

Schedule of Accreditation



Organisation Name	Marine Institute
Trading As	
INAB Reg No	130T
Contact Name	Yvonne Bogan
Address	Marine Environment & Food Safety Services Division, Rinville, Oranmore, Galway
Contact Phone No	091 387566
Email	yvonne.bogan@marine.ie
Website	http://www.marine.ie
Accreditation Standard	ISO 17025 T
Date Initially Awarded	01/07/2002
Scope Classification	Biological and veterinary testing
Scope Classification	Chemical testing
Services available to the public ¹	No

¹ Refer to document on interpreting INAB Scopes of Accreditation

Sites from which accredited services are delivered		
(the detail of the accredited services delivered at each site are on the Scope of Accreditation)		
	Name	Address
1	Marine Institute Headquarters	Rinville, Oranmore, Galway
2	Marine Institute Bantry site	Phytoplankton Laboratory, C/O Fastnet Mussels, Gortalassa, Bantry, Cork

Scope of Accreditation

Marine Institute Bantry site

Biological and Veterinary Testing

Category: A

Biology/veterinary field - Tests	Test name	Technique	Matrix	Equipment	Std. reference	
820 Miscellaneous	PHY-009 Phytoplankton Test Identification and enumeration of Phytoplankton	Phytoplankton Test Identification and enumeration of Phytoplankton by the Utermöhl Cell Counting Method Range: 40 cells/l upwards (see appendix 1 for details list)	Biota: Species list: Toxic species–PSP Toxin Producers (Saxitoxins) (Also linked to fish mortalities) Alexandrium tamarense Alexandrium minutum Alexandrium ostenfeldii Alexandrium spp. Alexandrium cysts Toxic species–DSP Toxin Producers (Okadaic acid,DTX's,Pectenotoxins) Dinophysis acuminata Dinophysis acuta Dinophysis caudata Dinophysis dens Dinophysis fortii Dinophysis hastata Dinophysis miles Dinophysis mitra Dinophysis mucronata Dinophysis nasutum Dinophysis norvegica Dinophysis ovum Dinophysis parva Dinophysis pulchella Dinophysis rotundata Dinophysis sacculus Dinophysis tripos Dinophysis sp Prorocentrum lima Prorocentrum minimum/balticum Phalacroma rapa Phalacroma spp.	Utermöhl Cell counting method using Inverted light microscope	Laboratory SOP PHY-9. Based on EN15204:2007 and EU Directive 853/2004.	
	Phytoplankton Test Identification and enumeration of Phytoplankton		Toxic species. - ASP Toxin Producers (Domoic Acid) Pseudo-nitzschia delicatissima group < 3 µm Pseudo-nitzschia seriata group >3 µm Toxic species. – Yessotoxins, Homoyessotoxin producers	Utermöhl Cell counting method using Inverted light microscope	Laboratory SOP PHY-9. Based on EN15204:2007 and EU Directive 853/2004.	

			<p> Lingulodinium polyedrum Protoceratium reticulatum Gonyaulax spinifera Dinophysis sacculus Dinophysis tripos Dinophysis sp. Prorocentrum lima Prorocentrum minimum/balticum Phalacroma rapa Phalacroma spp. Toxic species - AZP Toxin producers (Azaspiracids) Protooperidinium crassipes Protooperidinium curtipes Azadinium spinosum Azadinium spp. Ichthyotoxic & HAB species Akashiwo sanguinea Amphidinium carterae Amphidinium operculatum var gibbosum Amphidinium operculatum Amphidinium sp. Heterosigma akashiwo Karenia mikimotoi Karenia brevis Noctiluca scintillans Phaeocystis pouchetii (cells or colonies) Phaeocystis globosa (cells or colonies) Phaeocystis spp. (cells or colonies) Heterocapsa spp. Harmful/problematic to Finfish/Shellfish Chaetoceros convolutus Chaetoceros concavicornis Chaetoceros danicus Chaetoceros densus Chaetoceros eibonii Chaetoceros sp. (Phaeoceros group) Chrysochromulina leadbeateri Chrysochromulina polylepis Chrysochromulina spp. Cochlodinium polykrikoides/kofoidii Coscinodiscus wailesii Dictyocha fibula Dictyocha speculum Dictyocha spp. Gyrodinium spirale Karlodinium micrum </p>			
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Biological and Veterinary Testing

