

## CURRICULUM VITAE



### NAME

Corinna Schrum, Professor, Dr. rer. nat.

### DATE OF BIRTH, CITIZENSHIP, CHILDREN

June 27, 1962, German, 5 Children (1984, 1988, 1991, 2000, 2002)

### DEGREES

(i) Diploma in Oceanography, University of Hamburg, 1990. Thesis: 'Modellierung barokliner Instabilitäten an mesoskaligen Fronten.'

(ii) Dr. rer. nat., Department of Geosciences, University of Hamburg, 1994. Thesis: 'Numerische Modellierung von thermodynamischen Prozessen in der Deutschen Bucht.'

### RESEARCH CARRIER

#### *Research fields*

Functioning of regional marine systems, its interactions with other parts of the climate system on the regional scale and the functioning of regional marine ecosystems. Coastal and environmental modelling and model development. Research methods employed: High resolution 3-d coupled modelling of the climate sub-systems on a regional scale (ice-ocean, atmosphere-ice-ocean, ocean-marine biosphere, lake-(sea)-groundwater, computational demanding regional climate system modelling and coupled physical biological larvae IBM (3-d)), in addition to field data and remote sensing.

#### *Employment and working history:*

- April 1989-1990: Research Ass., Bundesamt für Seeschifffahrt und Hydrographie, Hamburg
- 1990-Apr.1997: Scientist, Institute of Oceanography, University of Hamburg.
- April 1997-January 2004: Wissenschaftliche Assistentin (German Assistant Professor equivalent) Institute of Oceanography, University of Hamburg.
- August 2004-January 2006: Senior Scientist, Danish Institute of Fisheries Research, Copenhagen, Denmark.
- Since February 2006 Geophysical Institute, University of Bergen, Norway, Professor (since September 2006, before Associate Professor).
- August 2008-October 2010 Researcher II (20% position) at NIVA, Bergen.

#### *Pregnancy and maternal leaves*

- December 1984 – April 1986; July 1988-April 1989 ; July 1991-February 1993
- July 2000-October 2000; June 2001-May 2002; August 2002-November 2002; January 2004-August 2004

## **LEAD AND BOARD EXPERIENCE**

### *Leadership and coordination*

- Research group leader, Coastal and Small Scale Oceanography, GFI (since July 2008)
- Deputy institute leader, University of Bergen, Geophysical Institute (Oct 2009-March 2010)
- Programme coordinator and study board leader, Nordic Master Programme in Ecosystems and Climate, Joint Master Programme (since Feb. 2009)
- Coordination of research projects, responsibility of institutes part of project organisation as PI (see below).

### *Board memberships, university working groups*

- Advisory board member, KLIWAS-Climate Change and Water Ways Programme of the German Ministry of Transportation (since 2009, ongoing).
- Institutes board member, Institute of Oceanography, University of Hamburg, Germany (1997-2002).
- Centre board member, Centre of Marine and Climate Research, University of Hamburg, Germany (1999-2002).
- Institutes board member, Geophysical Institute, University of Bergen, Norway (since 2009, ongoing).
- AG Nord, Working group for Arctic research at the University of Bergen.

## **EVALUATION, ASSESSMENT and REVIEW**

### *Review of scientific publications for:*

Boreal Environment Research, Climate Dynamics, Climate Research, Continental Shelf Research, Deutsche Hydrographische Zeitschrift, Fisheries Oceanography, Geophysical Research Letters, ICES Journal of Marine Science, Journal of Geophysical Research, Journal of Marine Systems, Journal of Physical Oceanography, Journal of Plankton Research, Nature, Ocean Dynamics, Ocean Science, Oceanologica, Progress in Oceanography, Tellus.

