

E J SIMMONDS - CURRICULUM VITAE

Date of Birth: 20 July 1952

Nationality: British

Working Language English

Synopsis

I am an expert in both Fisheries Surveys and Stock Assessment and their use in fish stock management. My background is that of a senior fisheries scientist currently working with ICES as Vice Chair of the advisory committee dealing with review of stock assessments and management plans and the provision of advice. Before recently joining ICES I had worked in fisheries research for 37 years at the Government Fisheries Research Laboratory Aberdeen in Scotland and for 2 years at the European Commission Joint Research Centre in Italy. I have worked with and carried out stock assessments based on Statistical catch at age, tuned VPAs and based on maximum likelihood and Bayesian methods for more than 15 years. I have been involved with fish stock surveys for more than 30 years. I have dealt with provision of assessment data involving acoustic-trawl, trawl and egg surveys. I am co-author of a books on Fisheries Acoustics (1991 and 2nd Edition 2005) and Geostatistics (2000). In addition to work in Aberdeen, Scotland, I have been involved in acoustic/trawl surveys for off Morocco, Ecuador, Peru and in the Persian Gulf the South China Sea. Since 1995 I have developed extensive experience of fish stock assessment and fisheries management, chairing among other groups the ICES herring survey planning group 1991-95, the ICES Fisheries Acoustics working group 1993-96, the ICES Herring Assessment working group 1998-2000, and the ICES study group on Management Strategies from 2004-2009. In addition to a wide range of assessment work both (VPA/adapt and statistical catch at age) as part of the ICES assessment process, I have been responsible for developing approaches for combining acoustic-trawl, trawl and ichthyoplankton surveys in assessments for North Sea herring North East Atlantic mackerel and Peruvian anchovetta. Before moving to ICES this year I chaired the European Commission STECF group that prepares evaluations of historic performance of management plans and the impact assessments for new multi-annual fisheries management plans.

Main Employment

- 2013- **ICES ACOM Vice Chair** dealing with fisheries advice assessment and management plan review (Three year contract part time)
- 2012-2013 **Consultancy** / Development of Fisheries management plans and MSY analyses, chair of STECF management plan expert groups 2010-2012. Fish stock Assessment.
- 2009-2011 **JRC Ispra, Grantholder40 (Senior Scientist)**. Work included; development of fisheries multi-annual plans, Impact Assessments and Evaluations for STECF. Experience chairing STECF subgroups on Evaluation and Impact Assessments including stakeholders. Research work on the impact of uncertainty in Stock/Recruitment relationships on management. Combining biological and economic data to evaluate past performance of herring management in the North Sea. Examination of the data needs of policy objects including multi-annual fishery plans and the definition of MSY targets.
- 2006-2009 **Marine Laboratory Aberdeen, Principle Scientist**. FRS Marine Laboratory for fisheries advice for the Scottish Executive on pelagic fisheries; UK representative on ICES ACFM; adviser to the Scottish Executive on all issues regarding pelagic stocks; short term (6 months total) secondment over 2 years to IMARPE Peru, evaluation of Acoustic surveys and their role in fishery management of anchovy. Specific scientific work on fish stock assessment, harvest control rules, Bayesian analysis, analysis of research vessel surveys, planning and execution of acoustic surveys, species

identification by acoustic methods, spatial models of herring and anchovy distribution.