Category: A

Biology/veterinary field - Tests	Test name	Technique	Matrix	Equipment	Std. reference	
802 Preparation of films on slides followed by microscopic examination with or without fixation and staining with dyes as required - .02 Microscopic examination for parasites	FHU-106 Monitoring for Gyrodactylus salaris	Microscopic identification of proteinase-K digested gyrodactylid parasites, removed from finfish fins. Range: present/absent	Fish	Binocular Stereo dissection microscope Light microscope	Laboratory SOP FHU-106. Based on OIE Manual of Diagnostic Tests for Aquatic Animals Chapter 2.3.3	
802 Preparation of films on slides followed by microscopic examination with or without fixation and staining with dyes as required - .05 Microscopic examination for constituents of animal origin	FHU-095 Screening of histology from Ostrea edulis for the presence/absence of Marteilia refringens	Preparation of stained histological slides and screening of slides for the presence or absence of the protistan parasite Marteilia refringens the causative agent of Marteiliosis (Aber disease) in the flat oyster Ostrea edulis	Molluscs (Oysters)	Binocular microscope, tissue processor, slide stainer	Laboratory SOP FHU-95 and FHU-86. Based on methods laid down in Commission Decision 2015/1554/EC and in the OIE Manual of Diagnostic Tests for Aquatic Animals	
803 Culture of organisms in liquid or agar based culture media with visual or instrument monitoring for growth - .01 Culture of bacteria	MIC-006 Escherichia coli Enumeration in Molluscan Bivalve Shellfish	Most probable number test for enumeration of Escherichia coli in Molluscan Bivalve Shellfish	Fish, Shellfish and molluscs	Cultures Incubator Most probable number technique for enumeration of Escherichia coli	Laboratory SOP MIC-06. Based on ISO 16649-3 Microbiology of food and foodstuffs – Horizontal method for the enumeration of β glucuronidase-positive Escherichia coli – Part 3. Most probable number techniques using 5-bromo-4-chloro-3-inddoyl- β -Dglucuronide.	
805 Detection and/or identification of bacterial, parasite, fungal and viral nucleic acids using appropriate techniques - .03 Nucleic acid amplification tests, CE marked commercial systems	MBU-004 Detection of norovirus genogroups I and II bivalve shellfish	Detection of norovirus genogroups I and II bivalve shellfish by real-time reverse transcription polymerase chain reaction (RT- PCR Instrument). Range: 100 to 2 X 10 ⁷ genome copies/g of shellfish	Fish, shellfish and molluscs	Real-Time PCR Instrument	Laboratory SOP MBU-4. Based on ISO 15216-1:2017	

		hepatopancreas tissue				
	MBU-110 Detection of hepatitis A virus bivalve shellfish	Detection of hepatitis A virus in bivalve shellfish by real-time reverse transcription polymerase chain reaction (RT- PCR). Range: Detected/ Not detected.	Fish, shellfish and molluscs	Real-Time PCR Instrument	laboratory SOP MBU-110. Based on ISO/DIS 15216-2:2018.	
805 Detection and/or identification of bacterial, parasite, fungal and viral nucleic acids using appropriate techniques - .04 Nucleic acid amplification tests, in house developed assays	MBU-067 Detection of Infectious Salmon Anaemia in Salmonid Fish Tissue	Detection of Infectious Salmon Anaemia virus in Salmonid Tissue by real-time PCR. Range: positive/negative	Fish	Real-Time PCR Instrument	Laboratory SOP MBU-67. Based on method outlined in Snow et al., 2006. Developments in Biologicals (Basel) 126, 133-145 and Commission Decision 2015/1554/EU	
	MBU-069 Real-Time PCR method used to detect Renibacterium salmoninarum in salmonid kidney tissue	Detection of Renibacterium salmoninarum in salmonid kidney tissue by real-time PCR. Range: positive/negative	Fish	Real-Time PCR Instrument	Laboratory SOP MBU-69. Based on method outlined in Bruno et al., 2007. Aquaculture 269, 114-122	
	MBU-077 Detection of Gyrodactylus salaris	Detection of Gyrodactylus salaris using real-time TaqMan PCR	Fish	Real-Time PCR Instrument	Laboratory SOP MBU-77. Based on method outlined in Collins et al., 2010. Diseases of Aquatic Organisms 90: 135-142	
	MBU-099 Detection of Oystreid herpes virus 1 (OsHV1) in oyster tissue	Detection of Oystreid herpes virus 1 (OsHV1) in oyster tissue using real-time TaqMan PCR	Shellfish and molluscs	Real-Time PCR Instrument	Laboratory SOP MBU-99. Based on method outlined in Martenot et al., 2010. Journal of Virological Methods 170: 86-89	
	MBU-102 Detection of white spot syndrome virus (WSSV) in crustacean tissue	Detection of white spot syndrome virus (WSSV) in crustacean tissue using real-time TaqMan PCR. Range positive/negative	Crustaceans	Real-Time PCR Instrument	Laboratory SOP MBU-102. Based on method outlined in Durand & Lightner, 2002. Journal of Fish Disease 25: 381-389	
	MBU-109 Detection of Marteilia refringens in oysters and mussels	Detection of Marteilia refringens in oysters and mussels by real-time TaqMan PCR	Shellfish and molluscs	Real-Time PCR Instrument	Laboratory SOP MBU-109. Based on EURL "Marteilia refringens detection and	