### *Review of research proposals and projects for:*

- European Union
- The Swedish Foundation for Strategic Environmental Research Mistra
- Canadian Research Foundation
- US National Science Foundation
- CLISAP-University of Hamburg, Germany
- National Resource Allocation Committee for eInfrastructure, Norway
- The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning

### *Review of master and PhD thesis for:*

- University of Hamburg, Department of Geosciences, Germany
- University of Bergen, Geophysical Institute, Norway (committee member)
- Opponent for the University of Helsinki, Faculty of Science
- Opponent for Gothenburg University

### *External expert, lead and membership in evaluation committees for faculty positions*

- University of Stockholm
- Memorial University of Newfoundland
- University of Bergen
- University of Hamburg
- Telemark University College

#### *Memberships in international working groups*

- ICES Working groups: WGPBI, WGOOFE, WGNIOSE (ongoing, chair invited member and national delegate nomination), dvs international ICES workshops
- Ocean Scope, SCORE Working group (ongoing)

#### *Regional Climate Change Impacts, contributions and responsibilities:*

- Contributing author, Climate Change Impact Assessment for the Baltic Sea, BACC (2008).
- Reviewer, Climate Report Metropol Region Hamburg, Germany
- Member of the review board: Regional UK climate projections UKCP09, UK
- Scientific Steering Committee member (SSC) for the Second International Symposium on “Effects of Climate Change on the World’s Oceans”, to be held May 14-18, 2012, in Yeosu (Republic of Korea)

### **PROJECT COORDINATION AND PARTICIPATION**

- Principal investigator in 7 national German (DFG, BMBF) and Norwegian (NFR, KLIF)) projects
- Principal investigator in 6 EU (FP6 and FP7, ESA, ERAnet) research projects
- Coordinator for 2 international research projects (EU-INTAS, NATO SfP)
- Coordinator for Joint Nordic Master in Marine Ecosystem and Climate, Master programme, development funded by the Nordic Council of Ministers
- Contributor and participant in a number of national (German and Norwegian) and European research projects (FP6 and INCO-COPERNICUS)

### **TEACHING**

- Different lectures given at University of Hamburg and University of Bergen, being part of the curricula in Oceanography (Master & Bachelor, Diplom) and the Nordic Master Programme (lecturing since 1997)
- Basic teaching qualification from University of Bergen
- Seminar series for PhD and Graduate student level (University of Hamburg, together with a.o. Prof. H.v. Storch, Prof. D. Marotzke, Peter Mueller)
- Lecturer at summer schools in Sylt/Helgoland (AWI/GKSS, Germany), Kos (Greece) and the Baltic Sea Summer School/Bornholm (Uni. Gothenburg, DTU Aqua)
- Supervision of Graduate (7) and PhD (7) student theses

### **PUBLICATIONS**

- 53 reviewed research paper (international journals, book contributions and thesis and submitted)
- 23 published reports and other publications
- Dvs. published project reports.

### **WEB SITE**

<http://www.uib.no/People/csc064/>

## COMPLETE LIST OF THESES SUPERVISION

### *Graduate*

- Kai Herklotz (1999); Implementation eines  $k-\epsilon$  models in ein hydrodynamisches Modell, Graduate thesis, University of Hamburg
- Jan Gentsch (2001): Nutzung von Chlorophyll Messungen aus Fernerkundungsdaten zur Verbesserung hydrodynamischer Modelle, Graduate thesis, University of Hamburg
- Kerstin Kirchner (2003): Modellierung von Eisproduktionsraten in der Barentssee, Graduate thesis, University of Hamburg
- Andrea Lübben (2003): Hydrodynamische Einflüsse auf die Akkumulation mariner Organismen, Graduate thesis, University of Hamburg.
- Ute Hochbaum (2004): Modellierung hydrodynamischer Einflüsse auf den Lebenszyklus von *Crangon Crangon* in der Nordsee, Graduate thesis, University of Hamburg.
- Jonas Blüthgen, Master thesis (ongoing, to be finished 2011): Modelling drift and growth of Plaice egg and larvae in the North Sea/Kattegat region.
- Elise Biersma, Master thesis (co-supervision, start spring 2011, to be finished 2012): Microbiological matter in hydrothermal systems.

