TÚN
VOTTUNARSTOFA

Vottunarstofan Tún ehf. • Þarabakki 3 • IS-109 Reykjavík • Iceland
Tel: +354 511 1330 • Fax: +354 511 1331 • tun@tun.is • www.tun.is

2015-03-31

MSC Fishery Surveillance Announcement

Name of Fishery	**ISF Icelandic Haddock**	
Surveillance level and type	Level 4 surveillance: off-site surveillance audit At the last (on-site) surveillance audit, the assessment team determined that an off-site surveillance audit should be conducted in 2015. However, the team is required for an on-site assessment of another Unit of Certification, therefore an on-site surveillance will be conducted at the same time.	
Surveillance number (tick one)	1st Surveillance	
	2nd Surveillance	
	3rd Surveillance	X
	4th Surveillance	
	Other (expedited etc)	
Proposed Team Leader	**Dr. Paul A.H. Medley – Team Leader** **Primarily responsible for Principle 1** Dr. Paul Medley is an independent fisheries consultant, based in the UK. His expertise includes mathematical modelling of fisheries and ecological systems, techniques for multispecies stock assessment and external review of stock assessment methodologies. He has been an invited expert for a number of stock assessment working group meetings. He has a wide practical experience in marine biology, including design and implementation of surveys and fisheries experiments. This includes addressing wider environmental issues of ecological management, including maintenance of marine biodiversity. He has taken part in several MSC fishery assessments and has worked with MSC on new methodology developments. Vottunarstofan Tún confirms that Dr. Medley meets the fishery team leader qualification and competency criteria specified in Annex PC1, Table PC1, in particular: - has a university degree (Ph.D.) in biology; - has over five years´ experience in the fisheries sector related to the tasks under his responsibility; - has passed MSC team leader training; - meets the qualifications and has the competencies specified in section	

	2 of Table PC1; - has undertaken 2 MSC fishery assessments or surveillance site visits as team member in the last 5 years; - has the experience in applying different types of interviewing and facilitation techniques and the ability to effectively communicate with the client and other stakeholders. Furthermore, Dr. Medley has the qualifications and competencies required for serving as an assessor on Principle 1 as outlined in Annex PC3, Table PC3. Vottunarstofan Tún confirms that Dr. Paul Medley has no conflicts of interest in relation to the ISF Iceland Ling fishery.
Proposed team members ***[remove if not applicable]***	**Dr. Ásgeir Daníelsson – team member, on-site** **Primarily responsible for Principle 3** Dr. Ásgeir Daníelsson graduated in 1985 with Ph.D. in Economics from the University of Manchester. Dr. Daníelsson currently holds the position of head of research and forecasting in the Economics department of the Central Bank of Iceland. He has lectured on microeconomics, statistics, macroeconomics and fisheries economics at the University of Iceland and University of Akureyri. He has over 25 years´ experience of macroeconomic analysis of the Icelandic fisheries for the Central Bank of Iceland and previously the National Economic Institute. He has been involved in and advised numerous national and international task forces on the utilization of living marine resources and fisheries management. From 1993-1994 and 2001-2004 he was a member of a committee, set up by the Icelandic Minister of Fisheries, formulating a long term policy on exploitation of fish stocks. He has worked with the "Nairobi group" set up by the UN´s UNEP and UNSD, and was later commissioned by the FAO to provide a guide on the incorporation of environmental factors into national accounting with special regard to fisheries and the living marine environment. Dr. Daníelsson has written and co-authored several peer-reviewed publications, as well as research reports on the utilization of fish stocks in Icelandic waters, ITQ efficiency and environmental- and economic accounting of fisheries. During the last three years, Dr. Daníelsson has served as Principle 3 expert for several MSC fishery assessments, including the ISF Iceland Saithe fishery assessment. Vottunarstofan Tún confirms that Dr. Daníelsson meets the fishery team member qualification and competency criteria specified in Annex PC2, Table PC2, in particular: - has a university degree (Ph.D.) in economics; - has over five years´ experience in the fisheries sector related to the tasks under his responsibility; - has passed MSC team member training; - has undertaken 2 MSC fishery assessments or surveillance site visits as team member in the last 5 years; Furthermore, Dr. Daníelsson has the qualifications and competencies required for serving as an assessor on Principle 3 as well as current knowledge of the country, language and local fishery context, as outlined in Annex PC3, Table PC3. Vottunarstofan Tún confirms that Dr. Daníelsson has no conflicts of interest in

	relation to the ISF Iceland Ling fishery.
Audit/review time and location	The surveillance assessment will be conducted during the period 5th to 8th of May 2015.
Assessment/ review activities	The assessment team will engage with the client, conduct stakeholder interviews and review: - any significant changes to the fishery, its management and science - performance in relation to recommendations relevant to the fishery - any developments or changes within the fishery that may impact traceability and segregation of MSC certified products

Vottunarstofan Tún will be conducting an on-site surveillance audit **during the period 5th to 8th of May 2015**, involving visit to the fishery and meetings with stakeholders.

We would like to invite stakeholders with an interest in this fishery to contact the lead assessor, Dr. Paul Medley (paulahmedley@yahoo.co.uk) or Tún´s office contact person (see below; tun@tun.is), if they wish to submit comments for consideration by the surveillance team or to ask to speak to members of the surveillance team.

Stakeholders may provide input at any time. However, stakeholders wishing to speak with members of the assessment team in association with this surveillance audit are asked to send their request to the Tún contact below **by 17.00 GMT on 23 April 2015,** providing the following information:

(1) their name and contact details,
(2) their association with the fishery under surveillance and
(3) the issues that they wish to discuss.

Information about this fishery can be accessed on MSC´s website: http://www.msc.org/track-a-fishery/fisheries-in-the-program/certified/north-east-atlantic/isf_icelandic_haddock/assessment-downloads.

The MSC has developed a guide for stakeholder input, available at http://www.msc.org/documents/get-certified/stakeholders and a template for stakeholder response available at http://www.msc.org/documents/get-certified/stakeholders/template_for_stakeholder_input.
You may use the template or provide your response in any other format.