					typing by real-time polymerase chain reaction, 2011"	
	MBU-62 Detection of Koi Herpesvirus in cyprinid fish tissues	Detection of Koi Herpesvirus in cyprinid fish tissues using real-time PCR. Range: positive/negative	Fish	Real-Time PCR Instrument	Laboratory SOP MBU-62. Based on the method outlined in Gilad et al. (2004) Diseases of Aquatic Organisms 60(3): 179-87 and Commission Decision 2015/1554/EU	
810 Culture of virus and other obligate intracellular pathogens using in vivo or in vitro techniques	FHU-065 Virological examination of samples for the presence of Viral Haemorrhagic Septicaemia (VHS), Infectious Haematopoietic Necrosis (IHN), Infectious Pancreatic Necrosis (IPN) and Spring Viraemia of Carp (SVC) in Finfish.	Screening Finfish for VHSV, IHNV, IPNV and SVCV by cell culture. Range: positive/negative	Fish	Tissue Homogeniser Microscope, ELISA Plate Reader	Laboratory SOP FHU-65. Based on Commission Decision 2015/1554/EU and the OIE Manual of Diagnostic Tests for Aquatic Animals Chapter 2.3.9.	
820 Miscellaneous	FHU-086 and FHU-087 Preparation and Screening of heart imprints from <i>Ostrea edulis</i> for the presence of <i>Bonamia ostreae</i>	Histological and microscopic preparation and examination of slides	Molluscs (Oysters)	Binocular microscope, downdraft, fumehood	Laboratory SOP FHU-87 and FHU-86. Based on methods laid down in Commission Decision 2015/1554/EC and in the OIE Manual of Diagnostic Tests for Aquatic Animals	
	PHY-009 Phytoplankton Test Identification and enumeration of Phytoplankton	Phytoplankton Test Identification and enumeration of Phytoplankton by the Utermöhl Cell Counting Method Range: 40 cells/l upwards (see appendix 1 for details list)	Biota: Species list: Toxic species – PSP Toxin Producers (Saxitoxins) (Also linked to fish mortalities) <i>Alexandrium tamarense</i> <i>Alexandrium minutum</i> <i>Alexandrium ostenfeldii</i> <i>Alexandrium</i> spp. <i>Alexandrium</i> cysts Toxic species – DSP Toxin Producers (Okadaic acid, DTX's, Pectenotoxins) <i>Dinophysis</i>	Utermöhl Cell counting method using Inverted light microscope	Laboratory SOP PHY-9. Based on EN15204:2007 and EU Directive 853/2004.	