- 1999-2005 **Marine Laboratory Aberdeen, Head of Pelagic group.** FRS Marine Laboratory for fisheries advice for the Scottish Executive on pelagic fisheries; UK representative on European Commission scientific technical and economic committee for fisheries STECF adviser to the Scottish Executive on all issues regarding pelagic stocks for the last eight years; liaison with fishermen and processors in the Scottish pelagic sector; presentation of state of the stock and catching advice biannually. representative and reviewer at ICES and STECF (see below).
- Specific scientific work on fish stock assessment, harvest control rules, analysis of research vessel surveys, analysis of fish market sampling, precision of discard sampling, planning and execution of acoustic surveys, species identification by acoustic methods, spatial models of herring distribution and motion, 3D acoustic system development.
- 1995-1999 **Marine Laboratory Aberdeen, Head of Fish Stock Monitoring Section,** in charge of data collection using market sampling, discard observer trips, research vessel trawl surveys, acoustic surveys, near seabed investigations, 3D acoustic systems development, multivariate survey analysis.
- 1985-1995 **Marine Laboratory Aberdeen, Head of Sonar Section,** system calibration, survey design and acoustic species identification, use of surveys in stock assessments.
- 1979-1984 **Marine Laboratory Aberdeen, Research Scientist, Sonar Section,** research on acoustic surveys fish target strength and development of echo-integrators.
- 1977-1979 **UNFAO field expert,** Persian Gulf. Acoustic surveys of sardine, anchovy horse mackerel and mesopelagic resources.
- 1973-1977 **Marine Laboratory Aberdeen,** Sonar Section. Development of acoustic surveys systems

Consultancies

- 2007-2009 Evaluation of surveys for management of Peruvian Anchovetta (IMARPE Lima Peru).
- 2008-2012 Occasional reviews of fish stock assessment and fish stock survey work
- 2001 Review of Acoustic Survey Program Woods Hole USA
- 1998 Review of Fish Stock Evaluation Program IMR Norway
- 1992 Preparation of project document resource surveys Government of Iran (UNFAO)
- 1991 Advice on fisheries research vessel design, Malaysia. (Crown Agents)
- 1990 Acoustic survey program design implementation and evaluation in Brunei (Crown Agents)
- 1987-1989 Acoustic and demersal survey program design implementation and evaluation in Malaysia. (Crown Agents)
- 1981 Acoustic Survey Morocco (UNFAO)
- 1979 Acoustic Survey Thailand (UNFAO)

Positions and Responsibilities external to direct employer

- 2011 Chair of STECF EWG 11-01,11-07 and 11-15 development of management plans for cod in Baltic, Kattegat, North Sea, Irish Sea, West of Scotland. Bay of Biscay sole, Southern hake and Nephrops and Bay of Biscay sole.
- 2010 Chair of STECF SGMOS 10-06 science (with industry observer) meeting on evaluation and impact assessment of multiannual plans for North Sea plaice and sole, western channel sole, bay of Biscay sole, Baltic cod, Southern hake and Nephrops.
- 2010 Chair of STECF-SGMOS 10-01/10-06 Development of Protocols for Multi-annual Plan Impact Assessments.
- 2009 Chair of STECF-SGMOS 09-02 on the Evaluation of Fishery Multi-annual Plans dealing with sole and plaice plans
- 2007-2009 UK Representative on ICES Advisory committee for fisheries management (ACFM) and participation in ICES Advice drafting groups on North Sea and Widely distributed stocks
- 2005-2008 Co Chairman of The ICES Study Group on Management Strategies (SGMS) To define a framework for management strategy evaluations in a Precautionary Approach context.
- 2007 Chairman of The ICES Workshop on inclusion of environmental factors in fisheries management. A workshop to define a framework for the inclusion of ecosystem issues in management strategy and short term fisheries advice.
- 2003-2006 UK alternate member of ICES ACFM
- 2001-2006 Member of STECF (Scientific Economic and Technical Committee on Fisheries)
- 2004 Chair of EU Norway meeting on long term measures in the North Sea (harvest control rules for plaice, sole, haddock, whiting, saithe and herring)
- 2003 Co-convenor of ICES theme session X, Evaluation of Fisheries Management Scenarios and the Supporting Data through Simulation
- 2000-2001 Chairman of ICES study group on re-evaluation of North Sea herring Assessment
- 2001 Co-convenor of ICES theme session P, Quality and Precision of Basic Data Underlying Fish Stock Assessment and Implications for Fisheries Management Advice
- 1997-2000 Chairman of ICES herring Assessment Working Group
- 1995 Convenor of 4th ICES International Symposium on Fisheries and Plankton Acoustics
- 1992-1995 Chairman of ICES Fisheries Acoustics Science and Technology WG.
- 1990-1997 Chairman of ICES Planning Group for Herring surveys
- 1988-2004 Lecturing Bangor and Aberdeen Universities: Fisheries MSc.