### *PhD*

- Frank Janssen (2002): Statistische Analyse mehrjähriger Variabilität der Hydrographie in Nord- und Ostsee. Möglichkeiten zur Validation und Korrektur systematischer Fehler eines regionalen Ozeanmodells, University of Hamburg.
- Ute Hochbaum (2008): Spatially explicit modelling of larvae growth and development, University of Hamburg.
- Sturla Winger Svendsen (to be completed in 2011): Tidal impact on marine ecosystems, University of Bergen.
- Marius Årthun (to be completed in 2011): Air-sea fluxes and bottom water formation in the Barents Sea, University of Bergen, project IPY-BIAC (NFR).
- Johannes Röhrs, (to be completed in 2013): Ocean surface wave induced turbulence, PhD-thesis, University of Bergen, employed by met.no, project BIOWAVE (NFR).
- Torleif Lothe, (to be completed in 2013), University of Bergen, employed by Stiftelsen Polytec, Bottom temperature data assimilation in ocean models.
- Dhanya Pushpadas, (to be completed in 2012): Climate change impacts on regional marine ecosystems, University of Bergen, NFR project ECODRIVE.

## LIST OF PROJECTS, ONLY PI & COORDINATION

### *Previous:*

PI, KLINO sub-project B 'Circulation and water mass exchange between North Sea and Baltic Sea', BMBF 1996-1999.

PI, 'Limnological studies in Lake Baikal', ESA Project, 1998-2001.

PI and WP- coordination, LIFE CO, EU-Project, 2000-2003, WP Hydrodynamic modelling (Project coordination Prof. Mike St. John).

PI, SFB 512 sub-project B4, 'Impact of North Atlantic variability on climatic relevant processes in the Barents Sea', 2001-2003, DFG.

PI and project coordination, NATO-SfP project 'The Caspian Sea Circulation, Mass and Energy Budgets and Climate Controls', project plan developing grant, 2001.

PI and project coordination, EU-INTAS project 'Study of the Groundwater Contribution to the Aral Sea Region Water Supply and Water Quality: Strategies for Reversibility and Pollution Control', 2002-2005 (and cluster coordination INTAS Projects 1014 und 1003).

PI, DFG Project 'Study of the Groundwater Contribution to the Aral Sea Region Water Supply and Water Quality: Strategies for Reversibility and Pollution Control'. DFG, complementary funding to EU-INTAS Project, 2003-2005.

Co-PI, DFG project RECONN 2005-2010 DFG programme AQUASHIFT, (2005-2006 co-PIs Prof. Mike St. John and Myron Peck, from 2007 external cooperation partner).

PI and coordination, Joint Nordic Master in Marine Ecosystems and Climate (NMP), development of a Joint Master programme, funded by the Nordic Council of Ministers (2007).

PI, EU RECLAIM, '**RE**solving **CL**imatic **IM**pacts on fish stocks', 2007-2009 (project coordination Professor Adriaan Rijnsdorp).

PI, EU-IP ECOOP, 'European COastal-shelf sea OPerational observing and forecasting system', 2007-2009 (project coordination Professor Erik Buch).

PI, 'Ship of opportunity- Nuka Arctica ADCP', Meltzer Høyskolefond, 2009-2010, activity ongoing.

PI & project coordination, NFR-FJORDMIX: Tidally-induced turbulent mixing in a silled fjord, 2008-2012, (Nov. 2009-Oct. 2010, until I left NIVA).

### *Current projects:*

PI, EU MEECE, 'Marine Ecosystem Evolution in a Changing Environment', 2008-2012 (project coordination Icarus Allen).

PI, ERA-NET Marine ERA ECODRIVE, 'Ecosystem Change in the North Sea: Processes, Drivers, Future Scenarios', 2009-2012 (project coordination Juergen Alheit), NFR funding.