			<p>acuminata Dinophysis acuta Dinophysis caudata Dinophysis dens Dinophysis fortii Dinophysis hastata Dinophysis miles Dinophysis mitra Dinophysis mucronata Dinophysis nasutum Dinophysis norvegica Dinophysis ovum Dinophysis parva Dinophysis pulchella Dinophysis rotundata Dinophysis sacculus Dinophysis tripos Dinophysis sp. Prorocentrum lima Prorocentrum minimum/balticum Phalacroma rapa Phalacroma spp. Toxic species. - ASP Toxin Producers (Domoic Acid) Pseudo-nitzschia delicatissima group < 3 µm Pseudo-nitzschia seriata group >3 µm Toxic species. – Yessotoxins, Homoyessotoxin producers Lingulodinium polyedrum Protoceratium reticulatum Gonyaulax spinifera Dinophysis sacculus Dinophysis tripos Dinophysis sp. Prorocentrum lima Prorocentrum minimum/balticum Phalacroma rapa Phalacroma spp.</p>			
	PHY-55 Real-time PCR detection of Azadinium spinosum in seawater samples	Real time PCR fluorescence measurement via Roche LightCycler Instruments. DNA extraction by Qiagen Plant Dneasy Mini silica	Sea water	Real-Time PCR Instrument	SOP PHY-55 based on published method Kerstin Toebe, Aboli R. Joshi, Philip Messtorff, Urban tillmann,	

		spin columns using automated DNA extraction via Qiagen QiaCube. Phytoplankton cell disruption via freeze thaw cycle and via bead mill mixer			Allan Cembella and Uwe John. Molecular discrimination of taxa within the dinoflagellate genus Azadinium, the source of azaspiracid toxins. J. Plankton Res. (2013) 35(1): 225–230.	
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Chemical Testing

Category: A

Chemistry Field - Tests	Test name	Analyte	Range of measurement	Matrix	Equipment/technique	Standard reference/SOP
751 Food testing - .03 Compositional analysis	CHE-052 Determination of Moisture content in Marine Biota	Moisture	Range: Moisture Content: 2.0%-90%	Fish, Shellfish and molluscs (marine biota)	Moisture content by oven determination	Laboratory SOP CHE-52. Based on the AOAC official method for moisture in Meat, official methods of analysis of AOAC International.
752 Chemical residue testing - .01 Drugs and drug metabolites	CHE-008 Screening and Confirmatory Chemical Test of Ivermectin and Emamectin B1a and Doramectin	Ivermectin and Emamectin B1a and Doramectin	Range: Ivermectin: 0.2-300 ngg-1 Emamectin B1a: 29-1000 ngg-1 Doramectin: 0.2-300 ngg-1	Fin Fish - skin and muscle in natural proportions	UPLC	Laboratory SOP CHE-8. Based on Laboratory developed methods for th analysis of Ivermectin and Emamectin B1a and Doramectin by UPLC
	CHE-042 Screening and Confirmatory Chemical Test for the analysis of Teflubenzuron and Diflubenzuron	Teflubenzuron and Diflubenzuron	Range: Teflubenzuron 217-12,000 ngg-1. Diflubenzuron 300-16,000 ngg-1	Fin Fish - skin and muscle in natural proportions	UPLC DAD	Laboratory SOP CHE-42. Based on manufacturers method Huntington Life Sciences report NTC 005/984530
	CHE-167 Quantitative Screening and Confirmatory for Anlaysia of Dyes in Farned Finfish	Malachite green, Crystal Violet, Victoria Blue, Leuco Crystal Violet, Leuco Malachite Green, Brilliant Green	Range: Malachite green, Crystal Violet, Victoria Blue, Leuco Crystal Violet, Leuco Malachite Green: 0.5-200.0 µg/kg. Brilliant Green: 0.5-100.0 µg/kg	Finfish muscle and skin in natural proportions	LCMSMS (Liquid Chromatography Mass Spectrometry)	Laboratory SOP CHE-167. Based on the Journal of Chromatography/A/2011 Vol 12018, NUMB 12, pages 1632-1645
	FHU-001 Microbiological Screening for Antibiotic Residues including Tetracycline, Quinolone, Florfenicol residues (Qualitative) in Fish	Screening test for the detection of residues with antibacterial activity based on the inhibition of growth of specific susceptible bacterial strains	Screening method only. Low cut off range 2.5 ppb	Fish	Mediaclave	Laboratory SOP FHU-001. Based on detection of residues with anti-bacterial activity in aquaculture products, EU Reference laboratory, ANSES Fougères
	FHU-119 Screening for the sulphadiazine residues in fish muscle	Bioassay for sulphadiazine screening, Qualitative	negative/suspect positive	Finfish Muscle Tissue	Randox Evidence Investigator	Laboratory SOP FHU-119. Based on sulphonamide screening on the Randox Evidence Investigator using a commercial kit (Randox anti-microbial array I Ultra)
752 Chemical residue testing - .02 Elements	CHE-032 Screening and Confirmatory	Mercury	Range: 0.007-50 mg.kg-1 wet weight	Fish, Shellfish and molluscs (marine biota)	Cold Vapour-Atomic Fluorescence Spectrometry	Laboratory SOP CHE-32. Based on Hatch and Ott, 1968

