


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

 <p>Accredited to ISO/IEC 17025:2005</p>	Marine Scotland - Science Issue No: 028 Issue date: 17 February 2017	
	Scottish Government Marine Laboratory 375 Victoria Road Aberdeen AB11 9DB	Contact: Mr G Grewar Tel: +44 (0) 1224 876544 Fax: +44(0) 1224 295511 E-Mail: gavin.grewar@gov.scot Website: www.gov.scot/topics/marine

Testing performed by the Organisation at the locations specified below

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details	Activity	Location code		
<table border="0"> <tr> <td style="vertical-align: top;"> Address Marine Scotland Science Scottish Government Marine Laboratory 375 Victoria Road Aberdeen AB11 9DB </td> <td style="vertical-align: top;"> Local contact Mr G Grewar </td> </tr> </table>	Address Marine Scotland Science Scottish Government Marine Laboratory 375 Victoria Road Aberdeen AB11 9DB	Local contact Mr G Grewar	Environmental testing - biota, sediments, natural and saline waters - Chemical, microbiological Fish and Shellfish health testing - Microbiological, virological, Molecular Biological	A
Address Marine Scotland Science Scottish Government Marine Laboratory 375 Victoria Road Aberdeen AB11 9DB	Local contact Mr G Grewar			

Site activities performed away from the locations listed above:

Location details	Activity	Location code		
<table border="0"> <tr> <td style="vertical-align: top;"> Marine Scotland Science Scottish Government Freshwater Laboratory Faskally Pitlochry PH16 5LB </td> <td style="vertical-align: top;"> Mr A McCartney Tel: +44 (0) 1224 294425 </td> </tr> </table>	Marine Scotland Science Scottish Government Freshwater Laboratory Faskally Pitlochry PH16 5LB	Mr A McCartney Tel: +44 (0) 1224 294425	Environmental testing - natural waters - Chemical	B
Marine Scotland Science Scottish Government Freshwater Laboratory Faskally Pitlochry PH16 5LB	Mr A McCartney Tel: +44 (0) 1224 294425			
<table border="0"> <tr> <td style="vertical-align: top;"> Marine Scotland Science Scottish Government Marine Laboratory Mobile Laboratory within Shipping container 375 Victoria Road Aberdeen AB11 9DB </td> <td style="vertical-align: top;"> Mr G Grewar </td> </tr> </table>	Marine Scotland Science Scottish Government Marine Laboratory Mobile Laboratory within Shipping container 375 Victoria Road Aberdeen AB11 9DB	Mr G Grewar	Chemical testing of biota and marine and estuarine waters [G1]	C
Marine Scotland Science Scottish Government Marine Laboratory Mobile Laboratory within Shipping container 375 Victoria Road Aberdeen AB11 9DB	Mr G Grewar			



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DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
NATURAL WATERS	<u>Chemical Tests</u>	Documented In-House Procedures	
	Anions: Chloride Nitrate Nitrite Sulphate	MFL100 by ion chromatography	B
	Cations: Ammonium Calcium Magnesium Potassium Sodium	MFL600 using ICP-OES	B
	Alkalinity Conductivity pH	MFL060 by autotitration	B
	Monomeric Aluminium	MFL300 by UV-VIS Spectrophotometry	B
	Ions: Ammonium Silicon as Silica	MFL500 by Skalar	B
	Total Phosphate Phosphate Total Nitrogen DOC Nitrate	MFL400 by Skalar	B



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SALINE WATERS	<u>Chemical and Physical Tests</u>	Documented In-House Procedures	
Saline Waters	Salinity 10-36 PSU	MET OCEAN01 Using Guideline 8410A Salinometer	A, C
Marine and Estuarine Waters	Dissolved Oxygen	M0820 by Winkler Titration	A, C
Estuarine and Sea waters	Ammonia	M0700 Using the Bran & Luebbe QuAAtro Analyser	A, B
	Nitrite	M0700 using Bran and Luebbe QuAAtro Auto-analyser	A, C
	Total Oxidised Nitrogen (Nitrate + Nitrite)	- M0700 using Bran and Luebbe AA3 or QuAAtro Auto-analyser	A, C
	Orthophosphate		A, C
	Silicate		A, C
Marine phytoplankton	Chlorophyll a	M3000 by Fluorometry	A
	Identification of pigments alloxanthin antheraxanthin α -carotene β -carotene chlorophyll a chlorophyll b 19-hexanoyloxyfucoxanthin chlorophyll c2 chlorophyll c3 diadinoxanthin diatoxanthin fucoxanthin gyroxanthin-diester lutein neoxanthin peridinin prasincoxanthin violaxanthin zeaxanthin	Documented in-house method M3150 using HPLC with photo-diode array (PDA)	A
	Quantification of Chlorophyll a and b	Documented in-house method M3150 using HPLC with photo-diode array (PDA)	A