PI, 'Tilførsel programme', funded by KLIF- Norwegian Pollution Control Agency, 2009-2012, programme coordination Norman Green.

Associated project partner, NFR-BIOWAVE, Surface wave effects in the upper ocean and consequences for biological modelling, 2010-2012.

## COMPLETE LIST OF PUBLICATIONS (REVIEWED)

### *Peer reviewed articles in international journals:*

1. König, P., C. Schrum, (1997). Hydrographic Observations and Model Results From a PRISMA Drift Experiment April (23 to 29, 1991), Marine Ecology Progress Series, Vol. 156, 255-261.
2. Schrum, C. (1997): Thermohaline stratification and instabilities at tidal mixing fronts. Results of an eddy resolving model for the German Bight. Cont. Shelf Res., 17(6), 689-716.
3. Schrum, C., P. König, K. Michaelsen, U. Niemeier, T. Pohlmann (1997): Meteorological and Oceanographic Situation in the German Bight from 23 to 29 April 1991. Marine Ecology Progress Series, Vol. 156, 263-273 .
4. Janssen, F., J. O. Backhaus, C. Schrum (1999): A climatological dataset for Temperature and Salinity in the North Sea and the Baltic Sea. Deutsche Hydrogr. Zeitung, Supplement 9.
5. Becker, G.A., H. Giese, K. Isert, P. König, H. Langenberg, Th. Pohlmann, C. Schrum (1999): Mesoscale variability in the German Bight. Deutsche Hydrogr. Zeitung, 51, No. 2/3, 155-179.
6. Schrum, C, Backhaus, J. O. (1999): Sensitivity of atmosphere-ocean heat exchange and heat content in North Sea and Baltic Sea. A comparative assessment. Tellus 51A. 526-549.
7. Janssen, F., Schrum, C., Huebner, U. and Backhaus, J. (2001): Validation of a decadal simulation with a regional ocean model for North Sea and Baltic Sea. Climate Research, 18, 55-62.
8. Schrum, C.(2001): Regionalization of climate change for the North Sea and the Baltic Sea. Climate Research, 18, 31-37.
9. Siegismund, F. and Schrum, C. (2001): Decadal variability of the wind field in the North Sea. Climate Research, 18, 39-45.
10. Schrum, C., Staneva, J., Stanev, E. and E. Özsoy (2001): Air-sea exchange in the Black Sea estimated from atmospheric analysis data for the period of 1979-1993. Journal of Marine Systems, 31/1-3, 3-19.
11. Schrum C., Hübner, U., Jacob, D., Podzun, R.(2003): A coupled atmosphere/ice/ocean model for the North Sea and the Baltic Sea, Climate Dynamics, DOI 10.1007/s00382-003-0322-8
12. Schrum, C., Siegismund, F, St. John, M (2003): Decadal Variations in the stratification and circulation patterns of the North Sea. Are the 90's unusual? ICES Symposium of Hydrobiological Variability in the ICES area 1990-1999, ICES Journal of Marine Science, Symposia series, Vol. 219, 121-131.
13. Harms, I, Schrum, C, Hatten, K (2005). Numerical sensitivity studies on the variability of climate relevant processes in the Barents Sea. JGR, J. Geophys. Res., 110, C06002 10.1029/2004JC002559.
14. Floeter, J, Kempf, A , Vinther, M, Schrum, C, Temming, A (2005). Grey gurnard (*Chelidonichthys gurnardus* (L.)) in the North Sea: An emerging key predator? Canadian Journal of Fisheries and Aquatic Sciences, 62 (8), 1853-1864.
15. Schrum, C, Harms, I, Hatten, K (2005): Modelling Air-sea exchange in the Barents Sea By using a coupled regional ice-ocean model. Meteorologische Zeitschrift, 14, No. 6, 1-3, DOI: 10.1127/0941-2948/2005/0075.
16. Floeter, J, Kempf, A , Vinther, M, Schrum, C, Temming (2005), Recruitment of North Sea whiting (*Merlangius merlangus* (L.)): The interplay of bottom-up and top-down processes. Submitted to Fisheries Oceanography.
17. Schmitt, L, Larsson, S, Schrum, C, Alekseeva, I, Tomczak, M, Svedhage, K (2006): Why they came; an explanatory model concerning the seasonal colonization of western Sweden during the close of the Late Glacial period. Oxford Journal of Archeology, 25(1), 1-28.
18. Schrum, C, Alekseeva, I, St. John, M (2006): Development of a coupled physical–biological ecosystem model ECOSMO Part I: Model description and validation for the North Sea, Journal of Marine Systems, doi:10.1016/j.jmarsys.2006.01.005.