	Chemical test Mercury					
	CHE-178 Screening and Confirmatory Analysis of trace metals in marine biota	Ag, As, Cd, Cr, Cu, Ni, Pb, Zn	Range: As 0.002 - 200 mg/kg ww Cd 0.002 – 200 mg/kg ww Cr 0.02 – 100 mg/kg ww Cu 0.01 - 200 mg/kg ww Pb 0.02 - 200 mg/kg ww Ni 0.03 - 100 mg/kg ww Ag 0.002 - 5 mg/kg ww Zn 0.14 – 500 mg/kg ww	Fish, Shellfish and molluscs (marine biota)	Inductively coupled plasma - Mass Spectrometry	Laboratory SOP CHE- 178 Digestion method based on in-house developed method and ICPMS manufacturer recommendations
752 Chemical residue testing - .05 Organic contaminants	CHE-170 Determination of Lipid Content and analysis of Organic Contaminants	Quantitative Analysis of Polychlorinated Biphenyls, Hexachlorobenzene and Hexachlorobutadiene.	Range: 0.001 - 10,000ng.g ww and/or lipid weight	marine and freshwater fish, shellfish and marine mammals.	Gas Chromatgraphy Mass Spectrometry	Laboratory SOP CHE- 170. Based on an internationally recognised method for the extraction of lipids from biota followed by the analysis of contaminants by GC- MS.
		Quantitative Analysis of Polycyclic Aromatic Hydrocarbons and Polybrominated Diphenyl Ethers	Range: 0.001 - 70.00ng.g ww and/or lipid weight	marine and freshwater fish, shellfish and marine mammals.	Gas Chromatgraphy Mass Spectrometry	Laboratory SOP CHE- 170. Based on an internationally recognised method for the extraction of lipids from biota followed by the analysis of contaminants by GC-MS [ICES No 53 Techniques in Marine Environmental Sciences]
752 Chemical residue testing - .07 Nutrients	Nutrients in Sea and Estuarine Water	Quantitative Analysis of total oxidized nitrogen (TOxN), nitrite, silicate and phosphate	Range: Nitrite 0.04- 20µM, Phosphate 0.16-50µM, Total Oxidised Nitrogen 0.26-2000µM and Silicate 0.38- 1500µM	marine and estuarine water	Continuous Flow Analyser (computer controlled, continuous flow, wet chemistry analytical system using colorimetry)	Laboratory SOP CHE- 209.
766 Environmental testing (inc waters) - .01 Metal analysis	CHE-168 Determination of Total Mercury in natural water	Total mercury	Range: 0-20 ppt	Estuarine and marine waters	Cold Vapour Atomic Fluorescence Spectrometry with gold trap pre- concentration	Laboratory SOP CHE- 168. Based on USEPA Method 1631: Determination of mercury in water by cold vapour atomic fluorescence spectrometry with gold trap
	CHE-169 Screening and Confirmatory Analysis of metals in estuarine and marine waters	Ag, As, Cd, Cr, Cu, Ni, Pb, Zn	Range: 0.05-1000 µg/l	Saline, Estuarine and other Waters	ICP-MS (Inductively Coupled Plasma Mas Spectrometry)	Laboratory SOP CHE- 169. Based on USEPA Method 200.8 Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma – Mass Spectrometry Revision 5.4.