Any enquiries, request for meeting or other information, may be sent to the following:

Dr. Gunnar Á. Gunnarsson
Vottunarstofan Tún ehf.
Þarabakki 3, IS-109 Reykjavík
Tel.: +354 511 1330
tun@tun.is

Submitted by: ***Dr. Gunnar Á. Gunnarsson***
Date: ***31 March 2015***

Appendix 1: CVs of team leader and team member

1. Dr. Paul A. H. Medley (team leader)

Summary of Experience

My main experience is mathematical modelling of fisheries and ecological systems and data management, including data acquisition to fit and test models, with the objective of providing scientific advice to fishery management. Bioeconomic modelling, with particular reference to interactions between different tuna fishing fleets, formed the main subject of my PhD thesis. Since then I have concentrated on tropical fisheries, and developing new techniques for multispecies stock assessment based on maximum likelihood, Bayesian methods and decision theory. I have worked on a number of fisheries in detail including spiny lobster, conch, shrimp, squid and pelagics. I have been an invited expert for a number of stock assessment working group meetings and stock assessment reviews.

My first degree included computer science, and I have continued to develop my programming and data handling skills. For example, I have been working on spatial data management, through implementation of a Geographical Information System (GIS) for natural resources management, on numerical tools for new stock assessment techniques, a Caribbean fisheries database and a decision analysis for stock assessment.

I have a wide practical experience in marine biology, including design and implementation of surveys and fisheries experiments using SCUBA and small research vessels. This includes addressing wider environmental issues of ecological management, including maintenance of marine biodiversity.

On British Overseas Development Administration fisheries management projects in the Turks and Caicos Islands and elsewhere in the Caribbean, I developed new methods for the stock assessments of exploited species, as well as a new science programme. I was directly involved in fisheries and environmental management, and in the decision making process involving discussions with politicians, civil servants and the fishing community. Experience in small scale fisheries has led to the development of new software and other tools suitable for small scale co-managed fisheries.

I have an in-depth understanding of the MSC methodology. I have been involved in developing the MSC certification methodology and various MSC assessments, including a number of North Sea pelagics and groundfish, Barents Sea and West Coast USA groundfish, Antarctic toothfish, icefish and krill. I have also helped prepare some fisheries for MSC certification, namely Suriname seabob shrimp, Bahamas spiny lobster and Madagascar octopus. I also regularly conduct technical stock assessment reviews for the Centre for Independent Experts for the United States mainly temperate fisheries and I have conducted fisheries project reviews for the European Union projects.

I have experience in project management and leading teams to achieve project objectives. I managed the Department for International Development (UK) funded ParFish and Anguilla projects, which included extensive fieldwork in Zanzibar and Anguilla respectively. I managed the science programme in the Turks and Caicos Islands when on 5 year placement as a technical co-operation officer. I have provided the technical lead for most workshops I attend.

Nationality

British

Education

1985-1989 PhD, Biology. Imperial College of Science, Technology and Medicine, University of London, UK. *Interaction between Longline and Purse Seine in the South-West Pacific Tuna Fishery.*

1981-1984 University of York, York, UK. (Department of Biology)
BSc (Hons, First Class) in Biology and Computer Science.

Computing Experience

Languages: Borland Delphi 2010, Visual Basic for Applications, R, Pascal, C++, Fortran, Assembly languages (Macro-10; Macro-11; Z80).

Databases: MS Access; PostgreSQL; a variety of other SQL Compliant relational databases

GIS: ArcView 2.1 (Avenue script language); IDRISI

Other: AD Model Builder, MS Excel

Statistics Packages: R; SPSS; Minitab.

Non-Academic Qualifications

UK driving licence;
Gliding and hang-gliding certificates;
Certified SCUBA diver

Experience

Pakistan, 2013/2014, Project to develop routine fisheries data collection, FAO

Consultant to design a database, data collection system and estimation procedures for catch, effort and landings biological sampling.

Madagascar, 2013/14, Stock assessment for octopus (O. cynea), BlueVentures

Consultant to complete a stock assessment in ADMB software using all the limited data available to develop a robust harvest control rule suitable for a small scale fishery with the ultimate objective of Marine Stewardship Council certification.

Bahamas, 2013/14, Stock assessment for spiny lobster, WWF

Consultant to complete a size based stock assessment in ADMB software using all the limited data available for a WWF supported fishery improvement project with the ultimate objective of Marine Stewardship Council certification.

Guyana, 2013, Stock assessment for seabob shrimp, Heiploeg International BV.

Consultant to complete a size based stock assessment in ADMB software for a fishing industry led fishery improvement project with the ultimate objective of Marine Stewardship Council certification. Included developing a harvest control rule.

UK, 2013, Global Tuna Pre-assessment, International Seafood Sustainability Foundation

Completion of a publicly available pre-assessment of all tuna fisheries (excluding Bluefin tuna) against Principles 1 and 3 of the Marine Stewardship Council Certification requirements (jointly with Dr Joseph Powers)

UK, 2013, Project Inshore MSC assessment, MSC/UK Government

Consultant on the Marine Stewardship Council certification pre-assessment of all UK inshore fisheries, including advice on improving management to meet the MSC standard.

UK/Trinidad, 2012, Brazil-Guianas Caribbean Large-scale Marine Ecosystem Project, FAO

Review of stock assessments and status of stocks in Suriname, Guyana and Trinidad and Tobago.

Puerto Rico / Panama, Queen Conch Expert Workshop, CFMC

Chairman of the queen conch (*Strombus gigas*) expert workshop organised by the Caribbean Fishery Management Council to provide information on non-detrimental findings necessary for exports to countries that are signatories to the Convention on International Trade in Endangered Species.

Maldives, 2012, Pole and Line Skipjack Tuna Fishery Improvement Plan, WWF

Advisor to WWF on meeting MSC requirements in the baitfish fishery.