19. Schrum, C, St. John, M, Alekseeva, I (2006): ECOSMO, a coupled ecosystem model of the North Sea and Baltic Sea: Part II. Spatial-seasonal characteristics in the North Sea as revealed by EOF analysis. *Journal of Marine Systems*, doi:10.1016/j.jmarsys.2006.01.004
20. Christensen, A, Daewel, U, Jensen, H, Mosegaard, H, St. John, M, Schrum, C (2007): Hydrodynamic backtracking of fish larvae by individual-based modelling, *Mar. Ecol. Prog. Ser.*, 347, 221-232.
21. Rindorf, A, Jensen, H, Schrum, C (2008): Growth, temperature and density relationships of North Sea. *Canadian Journal of Fisheries Res*, 456-470.
22. Daewel, U, Peck, MA, Schrum, C, St. John, M (2008). How best to include the effects of climate-driven forcing on prey fields in larval fish individual based models. *Journal of Plankton Research*, 30, 1-5.
23. Christensen, A, Jensen, H, Mosegaard, H, St. John, M, Schrum, C (2008). Sandeel larval transport patterns in North Sea from an individual-based hydrodynamic egg and larval model. *Canadian Journal of Fisheries and Aquatic Sciences*. 65-7, 1498-1511.
24. Daewel, U, Peck, MA, Alekseeva, I, St. John, MA, Kühn, W, Schrum, C (2008). Coupling ecosystem and individual-based models to simulate the influence of climate variability on potential growth and survival of larval fish in the North Sea. *Fisheries Oceanography*, 17-5, 333-351, doi:10.1111/j.1365-2419.2008.00482.x.
25. Alekseeva, I, Schrum, C (2008). Historical reconstruction of the Aral Sea shrinking by a full 3-d wetting and drying model ECOSMO. *Geosci. Model Dev. Discuss.*, 1, S92–S98, 2008. [www.geosci-model-dev-discuss.net/1/S92/2008/](http://www.geosci-model-dev-discuss.net/1/S92/2008/)
26. Alekseeva, I, Jarsjö, J, Destouni, G, Schrum, C (2009). Reproducing the Aral Sea water budget and sea–groundwater dynamics between 1979 and 1993 using a coupled 3-D sea-ice–groundwater model. doi:10.1016/j.jmarsys.2008.03.018.
27. R. A. Ibrayev, RA, Özsoy, E, Schrum, C, Sur, H (2010). Seasonal variability of the Caspian Sea three-dimensional circulation, sea level and air-sea, *Ocean Sci*, 6, 311-329, doi:10.5194/os-6-311-2010.
28. Rose, K, Allen, IJ, Artioli, Y, Barange, M, Balckford, J, Carlotti, F, Cropp, R, Daewel, U, Flynn, K, Hill, S, Hille Ris Lambers, R, Huse, G, Mackinson, S, Megrey, BA, Moll, A, Rivkin, R, Salihoglu, B, Schrum, C, Shannon, L, Shin, Y, Smith, L, Smith, C, Soldoro, C, St John, M, Zhou, M (2010). End-To-End Models for the Analysis of Marine Ecosystems: Challenges, Issues, and Next Steps, *Marine and Coastal Fisheries: Dynamics, Management and Ecosystem Science* 2: 115-130, DOI: 10.1577/C09-059.1.
29. Årthun, Marius, Schrum, C (2010). Ocean surface heat flux variability in the Barents Sea. *Journal of Marine Systems*, 83, 88-98.
30. Daewel, U, Myron, P, Schrum, C. (2011). Life history strategy and impacts of environmental variability on early life stages of two marine fishes in the North Sea: an individual-based modelling approach *Canadian Journal of Fisheries and Aquatic Sciences*, *Canadian Journal of Fisheries and Aquatic Sciences*, 68:426-443, 10.1139/F10-164.
31. Berx, B, Dickey-Collar, M, Skogen, M, De Roeck, Y-H, Klein, H, Barciela, R, Forster, RM, Dombrowsky, E, Huret, M, Payne, M, Sagarminaga, Y, Schrum, C. (2011). Does operational oceanography address the needs of fisheries and applied environmental scientists? *Oceanography*, in press
32. Skogen, Morten D., Drinkwater, Ken, Hjøllø, Solfrid S., Schrum, C. (2011). North Sea sensitivity to atmospheric forcing, *Journal of Marine Systems* doi: 10.1016/j.jmarsys.2010.12.008
33. Daewel, U, Temming, A, Schrum, C. (2011). Towards a complex understanding of the life cycle of brown shrimp (*Crangon crangon*) in the German Bight: a modelling study. Accepted for publication, *Fisheries Oceanography*.