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Fish muscle, fish liver, shellfish and sediment	<u>Chemical Tests</u> PBDEs: PBDE-28 PBDE-47 PBDE-66 PBDE-100 PBDE-99 PBDE-85 PBDE154 PBDE-153 PBDE-183	Documented In-house Procedures M2900 by GC-MSD	A
SEDIMENTS and BIOTA (Fish and Shellfish tissues)	<u>Chemical and Physical Tests</u>		
Fish liver shellfish and Sediment	Polycyclic Aromatic Hydrocarbons (PAHs): C1-252 Indenopyrene Benzoperylene Acenaphthylene Acenaphthene Fluorene Dibenz[<i>a,h</i>]anthracene Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene C2-Naphthalene C3-Naphthalene C4-Naphthalene Phenanthrene Anthracene C1-178, C2-178 C3-178 Dibenzothiophene Fluoranthene Pyrene C1-202 C2-202 Benzo[<i>c</i>]phenanthrene Benz[<i>a</i>]anthracene Chrysene C1-228 C2-228 Benzo[<i>b</i>]fluoranthene	M0680 and M0690 by GC-MSD	A



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SEDIMENTS and BIOTA (Fish and Shellfish tissues) (cont'd)	<u>Chemical and Physical Tests</u> (cont'd) <u>Benzo[k]fluoranthene</u> Benzo[e]pyrene Benzo[a]pyrene Perylene	M0680 and M0690 by GC-MSD (cont'd)	
SEDIMENTS	<u>Chemical Tests</u> Metals: Aluminium Arsenic Cadmium Chromium Cobalt Copper Iron Lead Lithium Manganese Mercury Nickel Uranium Vanadium Zinc	M0900 Total by HF digestion then collision cell ICP-MS	A
	Metals: (cont'd) Arsenic Cadmium Chromium Cobalt Copper Iron Lead Manganese Mercury Nickel Uranium Vanadium Zinc	M0910 – Metals in sediment by strong partial digestion and collision cell ICPMS	A



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SEDIMENTS (cont'd)	<u>Physical Tests</u>	Documented In-house Procedures	
	Particle Size Distribution: > 500 µm fraction	M0855 - by Sieving	A
	Particle Size Distribution	M0840 - Automated/Manual by Malvern Mastersizer Granulometer	A
BIOTA	<u>Chemical Tests</u>	Documented In-house Procedures	
Fish muscle, fish liver and shellfish	Metals: Arsenic Barium Cadmium Chromium Cobalt Copper Iron Lead Mercury Nickel Manganese Selenium Silver Vanadium Zinc	M 0920 by ICPMS	A



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FISH MUSCLE, SHELLFISH AND SEDIMENT	<u>Chemical Tests</u>	Documented In-house Procedures	
1,2,3	Ortho Chlorobiphenyls:	M0642 by GC-MDS following ASE Extraction	A
1,2,3	CB 28		
1,2,3	CB 31		
1,2,3	CB 52		
1,2,3	CB 49		
1,2,3	CB 44		
1,2,3	CB 74		
1,3	CB 70		
1,2,3	CB 101		
1,2,3	CB 99		
2	CB 97		
1,2,3	CB 110		
1,2,3	CB 149		
1,2,3	CB 118		
1,2,3	CB 153		
1,3	CB 132		
1,2,3	CB 105		
2	CB 137		
1,2,3	CB 138		
2,3	CB 158		
1,2,3	CB 187		
1,2,3	CB 183		
1,2,3	CB 128		
1,2,3	CB 156		
2	CB 157		
1,2,3	CB 180		
1,2,3	CB 170		
2,3	CB 189		
3	CB 194		
1,2,3	CB 209		
Where: 1 = Sediment 2 = Fish tissue 3 = Shellfish			
Fish and Shellfish	Total Lipid Content	M0890 by modified SMEDes method	A
	EROD assay	M2400 by spectrophotometer	A



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BIOTA (Water and Phytoplankton)	<u>Microbiological Tests</u> Identification and Enumeration of Marine Phytoplankton	Documented In-house Procedures MPHY 01 by modified Utermohl method using light microscopy, based on UK NRL standard method	A
	Photo examination and identification of phytoplankton species	MPHY02 using Transmission Electron Microscope (TEM)	A
VETERINARY (Farmed Fish)	<u>Virological Tests</u> Detection of Viral Haemorrhagic Septicaemia (VHS) virus antigen	Documented In-house Procedures MViol 001 by tissue culture and ELISA in accordance with Aquatic Animal Health (Scotland) Regulations 2009 which implements EC Directive 2006/88/EC	A
	Detection of Infectious Haematopoietic Necrosis Virus (IHNV)	MViol 002 by tissue culture and Bio-X ELISA\ by the Aquatic Animal Health (Scotland) Regulations 2009, implementing Council Directive 2006/88/EC	A
	Detection of Infectious Pancreatic Necrosis Virus (IPNV)	MViol 003 by tissue culture and in house ELISA and/or Bio-X ELISA \ by the Aquatic Animal Health (Scotland) Regulations 2009, implementing Council Directive 2006/88/EC	A
	Detection of Spring Viraemia of Carp (SVC) virus antigen	MViol 005 by tissue culture and ELISA based on the OIE Manual of Diagnostic Tests for Aquatic Animals (2009) and in accordance with Commission Decision 2010/221/EC	A
	Detection of Infectious Haematopoietic Necrosis (IHN) virus antigen	MViol 002 by tissue culture and ELISA in accordance with Aquatic Animal Health (Scotland) Regulations 2009 which implements EC Directive 2006/88/EC	A