UK, 2012, MSC Full Assessments, Food Certification International

New full assessments for fisheries consist of Barents Sea cod and haddock, North Sea herring and brown shrimp. A number of surveillance audits were also conducted.

Caribbean, CRFM Scientific Meeting 2012 and 2013, Caribbean Regional Fisheries Mechanism

Member of the Shrimp and Groundfish Working Group.

Madagascar, 2011, Data Review and Stock Assessment, EU ReCoMaP (9.ACP.RSA.020) / BlueVentures

Octopus cyanea stock assessment for South-East Madagascar.

Caribbean, CRFM Scientific Meeting 2011, Caribbean Regional Fisheries Mechanism

As a member of the Shrimp and Groundfish Working Group, the meeting in 2011 primarily consisted in providing technical support for and carrying out stock assessments on Suriname seabob and Trinidad shrimp fisheries. Suriname seabob was awarded MSC certification, which requires rigorous scientific support.

Bahamas, 2010-12, Spiny lobster fishery, WWF

Consultant supporting the development of fisheries management, and specifically stock assessment for the local spiny lobster stocks, with the aim of obtaining MSC certification of the Bahamian lobster fishery. The work includes a new, peer reviewed stock assessment of the Bahamas spiny lobster.

USA, 2011, SEDAR 22 and 25 CIE review, Centre for Independent Experts

Stock assessment reviews for the Mexican Gulf tilefish and yellowedge grouper, and South Atlantic tilefish and black seabass stock assessments

USA, 2011/12, MSC Assessment US West Coast Limited Entry Trawl, Intertek Moody Marine Ltd

UK, 2011, MSC Assessment of Spanish Barents Sea Cod, Celtic Sea herring, sardine and sprat, Food Certification International Ltd

The Principle 1 expert for the MSC Fisheries Assessment Methodology applied to test whether fisheries are sustainable, meeting the MSC Principles and Criteria.

Global, 2011/12, MSC Assessment Review of Tuna Fisheries, MSC and ISSF

Three reviews conducted for the Marine Stewardship Council and for the International Seafood Sustainability Foundation dealing with the MSC Fisheries Assessment Methodology as applied to tunas and highly migratory species, with special reference to the consideration of the role of RFMOs.

Madagascar, 2010, ParFish Training for Artisanal Fisheries stock assessment, WWF

Provided training for local staff in data collection and stock assessment using participatory methods with fishers.

UK, 2010, North East Atlantic Assessment, UN FAO

Author of section contribution to the FAO flagship publication "2010 Status of World Fisheries and Aquaculture".

UK, 2010, Data Poor Fisheries Assessment Review, MRAG / UN FAO

Reviewer and contributor to FAO technical publication.

UK, 2010, Fisheries Enhancement Decision Tool Software Update, Imperial College London

Update of decision support tool software for the analysis of stock enhancement using hatchery fish.

Gambia, 2009 – 2010, Sole Net Fishery, Food Certification International

Consultant supporting the development of fisheries management in Gambia with the aim of obtaining MSC certification of the sole net fishery for Gambia sole (tonguefish).

UK, 2009-2010, Sussex Data Deficient Fisheries, Food Certification International

Consultant developing stock assessment methods suitable for data poor fisheries, which can be used to supporting evidence that a fishery is sustainable. A pilot project is being completed for the Sussex Sea Fisheries District Committee, with further development expected in 2010.

UK, 2009, Stock Status Evaluation, UN FAO

Consultant providing advice to alternative approaches for the evaluation of stock status for fisheries where there is little published information, with specific reference to the FAO flagship publication "Status of World Fisheries and Aquaculture".

Guyana and Suriname, 2007 – 2010, Seabob Shrimp Fishery, Morubel nv

Consultant supporting a data collection initiative leading to a stock assessment and fishery advice for processing and government sectors. A stock assessment was completed for June 2009 CRFM Scientific Meeting and a management strategy has been developed specifically to meet MSC certification.

USA/UK, 2008-2010 Stock Assessment Review Program, CIE University of Miami

I served on the review panels for South East US (SEDAR 16, 19 and SEDAR Caribbean Data Workshop), and North East GARM III Models Meeting.

UK, March-July 2008, Flying Fish Stock Assessment, UN FAO

Lead stock assessment scientist at the WECAFC working group meeting in Tobago, including data preparation, analysis and completing a report.

Caribbean, April-July 2008, Review Data Collection and Data Management for the Guyana Montserrat St. Lucia and Grenada, Caribbean Regional Fisheries Mechanism

Consultant scientist conducting a review of data collection methods and supporting the data management, particularly use of the CARIFIS database.

Caribbean, 2006-2010, Annual CRFM Scientific Meeting, Caribbean Regional Fisheries Mechanism

Consultant scientist conducting stock assessment workshops and reporting to the first three annual CRFM meeting serving the region by providing scientific advice for the management of fish stocks. Also, a member of the ad hoc methods working group which meets separately.

UK, 2007 - 2010, Marine Stewardship Council Certification, Various certifiers

Reviewer of a number of fisheries for pre-assessment and North Sea herring and the North Atlantic mackerel, North Sea plaice and sole, Ross Sea toothfish, South Georgia toothfish and icefish, arctic cod and haddock, and Antarctic krill for full assessment.

UK, 2007, Principle 1 Scoring Methodology, Marine Stewardship Council

Consultant supporting the development of the Fisheries Assessment Methodology version 2, specifically design of the Principle 1 scoring table and guideposts.

USA/UK, 2004-2007 Stock Assessment Review Program, CIE University of Miami

I served on the review panels for Chesapeake Blue Crab Stock Assessment (August 8-11, 2005), for SEDAR 8 assessments of Florida and US Caribbean fisheries for spiny lobster and yellowtail snapper (May 14-20, 2005), STAR Pacific Hake (January 2006), WCPO Yellowfin Tuna (October 2006) and SEDAR 12 red grouper (January 2007), Alaska flatfish (June 2007), STAR Canary Rockfish/Arrowtooth Flounder (August 2007), and Pacific Halibut (July 2007).

