eydna í Homrum, E. Í., Jacobsen, J. A., Kristiansen, I., Óskarsson, G. J., Are Salthaug, A., Erling Kåre Stenevik, E. K., I.*: Spatial distribution of different age groups of herring in Norwegian Sea, May 1996-2020
41. *Brown-Vuillemin, S., Chabot, D., Nozères, C. Tremblay, R., Robert, D. Sirois, P.*: Diet composition of redfish (*Sebastes* sp.) during periods of collapse and massive resurgence of the Gulf of St. Lawrence stock
42. *Surma, S., Skaret, G., Pitcher, T. J., Lam, M. E.*: Decadal trends in the Norwegian and Barents Sea ecosystem, 2010-2018
43. *Sowa, A. M., Balazy, P., Chelchowski, M., Kukliński, P.*: Settlement variability of Arctic cryptic benthic communities (between 2010 and 2020) as a result of natural environmental fluctuations
44. *Højgaard, D. P., Danielsen, J., Steingrund, P.*: Nest-site attendance of Northern Fulmar (*Fulmarus glacialis*) reflects marine ecosystem productivity based on monthly counts over a 26 year period
45. *Steingrund, P., Matras, U., Kristiansen, I., Broms, C. T., Pétursdóttir, H., Jansen, T.*: Long term dynamics of the Faroe Shelf ecosystem and potential effects of zooplankton advected from the Norwegian Sea
46. *Burns, C. M., Plourde, S., Lehoux, C., Pepin, P., Sirois, P., Robert, D.*: Drivers of the shifting recruitment dynamics of redfish (*Sebastes mentella*) in the Gulf of St. Lawrence, Canada
47. *Coussau, L., Robert, D., Sirois, P.*: Spatiotemporal variability in otolith elemental fingerprint and the potential to determine redfish (*Sebastes mentella*) origins in the Gulf of St. Lawrence, Canada
48. *Kajiya Endo, C. A., Skogen, M. D., Hjøllo, S. S., Stige, L. C., Vikebø, F. B.*: Effects of climate and demographic structure of spawners on growth and survival of offspring
49. *Tøsdal, T. G. H., Folkvord, A., Iversen, S. A., Skagseth, Ø., Nøttestad, L.*: Long-term spatial and temporal patterns in the Norwegian mackerel fishery from 1900 to 2020
50. *Gauthier, C., Robert, D., LeBris, A., Fisher, J. A. D., Sirois, P.*: Quantifying spatial dynamics and stock structure of Atlantic halibut within the Gulf of St. Lawrence to improve sustainable exploitation and management
51. *Nascimento, M. C., Husson, B., Guillet, L., Torstein Pedersen, T.*: Modeled species distributions and changes in water temperature and ice coverage in the Barents Sea in the last decade
52. *Stiansen, J. E., Sandø, A. B., Ohansen, G. O., Aglen, A., Renner, A.*: Climate change and new potential spawning sites for North East Arctic cod

Theme Session 4: Expanding horizons: assessing decadal changes and incorporating Social-Ecological Systems in the North Atlantic

53. *Gómez-Ballesteros, M., Cervera-Núñez, C., Campillos-Llanos, M., Quintela, A., Sousa, L., Márcia Marques, M., Lopes Alves, F., Virto C. M., Neil Alloncle, N., Sala, P., Capote, A. L., Simao, A. P., Costa, A., Carval, D., Bailly, D., Nys, C., Henry, S.*: Transboundary cooperation and mechanisms for Maritime Spatial Planning
54. *Gómez-Ballesteros, M., Cervera-Núñez, C., Campillos-Llanos, M., Algarra, S. A., Capote, A. L., Virto C. M.*: Maritime Spatial Planning transboundary pilot projects and their implication in the national process in Spain
55. *Verisimo, P., Fernández-Arcaya, U., Rodríguez-Basalo, A., Polo, J., Rodríguez, J., Ceballos, E., Ruiz, M., Sánchez, F., Punzón, A.*: Effects of “El Cachucho” MPA Implementation on fishing exploitation patterns
56. *Mikkelsen, N., Planque, B., Arneberg, P., Skern-Mauritzen, M., Hansen, C., Fauchald, P., Holsman, K. K., Haynie, A., Ottersen, G.*: Building conceptual models of marine socio-ecological systems with stakeholders