Participation in European Projects

- 2004 -2006 **FISBOAT** Use of Surveys for fisheries management
- 2002 -2006 **EASE** Evaluation of the advisory system (FRS Marine Lab main participant)
- 2002 -2006 **SIMFAMI** Species identification using acoustics, (limited advisory role)
- 2003 -2007 **FADIO** The evaluation of tuna behaviour near FADs to inform management (limited advisory role)
- 2002 **EVARES** Evaluation of the use of research vessel surveys in assessments. (major guiding participant)
- 1998 - 2001 **EMAS** Evaluation of market sampling programs for Cod plaice and herring in the North Sea. (responsible for herring analysis and a major guiding participant)
- 1997 - 2000 **MIQES** Evaluation of the use of multivariate statistical techniques to improve the performance of the North Sea International Bottom Trawl Surveys (IBTS) (initiator and primary guiding force for the project)
- 1992 -1995 **BIOMASS** Species identification using wideband acoustic methods (Major participant)

Education

- 1975-1979 Loughborough University of Technology MSc. Sonar and signal processing (part time)
- 1970-1973 The University of Manchester, UK. Electronics and Electrical Engineering B.Sc Hons (2:1).

Academic and honourary positions.

- 1989 Elected Fellow of Institute of Acoustics
- 1990 Elected Honorary Senior Lecturer Aberdeen University

Publications over the last 20 years

(There are a few additional ICES and journal publications on fisheries acoustics development and surveys before this period)

Books

Simmonds E J, MacLennan D N 2005. Fisheries Acoustics: Theory and Practice. Blackwell Science Ltd, Oxford

Rivoirard, J., Simmonds, E.J., Foote, K.F., Fernandes, P.G. and Bez, N. (2000). Geostatistics for estimating fish abundance. Blackwell Science Ltd., Oxford 202pp,

MacLennan D N and Simmonds E J Fisheries Acoustics, Chapman and Hall 1992 352pp

Papers

Simmonds E. J. Döring R Daniel P. and Angot V., 2011 The role of fisheries data and information on the development of multi-annual plan evaluation and impact assessment in support of european fisheries policy ICES J. Mar. Sci. (accepted in press).

Simmonds, E.J., Campbell, A., Skagen, D., Roel B. A. and Kelly C. (Submitted 2010) Development of a stock recruit model for simulating stock dynamics for uncertain situations; The example of NEA Mackerel (*Scomber scombrus*). ICES J Mar Sci (In press)

Simmonds, E. J., Portilla, E., Skagen, D., Beare, D., and Reid, D. G. 2010. Investigating agreement between different data sources using Bayesian state-space models: an application to estimating NE Atlantic mackerel catch and stock abundance. – ICES Journal of Marine Science, vol. 67 no. 6 p.1138-1158

Simmonds E.J., and Anderson John. 2010 The benefit of hindsight; An evaluation of North Sea herring management plans from 1995 to the present. 9pp IIFET conference published proceedings. <http://oregonstate.edu/dept/IIFET/publications.html>

Dickey-Collas, M., Nash, R. D. M., Brunel, T., van Damme, C. J. G., Marshall, C. T., Payne, M. R., Corten, A., Geffen, A. J., Peck, M. A., Hatfield, E. M. C., Hintzen, N. T., Enberg, K., Kell, L. T., and Simmonds, E. J. 2010. Lessons learned from stock collapse and recovery of North Sea herring: a review. – ICES Journal of Marine Science, 67: 000–000 (In press).