UK, January-December 2006, Testing a Catch-Only Stock Assessment Method, UN FAO

Carry out a series of tests on a new method of stock assessment for catch-only time series, including developing a new fitting method.

UK, September 2006, ACP Fish II Feasibility Study, Poseidon

Consultant to update the feasibility study for EU project ACP Fish II.

South Pacific, February 2006, EC South Pacific Inshore Fisheries Project Mid-Term Review, MRAG

The aims of the evaluation were to determine the efficiency, effectiveness and impact of the PROCFish/C project in meeting its objectives, and the sustainability of the outcomes, as well as ascertain the need for an extension.

Mexico, September 2006, WECAFC Spiny Lobster, UN FAO

Consultant on the Western Central Atlantic Fishery Commission 2006 Assessment and Management Workshop on the Caribbean Spiny Lobster.

UK, March-December 2005, Guidelines for Certification of Small Scale / Data Deficient Fisheries, Marine Stewardship Council

Consultant in the development of guidelines document for certifiers to set out a methodology to certify under the MSC small scale fisheries which may use non-standard management and assessment methods, but still have sustainable fisheries.

Denmark, September 2005, North Sea Commission Fisheries Partnership Meeting

Attended meeting where ICES scientific working presented a variety stock assessments to fishermen representatives. I provided technical support and comment to fishermen as independent scientist.

UK, April-November 2005, ParFish Project, MRAG

Dissemination, including developing teaching materials and a workshop in Mangalore, India, of the new ParFish stock assessment methodology guidelines and software. The methodology is most suitable for small scale fisheries and community based fisheries management. The project was funded under the Fisheries Management and Science Programme, Department for International Development, UK Government.

UK, April-November 2005, Fisheries Enhancement Decision Tool Software, Imperial College London

Development of decision support tool software for the analysis of stock enhancement using hatchery fish. The project was funded under the Fisheries Management and Science Programme, Department for International Development, UK Government.

Barbados, March 2005, Stock Assessment Methods Meeting, Caribbean Regional Fisheries Mechanism

Member of the methods working group and participant in the first meeting to develop appropriate stock assessment methods for the Caribbean region.

Trinidad and Tobago, January 2005, Joint Venezuela / Trinidad and Tobago Shrimp Stock Assessment Workshop, UN FAO

Consultant and advisor for the stock assessment meeting between Trinidad and Venezuela which advised on the management of the shared shrimp resources.

Caribbean, February 2005, May 2006, Queen Conch Fisheries Management Manual, UN FAO

Author of a manual to advise developing countries in the Caribbean on management of queen conch (*Strombus gigas*) which is protected under CITES Appendix II. The manual advises countries and CITES on expectations to continue export under CITES arrangements.

USA, 2001-2003 Stock Assessment Review Program, CIE University of Miami

Served on the US Government SARC panel (June 2003), STAR panel (April 2002) and reviewer of the Pacific Dolphin by-catch assessments (November 2001, June/July 2002) as an external reviewer.

South Pacific, November 2004, EC South Pacific Tuna Project Mid-Term Review, MRAG

The objectives of the evaluation were to determine the efficiency, effectiveness and impact of PROCFish/O in meeting its objectives and the sustainability of the outcomes and to ascertain the need for an extension in time and other resources in order to effect a smooth transfer of activities to the WCPFC (and, for some activities, to its member ACP States and OCTs).

UK, May-December 2004, PFSA, MRAG

Developing software and tool kit supporting Participatory Fisheries Stock Assessment. The software applies decision theory based on interviews with fishers (multi-attribute decision making) and standard fisheries data and new modeling techniques. The project intends to develop additional support materials, a “user friendly” interface and more easily understood outputs.

UK, May-September 2004, Advisor to United Nations, Industrial Economics Inc.

Consultant scientist reviewing claims and providing advice to the United Nations regarding

compensation for the 1992 Iraq oil release.

Caribbean, November 2003 -January 2004, Shrimp and Groundfish Workshops, Caribbean Regional Fisheries Mechanism

Lead consultant scientist conducting stock assessment workshops for Guyana, Suriname, Belize, Jamaica and Trinidad on shrimp and groundfish resources.

Caribbean, November 2003 -January 2004, Shrimp and Groundfish Workshops, Caribbean Regional Fisheries Mechanism

Lead consultant scientist conducting stock assessment workshops for Guyana, Suriname, Belize, Jamaica and Trinidad on shrimp and groundfish resources.

USA, February 2004, Coral Reef Fish Stock Assessment Workshop, Western Pacific Fishery Management Council

Served as an expert panellist advising WPFMC on how to meet its National Standards 1 requirements for coral reef fisheries.

USA, 2000-2003 Stock Assessment Review Program, CIE University of Miami

Served on the US Government STAR panel (June 2000), 32nd SARC panel (November 2000), SARC panel (June 2003), STAR panel (April 2002) and reviewer of the Pacific Dolphin by-catch assessments (November 2001, June/July 2002) as an external reviewer.

UK, August 2001-November 2003, Marine Resources Assessment Group

Research project to improve decision-making in small-scale developing country fisheries, based upon a pragmatic Bayesian approach, including priors estimated from stakeholder interview data, as well as rigorous fisheries sampling and experimental work. Methods are developed within a software program PFSA which applies decision to support decision-making in co-managed fisheries.

Cuba, September 2002, FAO

2002 Assessment and Management Workshop on the Caribbean Spiny Lobster.

UK, July 2001, Moody Marine Ltd.

Marine Stewardship Council assessment of South Georgia Patagonian toothfish, including assessment of the interaction between the fishery and bird populations.

Caribbean, August 2001-December 2002, CARICOM Fisheries Unit

Help design, then implement new fisheries database (Delphi application, Visual FoxPro Server) “CARIFIS 1.0” for the CARICOM region.

Caribbean, August-December 2001, CARICOM Fisheries Unit

Advisor to Bahamas and Dominican Republic on data collection programme, including sampling theory and strategy and data management.