*Submitted*

1. Floeter, J, Schrum, C, Rückert, C, Kempf, A, St John, M, Temming, A. Distribution of North Sea fish in relation to hydrographic fronts: discussing predator-prey overlap. Submitted to Marine Ecology Progress Series.
2. Årthun, M, Ingvaldsen, R, Smedsrud, LH, Schrum, C. Dense Water formation and circulation in the Barents Sea. Submitted to Deep Sea Research.

*Other peer reviewed publications (theses, books and proceedings) and quality controlled reports*

1. Schrum, C. (1990): Modellierung barokliner Instabilitäten an mesoskaligen Fronten, Diplomarbeit an der Universität Hamburg, Institut für Meereskunde.
2. Backhaus, J. O., J. Bartsch, P. Damm, D. Hainbucher, T. Pohlmann, C. Schrum (1991). Das Wetter der Nordsee. In Thiel, H. (Hrsg.): Kurs Nord- Meeresforschung mit Valdivia, Boysens, Heide, 85-93.
3. Schrum, C. (1994): Numerische Simulation thermodynamischer Prozesse in der Deutschen Bucht. Universität Hamburg, Fachbereich Geowissenschaften, Berichte aus dem Zentrum für Meeres- und Klimaforschung, Reihe (B), Nr.15. 175 p.
4. Schrum, C. (1997): A coupled ice-ocean model for the North Sea and the Baltic Sea. Sensitivity of North Sea, Baltic Sea and Black Sea to anthropogenic and climatic changes. Nato ASI Ser., Kluwer Academic Publishers. Emin Özsoy and Alkexander Mikaelyan (Ed.), 311-325.
5. Semovski, S., Bondarenko, N., Popovskaya, G., Mogilev, N., Alpers, W. and Schrum, C, 1999. Perspectives for monitoring of Lake Baikal Ecosystem Variability using Remote Sensing Data. Proceedings of the IGARRS 99 in Hamburg.
6. Semovski, S., Shimaraev, M., Mogilev, N., Alpers, W. and Schrum, C, 1999. Lake Baikal Physical Features Studies Using Satellite Remote Sensing. Proceedings of the IGARRS 99 in Hamburg.
7. Semovski, S.V., M.N.Shimaraev, W.Alpers, C.Schrum, 1999. Internal waves in Lake Baikal, "4th workshop on physical processes in natural waters", ed.by M.-J.Lilover, A.Reinart, Estonian Marine Institute Report Series, No.10, pp.49-54.
8. Brander, K.; Heath, M.; St John, M.; Alheit, J.; Beare, D.; Dickson, B.; Dippner, J.; Gallego, A.; Hislop, J.; Kunzlik, P.; MacKenzie, E.; Moll, A.; Needle, C.; Ottersen, G.; Schrum, C.; Scott, B.; Turrell, W.; Werner, F.; Wright, P, 2001. Report of the Workshop on Gadoid Stocks in the North Sea During the 1960s and 1970s - Aberdeen 11-13 March 1999. ICES Cooperative Research Report., NO. 244, 55 p.