Simmonds, E.J. 2009,. Evaluation of the quality of the North Sea herring assessment ICES Journal of Marine Science 66 (8), pp. 1814-1822

Trygonis, V., Georgakarakos, S., Simmonds, E.J. 2009 An operational system for automatic school identification on multibeam sonar echoes ICES Journal of Marine Science 66 (5), pp. 935-949

Simmonds, E. J. 2007. Comparison of two periods of North Sea herring stock management; success, failure and the value of management. ICES Journal of Marine Science, 64: 000-000.(in press)

Simmonds, E. J., and Keltz, S. 2007. Management implications and options for a stock with unstable or uncertain dynamics: West of Scotland herring ICES Journal of Marine Science, 64: 000-000.(in press)

Simmonds E J and Rivoirard J: Correcting for vessel effects in the estimation of herring abundance and distribution from the IBTS surveys in North Sea ICES J. Mar. Sci. (in Press)

- E J Simmonds, 2005 Comparison of two periods of North Sea herring stock management; success, failure and the value of management. ICES CM2005:X10
- Mariani, S., Hutchinson, W.F., Hatfield, E.M.C., Ruzzante, D.E., Simmonds, E.J., Dahlgren, T.G., Andre, C., Brigham, J., Torstensen, E., and Carvalho, G.R. 2005. North Sea herring population structure revealed by microsatellite analysis. *Mar. Ecol. Prog. Ser.*, 303: 245-247.
- Ruzzante, D.E., Mariani, S., Bekkevold, D., Andre, C., Mosegaard, H., Clausen, L.A.W., Dahlgren, T.G., Hutchinson, W.H, Hatfield, E.M.C., Tortensen, E., Brigham, J., Simmonds, E.J., Laikre, L., Larsson, L.C., Stet, R.J.S., Ryman, N. and Carvahlo, G.R. 2006. Biocomplexity in a highly migratory marine fish, Atlantic herring. *Proc. Roy. Soc., ser. B.*, 273: 1459-1464.
- E J Simmonds, C. Zimmermann E, Götze S Jansen E Torstensen, Bo Lundgren, D G Reid S Ybema and A S Couperus. 2004 ICES coordinated acoustic survey of ICES divisions IIIa, IV and VIa (north) Improvements through stratified design and 2003 results.
- Simmonds, E.J. 2003. Weighting of acoustic and trawl survey indices for the assessment of North Sea herring. *ICES Journal of Marine Science*, Vol 60 3 pp463-471.
- Simmonds, E J. D Beare and D G Reid 2003 Sensitivity of the current ICA assessment of western mackerel and short term prediction to the sampling error in the egg survey parameters. ICES CM 2003: X:10
- Simmonds, E J 2003 Sensitivity of North Sea herring assessment and short term prediction to the sampling error in the measured input parameters CM 2003/X:11
- E J Simmonds, C. Zimmermann, S Jansen, E Götze, E Torstensen, K-J Staehr, and A S Couperus and P G Fernandes 2003. Ices Coordinated Acoustic Survey Of Ices Divisions IIIa, IVa, IVb and VIa (North) 2002 Results and long term trends CM 2003/Q:20
- Simmonds, E J. P G Fernandes and D G Reid 2002 School based model of the spatial distribution and dynamics of an acoustically surveyed herring distribution in the North Sea. ICES Symposium Montpellier June 2002 paper 176
- Simmonds E J. 2002 The performance of Acoustic Surveys for the management of North Sea herring. ICES Symposium Montpellier June 2002 paper 175
- Paul G. Fernandes, Pete Stevenson, Andrew S. Brierley, Frederick Armstrong and E. John Simmonds 2002 AUVs: future platforms for fisheries acoustics. ICES Symposium Montpellier June 2002 paper 134
- E J Simmonds, D G Reid, E Torstensen, K-J Staehr, C. Zimmermann, S Jansen, E Götze, and A S Couperus 2002 The 2001 ICES coordinated acoustic survey of ICES divisions IIIa, IVa, IVb and VIa (North)
- E.J. Simmonds, C.L. Needle, H. Degel, S. Flatman, C.M. O'Brien, M.A. Pastoors, A.P. Robb and M. Vintner. The precision of international market sampling for North Sea herring and its influence on assessment ICES CM2001 P:21
- E J Simmonds 2001. A method for calculation of optimum mean weights at age for use in the assessments and predictions; an example using North Sea herring data CM2001: P:22
- C.M. O'Brien, C.D. Darby, D.L. Maxwell, B.D. Rackham, H. Degel, S. Flatman, M.A. Pastoors, E.J. Simmonds and M. Vinther 2001 The precision of international market sampling for North Sea plaice (*Pleuronectes platessa* L.) and its influence on stock assessment ICES CM2001 P:13