UK, December 2000, University of British Columbia

Project to estimate discards from demersal trawls in the North Atlantic with the "Sea-Around Us Project"

UK, November 2000, FAO

Technical editor for Klyashtorin, L. B. (2000) Climate Change and Long Term Fluctuations of Commercial Catches: The Possibility of Forecasting.

Venezuela, October 2000, FAO

2000 Assessment and Management Workshop on the Shrimp and Groundfish Fisheries on the Brazil-Guianas Shelf. Editor of the final report.

Mexico, September 2000, FAO

2000 Assessment and Management Workshop on the Caribbean Spiny Lobster.

Oman, August/September 2000, MEP

Stock assessment of 10 commercial stocks exploited by the demersal trawl fishery and analyses of biological sample data.

Rome, June 2000, FAO

Editor/contributor for the "Status of World Fisheries and Aquaculture 2000" report.

Spain, May 2000, ICCAT

ICCAT Working Group on Assessment Methods.

UK, 1998-2000, UN FAO

Contributor / editor / reviewer for DANIDA Stock Assessment Training Programme Documents: 'Guidelines for Routine Capture Fisheries Data Collection', 'Manual for VPA', 'Spiny Lobster Workshop Proceedings' and 'Guidelines for Regional Working Groups'.

Oman, October 1999, MEP

Advice to Oman Fishing Company on scientific assessment of their demersal fishery.

UK, September - December 1999, FAO

Editor / reviewer of the 'FAO Brazil-Guianas Shrimp and Groundfish 1999 Working Group Report' and "Sampling Manual".

Belize, March – April 1999, CFMC

Workshop leader / report editor of the CFMC/CFRAMP Stock Assessment Workshop for Queen Conch, Belize City, March 1999.

UK, March 1999, MEP

Stock assessment specialist; member of the MEP/SGS Marine Stewardship Council certification team to assess the Thames-Blackwater Estuary Herring Fishery

Ireland, July 1998, MEP

Fisheries scientist; Profile of the inshore fishery for the development of a management strategy within the EU Common Fisheries Policy.

Mexico, June 1998, FAO

Fisheries Scientist; FAO/CFRAMP Stock Assessment Workshop on Caribbean Spiny Lobster

UK, March - June 1999, MRAG

Fisheries Scientist; Stock Assessment Techniques for Co-Management: Develop operational model for Tonga drop-line grouper fishery to study alternative ways in which the fishery might be developed.

UK, March - April 1999, MRAG

Fisheries Scientist; Stock Assessment Techniques for Co-Management: Develop decision analysis/Bayesian based methods for use with Community Fishing Rights Areas in the Pacific using information from questionnaires and depletion experiments to local management decisions.

Anguilla, September - August 1999, MEP

Team Leader; DFID Project to Develop Offshore Fisheries: The project assists the Anguilla Department of Fisheries and Marine Resources develop a management plan for inshore and offshore resources.

Belize, April 1997, FAO

Fisheries Scientist; FAO/CFRAMP Workshop for Spiny Lobster: To provide technical assistance in data analysis and stock assessment for countries in the Caribbean region with the aim of ultimately setting up a working group for spiny lobster.

TCI, September 1996 - August 1997

Fisheries Scientist; Completion of various projects: Assessment of the 1997 conch quota and implementation of an ITQ system for the TCI, bayesian decision theory to set a closed season for spiny lobster assessment, a new multispecies stock assessment method using depletion models, using spatial data to assess CPUE as an index of abundance and using Bayesian decision theory to assess sustainable limits tourist diving on coral reefs.

TCI, June - August 1996, ODA

Fisheries Scientist; Fisheries Management Plan for the Turks and Caicos Islands: Updating the Fisheries Management Plan, and writing a summary document and step-by-step guide for stock assessment.

TCI, Oct 1995, ODA

Fisheries Scientist; Deskstudy on tropical Marine Biological Diversity: Document on tropical marine biodiversity prepared for ODA to be presented at the second meeting of the governments party to the Convention on Biological Diversity in Jakarta in Nov. 1995.

TCI, July 1995 - Dec 1996, TCIG

GIS Specialist: Development and implementation of a custom designed Geographical Information System for the Government of the Turks & Caicos Islands, Ministry of Natural Resources including staff training in GIS use.

TCI, 1992-95, ODA

Fisheries Scientist, Technical Cooperation: Lobster and conch stock assessment for the Turks and Caicos Islands artisanal fishery, including development and implementation of a relational database for catch, effort, social and economic data, and training staff in fisheries science and management. Working for the British Overseas Development Administration (ODA) as a technical advisor.

UK, 1992, MRAG

Fisheries Scientist: Shrimp bioeconomics and the impact of aquaculture on the capture fishery and fleet dynamics.

UK, 1991/92, MRAG

Fisheries Scientist: Coral Reef Fisheries Review and Database

Bangladesh, 1991, ODA

Fisheries Scientist: Bangladesh Flood Action Plan Study 17: design study formulating a 2-year programme estimating the impact of flood control measures on the inland capture fishery.

Saudi Arabia, 1991, HAR/IUCN

Mathematical ecologist: Saudi Arabian Gulf Oil Spill: ecological impact assessment survey

UK, 1991, MRAG/IIED

Population modeler: Research project on risk in Zimbabwe arid cropping and grazing systems. Joint project with the International Institute for the Environment and Development, UK.

Solomon Islands, 1990-91, MRAG/FFA

Fisheries Scientist: South Pacific tuna bioeconomic research concentrating on the interaction between different fishing gear types, the tuna market and estimation of fair licence fees using the fisheries Oracle database. Based at the Forum Fisheries Agency, Honiara, Solomon Islands.

UK, 1990, RRAG

Fisheries Bioeconomist: A variety of work with the Renewable Resource Assessment Group including development of a coral reef fisheries experiments, tuna bioeconomics research and teaching graduate students fisheries science.