766 Environmental testing (inc waters) - .05 Inorganic	CHE-141 Salinity analysis in Sea and Estuarine Water	Salinity	Range: 0.03 (i.e. LOQ) - 41.81 psu	Saline Waters	Portasal Salinometer TM8410A	Laboratory SOP CHE-141. Based in Technical Manual for Portasal Salinometer.
797 Miscellaneous materials and products - .03 Other tests	BCT-034 Domoic acid and Epi-Domoic Acid (ASP) in Shellfish	Domoic acid and Epi-domoic acid	Range: Domoic and Epi-Domoic acid: 2.5 – 2500 mg.kg-1	Fish, shellfish and molluscs. Shellfish: All Tissue	HPLC DAD	Laboratory SOP BCT-34. Based on the international procedure by Quilliam et al.1995 used and recommended by the European Reference Laboratory for Marine Biotoxins (EURLMB).
	BCT-078 Analysis of Lipophilic toxins, including semi quantitative screen for Domoic Acid	Okadaic acid, AZA, Yessotoxin, Pectenotoxin, Domic Acid	Range: OA Equivalents 0.015-13.21 µg/g AZA Equivalents: Range 0.005-7.5 µg/g Yessotoxin Equivalents,:Range 0.2-2.39 µg/g Pectenotoxin Equivalents: Range 0.015-2.02 µg/g Semi Quantitative Screen: Domoic Acid by LC-MS/MS: Range 2.0 -113 mg.kg-1	Fish, shellfish and molluscs	UPLC MSMS	Laboratory SOP BCT-78. Based on Gerssen,P.P.J. Mulder, M.A. McElhinney, J. de Boer, 2009. Journal of Chromatograohy A, 1216, 9, 1421 - 1430 and the EU Reference method for lipophilic toxin analysis (EU-RL LCMSMS)
	BCT-088 Chemical Confirmatory Test: Domoic and Epi-Domoic Acid analysis	Domoic acid and Epi-Domoic Acid	Range Domoic and Epi-Domoic acid: 0.8 – 2500 mg.kg-1	Fish, shellfish and molluscs. Shellfish: All Tissue	UHPLC DAD	Laboratory SOP BCT-88. Based on the international procedure by Quilliam et al.1995 used and recommended by the European Reference Laboratory for Marine Biotoxins(EURLMB).
	BCT-096 Analysis of Biotoxins in Shellfish	Okadaic Acid, AZA, Yessotoxin, Pectenotoxin, Domic Acid	OA Equivalents: Range 0.015 – 4.5 µg/g AZA Equivalents: Range 0.005 – 4.3 µg/g Yessotoxin Equivalence: Range 0.003 – 6.2 µg/g Pectenotoxin Equivalence: Range 0.015– 4.0 µg/g Semi Quantitative Screen: Domoic Acid: Range 0.7 – 53.8 mg.kg-1	Fish, shellfish and molluscs. Shellfish: All Tissue	UPLC-Xevo G2-S MS-ToF	Laboratory SOP BCT-96. Based on the EU Reference method for lipophilic toxin analysis (EU-RL LC/MS-MS)
	BCT-100 Paralytic Shellfish Toxins by pre-column oxidation UHPLC-FD	Saxitoxin STX, GTX Neo	Range: Toxin Range (LOQ-ULQ) Units: µg STX diHCLeq-kg STX 34 → 2263 dcSTX 17 → 1459 GTX2,3 26 → 3359 GTX5 2 → 155 dcGTX2,3 14 →	Fish, shellfish and molluscs	Ultra High Pressure Liquid Chromatography with Fluorescence Detector. UHPLC	Lawrence JF, Niedzwiadek B, Menard C “AOAC Official Method 2005.06

			1405 C1,2 4 → 509 NEO 145 → 4481 GTX1,4 245 → 3984 dcNEO 25 → 1513			
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Marine Institute Headquarters

Chemical Testing

Category: B

Chemistry Field - Tests	Test name	Analyte	Range of measurement	Matrix	Equipment/technique	Standard reference/SOP
798 Sampling	CHE-006 Procedure for taking samples for surveillance monitoring of finfish farming products	As specified in the annual plan for monitoring and detection of residues in aquaculture products	n/a	Fin Fish - skin and muscle in natural proportions	Sampling	Laboratory SOPS CHE-6 , CHE-7 based on Council Directive 96/23/EC and Commission Decision 98/179/EC