- C.M. O'Brien, C.D. Darby, B.D. Rackham; D.L. Maxwell; H. Degel; S. Flatman; M. Mathewson; M.A. Pastoors; E.J. Simmonds; and M. Vinther 2001 The precision of international market sampling for North Sea cod (*Gadus morhus* L.) and its influence on stock assessment ICES CM2001P:14
- E J Simmonds 1 , B V Svendsen , E Torstensen , P G Fernandes , D G Reid, A S Couperus, K-J Staehr, C Zimmermann and E Götze 2001. The 2000 ICES coordinated acoustic survey of ICES divisions IIIa, IVa IVb and VIa(north) CM 2001/P:28
- Fernandes PG, Brierley AS, **Simmonds EJ**, Millard NW, McPhail SD, Armstrong F, Stevenson P, Squires M. (2000) Fish do not avoid survey vessels. *Nature*, 404:35-36.
- Simmonds E J ,and Rivoirard J Vessel, and day/night effects in the estimation of herring abundance and distribution from the IBTS surveys in North Sea ICES CM 2000 /K:32
- Clarke L and Simmonds E J Spatio-temporal models of North Sea Herring ICES CM 2000/ K:09
- Simmonds E J, E. Toresen, E. Torstensen, C. Zimmermann, E. Götze, D.G. Reid and A.S. Couperus: 1999 ICES Coordinated acoustic survey of ICES Division IIIa, Iva, Ivb and Via (north) ICES CM 2000/K39
- Simmonds E J1 F Gerlotto2, P G Fernandes1, D N MacLennan. 1999 Observation and extraction of three dimensional information on fish schools. *J. Acoust. Soc Am.* 1999 vol 114. 2. Pt2
- Simmonds, E.J., Bailey MC, Toresen R, Torstensen, Cuperous B, E, Pederson, J.Reid, D.G., , and Hammer, C. 1999. 1998 ICES Coordinated acoustic survey of ICES divisions IVa, IVb, VIa and VIIb. ICES C.M. 1999/Open 22.
- Simmonds E.J 1998 The implications of the distribution and mobility of North Sea herring on the evaluation of the stock. ICES CM 1998/J:29
- Simmonds, E.J., Bailey MC, Toresen R, Torstensen, Cuperous B, E, Pederson, J., Reid, D.G., , and Hammer, C. 1998. 1997 ICES Coordinated acoustic survey of ICES divisions IVa, IVb, VIa and VIIb. ICES C.M. 1998/Open 22.
- Fernandes, P.G. and Simmonds, E.J. (1997). Variographic refinement of North Sea herring acoustic survey data. In Soares, A., Gomez-Hernandez, J. and Froidevaux, R. (eds.), *geoENV I - Geostatistics for Environmental Applications*, pgs. 451-462. Kluwer Academic Publishers, Dordrecht, the Netherlands.
- Simmonds E.J., Armstrong F. & Copland P.J., 1996 Species identification using wide-band backscatter with neural network and discriminant analysis. *ICES J Mar Sci* Vol 53 189-195
- Simmonds E.J. and Fryer R.J. 1996 Which are better, random or systematic acoustic surveys? A simulation using North Sea herring as an example. *ICES J. Mar. Sci.*, 53 39-50
- Maravelias C.D., Reid D.G., Simmonds E.J. and Haralabous J, 1996 Spatial analysis and mapping of acoustic survey data in the presense of high local variability: geostatistical application to North Sea. *Can. J. Fish. Aquat. Sci.*, Vol 53 1497-1505
- Simmonds, E.J., Toresen, R., Corten, A., Pederson, J., Reid, D.G., Fernandes, P.G., and Hammer, C. 1996. 1995 ICES Coordinated acoustic survey of ICES divisions IVa, IVb, VIa and VIIb. ICES C.M. 1996/H:8.