Saudi Arabia, 1990, HAR

Marine Biologist: Environmental impact assessment of a pier extension, Yanbu, Saudi Arabia.

Tanzania, 1989-90, Frontier UK

Mathematical Ecologist: Study of the coral reef ecology of Mafia Island, Tanzania, and development of databases and mathematical techniques for the analysis of highly diverse communities.

Djibouti, 1987, TMRU/FAO

Fisheries Scientist: Quantitative base line survey of aquarium coral reef species of Djibouti to advise on the establishment and management of an ornamental fish trade.

UK, 1986, MRAG

Fisheries Scientist: Licensing consultancy with the Falkland Islands Government helping to establish a licensing regime for foreign vessels fishing within Falklands Island waters.

UK, 1986, MRAG/IUCN

Fisheries Scientist: Analysis of the economics of the Kuwait shrimp fishery and recommendations for management imposing a closed season.

UK, 1986, RRAG

Fisheries Scientist: Organisation of a pilot project and database, jointly with the UK's Freshwater Biological Association, with the aim of analysing population trends of fish in Lake Windermere through an ongoing gill net and fish trap sampling programme.

UK, 1984-85, TMRU

Research assistant: Identification of species assemblages and measuring the impacts of pollution and fishing on tropical marine communities. Work included development of a relational database for data storage and manipulation.

Saudi Arabia, 1983/84, TMRU

Mathematical ecologist: Quantitative survey of coral reefs, mangroves and seagrass beds in the Southern Red Sea.

Publications

Most projects listed above have produced a grey-literature report, which are often available from the Internet. In some cases, this is peer reviewed (for example, all MSC Certification Reports are reviewed), including stock assessments. Most stock assessment software I have written has been made available.

CRFM (2005-2013) Annual Scientific Meeting Reports. www.caricom-fisheries.com

Medley, PAH. 2005 Manual for the Monitoring and Management of Queen Conch, FAO Fisheries Circular FAO Fisheries Circular No. 1012. FIRM/C1012. FAO, Rome.

Medley, PAH. 2005 EnhanceFish Software Version 1.0. Download from http://www.fmsp.org.uk/Software.htm

Medley, PAH. 2005 ParFish Software. Version 2.0. Download from http://www.fmsp.org.uk/Software.htm

Medley, P. Nichols, P. Case Study 3: The Thames Herring Drift-net Fishery. In: Phillips, B. Ward, T., and Chaffee, C. (ed.) (2003) Eco-labelling in Fisheries. What is it all about? Blackwell Publishing, Oxford.

Lassen, H, Medley, PAH. 2001 Virtual Population Analysis: A practical manual for stock assessment. FAO Fisheries Technical Paper 400. 129pp.

Medley PAH, 1998. A decision theory case study: choosing a season opening for a spiny lobster (*Panulirus argus* L.) fishery. *Fisheries Science* 36: 159-170.

Medley PAH, Ninnes CH, 1999. A stock assessment for conch (*Strombus gigas* L.) fishery in the Turks and Caicos Islands. *Bulletin of Marine Science* 64(3), 399-406.

Medley PAH, Ninnes CH, 1997. A recruitment index and population model for spiny lobster *(Panulirus argus*) using catch and effort data. *Canadian Journal of Fisheries and Aquatic Sciences 54: 1414-1421.*

Gaudian G, Medley PAH, 1995. Diver carrying capacity and reef management in the Turks & Caicos Islands. *Bahamas Journal of Science, 3 (1)*: 9-14.

Ninnes C, Medley PAH, 1995. Lobster and Conch Management in the Turks and Caicos Islands. Proceedings of the CFRAMP Workshop, Jamaica. October 1995.

Gaudian G, PAH Medley, 1995. Marine Biological Diversity. Report to *Overseas Development Administration* presented at the 2nd Government Party to the CBD meeting in Jakarta. 50pp.

Medley PAH, Ninnes C, 1995. Fisheries Management in the Turks and Caicos Islands. South Pacific Commission / Forum Fisheries Agency Regional Workshop on Fisheries Management.

Gaudian G, Medley PAH, Ormond RFG, 1995. Estimation of the size of a coral reef fish stock. *Marine Ecology Progress Series 122: 107-113.*

Medley PAH, Ninnes C, Raven S, 1994. Stock assessment of the Turks and Caicos Islands lobster fishery using the CEDA package. *Gulf and Caribbean Fisheries Institute Conference, Corpus Christi, Texas. February, 1994.* In press.

Price ARG, Wrathall TJ, Medley PAH, Al-Mohamen AH, 1993. Broadscale Changes in coastal ecosystems of the Western Arabian Gulf following the 1990-91 Gulf War. *Marine Pollution Bulletin Gulf Special Issue 13pp.*

Medley PAH, Gaudian G and Wells SM, 1993. Coral Reef Fisheries Stock Assessment. *Reviews in Fish Biology and Fisheries*, 3 (3): 242-285.

Medley P, 1994. Estimating the Impact of Purse Seine Catches on Longline. In: R.S. Shomura, J. Majkowski and S.Langi (eds.) Proceedings of the First FAO Expert Consultation on Interactions of Pacific Tuna Fisheries, 3-11 Dec. 1991, Noumea, New Caledonia, pp. 182-198. *FAO Fisheries Technical Paper*. 336 Vol. 1, 326 pp.

Gaudian G, Medley PAH, 1991. Optimisation of coral reef fisheries: a pilot project. *Reef Encounter*, *10*: 13.