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VETERINARY (Farmed Fish) (cont'd)	<u>Virological Tests</u> (cont'd)	Documented In-house Procedures	
	Isolation and detection of Infectious Salmon Anaemia (ISA) virus	MVirol 004 by tissue culture and IFAT. Used in conjunction with QPCR (MGEN010) in accordance with Aquatic Animal Health (Scotland) Regulations 2009 which implements EC Directive 2006/88/EC	A
	Detection of Infectious Pancreatic Necrosis (IPN) Virus	MVirol 003 by tissue culture and ELISA in accordance with Aquatic Animal Health (Scotland) Regulations 2009 which implements EC Directive 2006/88/EC	A
	Detection of Infectious Salmon Anaemia (ISA) Virus	MVirol006 by Immunohistochemistry based on OIE Manual of Diagnostic Tests for Aquatic Animals (2013) in accordance with Aquatic Animal Health (Scotland) Regulations 2013 which implements EC Directive 2006/88/EC	A
VETERINARY (Shellfish)	Detection of <i>Renibacterium salmoninarum</i> antigen (screening test)	MBACT01 by ELISA (based on OIE Manual for Diagnostic Tests for Aquaculture Animals, 2006) in accordance with Commission Decision 2010/221/EC	A
	<u>Histopathological Tests</u>		
	Screening for <i>Bonamia ostreae</i> and <i>Marteilia refringens</i>	MHIST01, based on OIE Manual of Diagnostic Tests for Aquatic Animals in accordance with Aquatic Animal Health (Scotland) Regulations 2009 which implements EC Directive 2006/88/EC	A
VETERINARY (Fish and Shellfish Tissues and Tissue Culture preparations)	<u>Molecular Biological Tests</u>		
	Screening of RNA Pathogens		A



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VETERINARY (Fish and Shellfish Tissues and Tissue Culture preparations) (cont'd)	<u>Molecular Biological Tests</u> (cont'd)	Documented In-house Procedures	
	Infectious Salmon Anaemia Virus	MGEN RNA and supporting procedures by QPCR/RT-QPCR using the Roche Lightcycler based on OIE Manual of Diagnostic Tests for Aquatic Animals in accordance with Aquatic Animal Health (Scotland) Regulations 2009 which implements EC Directive 2006/88/EC	A
	Salmonid Alpha Virus	MGEN RNA and supporting procedures by QPCR/RT-QPCR using the Roche Lightcycler based on OIE Manual of Diagnostic Tests for Aquatic Animals in accordance with Aquatic Animal Health (Scotland) Regulations 2009 which implements EC Directive 2006/88/EC	A
	Viral Haemorrhagic Septicaemia Virus	MGEN RNA and supporting procedures by QPCR/RT-QPCR using the Roche Lightcycler based on OIE Manual of Diagnostic Tests for Aquatic Animals	A
VETERINARY (Fish, Mollusc and Crustacean Tissues and Tissue Culture preparations)	<u>Screening for DNA of Pathogens and Parasites:</u>		
	<i>Renibacterium salmoninarum</i>	MGEN DNA and supporting procedures by QPCR using the Roche Lightcycler in accordance with Aquatic Animal Health (Scotland) Regulations 2009 which implements either EC Directive 2006/88/EC or Commission Decision 2010/221/EC	A
	White Spot Syndrome Virus		
	<i>Bonamia</i> parasites		
	<i>Piscirickettsia salmonis</i>		
	<i>Paramoeba perurans</i>		
	Gyrodactylus parasites		



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VETERINARY (Fish and Shellfish Tissues and Tissue Culture preparations)	<u>Screening for DNA of Pathogens and Parasites:</u> (cont'd) Detection and/or identification of viral and bacterial pathogen and parasite DNA or RNA sequences	MGEN FS, SOP 1320 and supporting procedures, by manual or Qiagen QIAcube robotic extraction using QPCR and RT QPCR with end point analysis using the Roche Lightcycler 480 using Flexible Scope	A
FISH AND SHELLFISH	<u>Sensory Testing</u> Assessment of petrogenic taint in fish and shellfish	Documented In-house Procedures M2610 by Scalar method using Taste Panel	A
END			