- Simmonds E.J., 1995 Survey Design and Effort Allocation: A synthesis of Choices and Decisions for an Acoustic Survey. North Sea herring is used as an example. CM 1995/ B:9
- Simmonds, E.J., Toresen, R., Corten, A., Pederson, J., Reid, D.G., Fernandes, P. G., and Hammer, C. 1995. 1994 ICES Coordinated acoustic survey of ICES divisions IVa, IVb, VIa and VIIb. ICES C.M. 1995/H:8.
- Simmonds, E.J., Dommasnes, A., Corten, A., Pedersen, J., and Reid, D.G. 1994. 1993 ICES co-ordinated acoustic surveys of ICES divisions IVa, IVb, and VIa. ICES C.M. 1994/H:22.
- Reid, D.G. and Simmonds, E.J. 1993. Image analysis techniques for the study of fish school structure from acoustic survey data. Can. J. Fish. Aquat. Sci., Vol 5.
- Simmonds, E.J., Dommasnes, A., Aglen, A., Corten, A., and Reid, D.G. 1993. 1992 ICES co-ordinated acoustic surveys of ICES divisions IVa, IVb, and VIa. ICES C.M. 1993/H:11.
- Simmonds, E.J., Williamson, N.J., Gerlotto, F. and Aglen, A. 1992. Acoustic survey design and analysis procedure: a comprehensive review of current practice. ICES Coop. Res. Rep., 187.
- Simmonds, E.J., Reid, D.G., Algen, A., Skagen, D. and Corten, A. 1992. Report of the 1991 ICES coordinated acoustic survey of herring stocks in ICES divisions VIa, IVa and IVb. ICES C.M. 1992/H:35.
- Simmonds, E.J., Gerlotto, F.G., Williamson, N.J., Aglen, A.G. 1991. Acoustic survey and data analysis procedures 152pp, ICES CM B: 54
- Reid, D.G. and Simmonds, E.J. 1991. Image processing techniques in the measurement of fish shoal location and morphology, ICES CM B: 49
- Simmonds, E.J. 1990. Very accurate calibration of a vertical echosounder: A five year assessment of performance and accuracy. ICES/FAO Int. Symp. Fish. Acou., Seattle Washington USA Rapp. P.-v. Reun. Cons. perm. int. Explor. Mer. 189, 183-191.
- Simmonds, E.J. and Armstrong, F. 1990. A wide band echosounder: Measurement on cod, saithe, herring and mackerel from 27 to 54 kHz. ICES/FAO Int. Symp. Fish. Acou., Seattle Washington USA Rapp. P.-v. Reun. Cons. perm. int. Explor. Mer. 189, 381-387.
- Bailey, R.S. and Simmonds, E.J. 1990. The use of acoustic surveys in ICES assessments of pelagic fish with particular reference to North Sea herring. ICES/FAO Int. Symp. Fish. Acou., Seattle Washington USA Rapp. P.-v. Reun. Cons. perm. int. Explor. Mer. 189, 9-17.
- Simmonds, E.J. and Copland, P.J. 1989. Species recognition; results from a wide band echosounder 27-54 kHz. Proceedings of Institute of Acoustics, 11(3), ISBN 0-946-731-83-7, pp54-60.