Medley PAH, 1991. Western Pacific Tuna Fisheries: Economic and Resources Issues Relating to Tuna Fisheries Interactions. *Report to the South Pacific Forum Fisheries Agency.*

Barratt, L and P Medley, 1990. Managing Multi-species Ornamental Reef Fisheries. *Progress in Underwater Science 15: 55-72*

Hilborn, R and P Medley, 1989. Tuna purse seine fishing with fish aggregating devices (FAD): Models of tuna FAD interactions. *Canadian Journal of Fisheries and Aquatic Sciences 1989, 46 (1): 28-32.*

Ormond, R.F.G., R.H. Bradbury, S. Bainbridge, K. Fabricius, J. Keesing, L.M. De Vantier, P. Medley and A. Steven. Test of a model of regulation of crown-of-thorns starfish by fish predators. In: Bradbury R.H. (ed.) (1988) Acanthaster and the Coral Reef: A Theoretical Perspective. Proceedings of a Workshop held at the Australian Institute of Marine Science, Townsville, Aug. 6-7, 1988. Lecture Notes in Biomathematics. 88. Springer-Verlag, Berlin.

Medley PAH, 1986. Aggregate Benefits and Gear Type Economics of the South-West Pacific Tuna Fishery. *South Pacific Forum Fisheries Agency Report.*

2. Dr. Ásgeir Daníelsson (team member)

Ásgeir Daníelsson. Born September 11, 1949 in Siglufjörður, Iceland.

Education.
- 1974. Fil. Kand. degree in Mathematics and Economics from Uppsala University, Sweden.
- 1981. M. Sc. degree in Economics from the London School of Economics, England.
- 1985. Ph.D. degree in Economics from the University of Manchester, England.

Occupation.
- 1974 - 1975. Economist at the National Economic Institute.
- 1975 - 1977. Lecturer at the Teacher Training College, Iceland.
- 1977 - 1980. Lecturer at Flensborgarskóli, Hafnarfirði.
- 1984-2000. Part time lecturer in the Department of Economics and Business Administration at the University of Iceland.
- 1987-2002. Economist at the National Economic Institute.
- 2003- Economist in the Economics Department of the Central Bank of Iceland.
- 2011- Head of research and forecasting in the Economics Department of the Central Bank of Iceland.

Thesis, papers and articles

- *Den ekonomiska reformen i Sovjetunionen 1965*. (The economic reform in the Soviet Union in 1965). Fil. Kand. thesis, Uppsala University, Sweden, 1974, unpublished.

- *The Theory of the Wicksellian Cumulative Process and its Extension to the Case of the Open Economy*. Ph.D. thesis, Manchester University, England, 1985, unpublished.

- *Fylgni og aðfallsgreining*. (Correlation and Regression Analysis). A text used for teaching in the Economics Department at the University of Iceland. (1987-1991).

- *Sveiflur í íslensku efnahagslífi*. (Variations in the Icelandic Economy. A comparison of variations in economic growth and other variables for the OECD countries). Published in an Icelandic weekly on economic affairs: Vísbending no. 31 1989.

- (with others) *The experience of the ITQ-system in Iceland*. A paper presented at the IIIrd Annual Conference of the EAFE (The European Association of Fishery Economists), Dublin 1991.

- *Sveiflur í sjávarútvegi, gengisstefna og almenn hagstjórn*. (Economic cycels in the fisheries, the exchange-rate policy and the general economic policy). Published in the economic journal of the Central Bank of Iceland: Fjámálatíðindi no. 3, 1991.

- *Áhrif mismunandi skattlagningar á mælingu þjóðhagsstærða*. (The influence of the tax-mix on the measurement of economic variables). Published in the economic journal of the Central Bank of Iceland: Fjámálatíðindi no. 3, 1991.

- *Áhrif evrópska efnahagssvæðisins á íslenskan sjávarútveg*. (The influence of the European Economic Area on the Icelandic Fisheries). Published by the National Economic Institute 1991.

- (with others) *Gengisstefnan og tenging íslensku krónunnar við ECU*. (The exchange-rate policy and the pegging of the Icelandic krona to the ECU). Published by the National Economic Institute 1991.

- *The Nordic Fisheries Management Model-The model and the data for the Icelandic verion*. A paper presented at the VIth Conference of the IIFET (The International Institute of Fisheries Economics and Trade), Paris 1992.

- (with others) GATT, *landbúnaðurinn og þjóðarbúið*. (GATT, the Agriculture and the National Economy). Published by the National Economic Institute 1992.

- (with others) *Hagkvæm nýting fiskistofna* (Optimal exploitation of fish stocks). A report on the work of a working group set up by the National Economic Institute and the Marine Institute. Published in May 1993 and in May 1994.

- (with others) *On the rational utilization of the Icelandic cod stock*, Paper prepared for the ICES (International Council for the Exploration of the Sea) C.M. 1993/G:56.

- (with others) *Hagkvæm nýting fiskistofna* (Optimal exploitation of fish stocks). The final report on the work of a working group set up by the National Economic Institute and the Marine Institute. Published in May 1994.

- Baldursson, F.M., Danielsson, A., Stefansson, G.: *On the Rational Utilization of the Icelandic Cod Stock*, ICES (International Council for the Exploration of the Sea) C.M. 1994/T:43.

- *Productivity growth in the Icelandic fisheries and the natural resource*. A paper presented at the VIth Annual Conference of the EAFE (The European Association of Fishery Economists), Crete 1994.

- Baldursson, F.M., Danielsson, A., Stefansson, G.: *On the Rational Utilisation of the Icelandic Cod Stock*, ICES Journal of Marine Research, 53, 1996.

- Danielsson A., Stefansson, G., Baldursson, F.M., Thorarinsson, K.: *Utilisation of the Icelandic Cod Stock in a Multispecies Context*, Marine Resource Economics, 1997, Vol. 12, pp. 329-344.

- *Fishery Management in Iceland*, Ocean and Coastal Management 1997, Vol. 35, No. 2-3, pp. 121-135.

- *Af undurfurðulegum stöðugleika gengisins*, Morgunblaðið 23. október 1997.

- Starting during the summer of 1996 I worked with the so called Nairobi group set up by UNEP and UNSD to write a manual for environmental accounting. Within the group I have been responsible for the section on marine resources. The manual has now been published as Handbook of National Accounting: Integrated Environmental and Economic Accounting – An Operational Manual was published by the United Nations Department of Economic and Social Affairs, Statistical Division, New York, 2000. (Studies in Method, Series F, No. 78).