9. Harms I.H., C. Schrum and K. Hatten, 2004. Entstehung und Klimarelevanz von Polynjen, Promet - meteorologische Fortbildung (DWD), Jahrgang 30, Heft 3
10. Jarsjö, J., Alekseeva, I., Schrum, C., Destouni, 2005. Simulation of groundwater - sea water interactions in the Aral Sea basin by a coupled water balance model. Calibration and Reliability in Groundwater Modelling: From Uncertainty to Decision Making (Proceedings of ModelCARE'2005, The Hague, The Netherlands, June 2005). IAHS Publ. 304, pp.261-267.
11. Wehde, H., F. Schroeder, F. Colijn, U. Callies, S. Reinke, W. Petersen, C. Schrum, A. Plüß, and D. Mills, 2006. FerryBox observations in the Southern North Sea- Application of numerical models for improving the significance of the FerryBox data-. In: European Operational Oceanography: Present and Future, eds. H. Dahlin, N. C. Flemming and S. Petersson. Proceedings of the 4th EuroGOOS Conference, Brest, France, 6-9 June 2005, 169-173.
12. Hoepffner, N, Dowell, MD, Edwards, M, Fonda-Umani, S, Green, DR, Greenaway, B, Hansen, B, Heinze, C, Lepaennen, J-M, Lipiatou, E, Oezsoy, E, Phillippart, K, Salomons, W, Sanchez-Arcilla, A, Schrimpf, W, Schrum, C, Theocharis, A, Tsimplis, M, Veloso Gomes, F,

- Wakenhut, F, Zaldivar, JM, Marine and Coastal Dimension of Climate Change in Europe, 2006. European Commission-Joint Research Centre Ispra, Italy.
13. BACC, Assessment of Climate Change for the Baltic Sea Basin Report, 2008. Springer Press, Berlin Heidelberg.
  14. In Resolving climate impacts on fish stocks, 2010. AD. Rijnsdorp, MA. Peck, GH Engelhard, C Moellmann, JK Pinnegar (Eds.), ICES cooperative research report, 301.
  15. Report of the Workshop on Cod and Future Climate Change, ICES WKCFCC report, 2010, Keith Brander, Ken Drinkwater, Corinna Schrum (Eds.). ICES cooperative research report, 305.
  16. Green, N.W., Molvær, J. Kaste, Ø., Schrum, C., Yakushev, E., Sørensen, K., Allan, I., Høgåsen, T., Christiansen, A.B., Heldal, H.E., Klungsøyr, J., Boitsov, S., Børsheim, K.Y., Måge, A., Julshamn, K., Aas, W., Braathen, O.A., Breivik, K., Eckhardt, S., Rudjord, A.L., Iosjpe, M., Brungot, A.L., 2010. Tilførselsprogrammet 2009. Overvåking av tilførsler og miljøtilstand i Barentshavet og Lofotenområdet. Klima- og forurensningsdirektoratet (Klif), Rapport TA 2660/2010. NIVA rapport 5980-2010. ISBN 978-82-577-5715-1. 245 sider.