- *Optimal Catch Quotas and Effort Quotas in the Presence of Risk*, a paper presented at the IX-th Biennial Conference of IIFET (International Institute of Fisheries Economics and Trade), Norway (1998).

- During 1997-1998 I was contracted by FAO to write parts of a manual on environmental accounting. I have finished the part of this work that I was contracted for but the work on the manual is still in progress. This handbook will be published in 2004 as “Handbook on National Accounting – Integrated Environmental and Economic Accounting for Fisheries”. (Series F, No.97 (ST/ESA/STAT/SER.F/97).

- *Þróun sjávarútvegs, kvótakerfið, auðlindagjald og almenn hagstjórn* (Development of the fisheries, the quota system, resource taxation and general economic policy). A report by the National Economic Institute to the Committee on Natural
Resources set up by the Icelandic Prime Minister in 1998. The report was published by the Committee in March 1999.

- *Efficiency of Catch and Effort Quotas in the Presence of Risk*, Journal of Environmental Economics and Management, Vol. 43, No. 1, January 2002, pp. 20-33.

- *Efficiency of ITQs in the Presence of Production Externalities*, Marine Resource Economics, Vol. 15, no. 1 (Spring) : 37-43, 2000.

- *Auðlindarenta í íslenskum sjávarútvegi og dreifing hennar* (Resource rent in the Icelandic fisheries and its distribution). A report by the National Economic Institute to the Committee on Natural Resources set up by the Icelandic Prime Minister in 1999. Unpublished.

- *Kvótakerfið og byggðaröskun* (The quota system and regional imbalances), a talk given at a conference organized by the Regional Institute, University of Iceland and the University in Akureyri. Published in Morgunblaðið March 21, 1999.

- *Integrated Environmental and Economic Accounting for Commercial Exploitation of Wild Fish Stocks*, a paper presented at the X-th Biennial Conference of IIFET (International Institute of Fisheries Economics and Trade), Corvallis, Oregon, USA, July 2000.

- *Reply: Efficiency of ITQs in the Presence of Production Externalities*, Marine Resource Economics Vol. 15, no. 3 (Fall): 245-251, 2000.

- *Hlutverk sjávarútvegs í tekjumyndun á Íslandi* (The role of fisheries in wage-formation process in Iceland). Fjármálatíðindi (economic journal of the Central Bank of Iceland), No. 1, 2001.

- *Quota Prices and the Cost of Rationalisation in ITQ-fisheries*. Paper presented at the XIIIth Conference of EAFE (European Associaton of Fisheries Economists), Salerno, Italy, April 2001.

- *Fisheries Accounts: Icelandic Case Study*. To appear in FAO handbook on integrated environmental and economic accounting for fisheries, January 2002. Published in 2004 in "Handbook on National Accounting – Integrated Environmental and Economic Accounting for Fisheries". (Series F, No.97 (ST/ESA/STAT/SER.F/97).

- *Quota prices when there are sunk costs and uncertainty and their role for capacity utilisation and optimal discarding*, paper to be presented at the 2nd Wold Congress of Environmental and Resource Economists, June 2002.

- *Biological information, profitability of fisheries and lease and asset prices for ITQs in Iceland*, a paper presented at the XI-th Biennial Conference of IIFET (International Institute of Fisheries Economics and Trade), Wellington, New Zealand, August 2002.

- (with Már Guðmundsson) *Keynes and the Modern Theory of Monetary Policy*. First presented at a conference organised by the Economics Department of the University of Iceland, "Hagfræði 20. aldarinnar: Keynes og nútíminn", (Economics of the 20th Century: Keynes and the modern times) held October 10, 2003. This paper will be published.

- *Sluggish exit and entry of labour and capital, stability and effects of taxes and subsidies in models of fisheries*, Central Bank of Iceland working paper no. 22, January 2004.

- 2001-2004 I worked for a Commitee on the long-run utilisation of fish stocks. The committee was chaired by F.M. Baldursson and handed in its report in 2004. I was member of the committee and was also hired for leading the work on the report. The report *Aflaregla fyrir þorskveiðar á Íslandsmiðum – Lokaskýrsla nefndar um langtímanýtingu fiskistofna*, was presented to the Minister of fisheries in May 2004 and published on the Ministry's website (http://www.sjavarutvegsraduneyti.is/frettir/sjreldra/nr/825).

- *Entry and Exit of Labour and Capital in a Fishery*, Natural Resource Modeling, Vol. 18, No. 2, Summer 2005.

- *Methods for Environmental and Economic Accounting for the Exploitation of Wild Fish Stocks and Their Application to the Case of Icelandic Fisheries*, Environmental & Resource Economics, Vol. 31, pp. 405-430, 2005.

- *The great moderation Icelandic style*, Central Bank of Iceland Working Paper No. 38, May 2008. (www.sedlabanki.is/lisalib/getfile.aspx?itemid=5977)

- *Accuracy in forecasting macroeconomic variables in Iceland*, Central Bank of Iceland Working Paper No. 39, May 2008. (www.sedlabanki.is/lisalib/getfile.aspx?itemid=5978)

- (together with Magnús F. Guðmundsson, Svava J. Haraldsdóttir, Thordvardur T. Ólafsson, Ásgerður Ó. Pétursdóttir, Thórarinn G. Pétursson og Rósa Sveinsdóttir) *QMM: A quarterly macroeconomic model of the Icelandic economy*, Central Bank of Iceland Working Paper No. 41, February 2009. (www.sedlabanki.is/lisalib/getfile.aspx?itemid=6802)

- *QMM: A steady state version*, Central Bank of Iceland Working Paper No. 44, November 2009. (www.sedlabanki.is/lisalib/getfile.aspx?itemid=7433)

- *Mandatory pension savings, private savings, homeownership, and financial stability*, Central Bank of Iceland Working Paper No. 58, May 2012. (www.cb.is/library/Skr%C3%A1arsafn---EN/Working-Papers/WP%2058%20net.pdf)

_____