

## Working Group on Pathology and Diseases of Marine Organisms (WGPDMO)

2018/MA2/ASG03 The Working Group on Pathology and Diseases of Marine Organisms (WGPDMO), chaired by Ryan Carnegie, USA, will work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2019	5–9 February	Copenhagen, Denmark	Interim report by 1 April	
Year 2020	4-7 February	Reykjavik, Iceland	Interim report by 17 February	
Year 2021	TBD February	Tenerife, Spain	Final report by 1 April to ACOM and SCICOM	Election of new chair

### ToR descriptors

ToR	Description	Background	<a href="#">Science Plan codes</a>	Duration	Expected Deliverables
a	Summarize new and emerging disease trends in wild and cultured fish, molluscs and crustaceans based on national reports	New disease conditions and trends in diseases of wild and cultured marine organisms will be reviewed. This is an annual, ongoing ToR for WGPDMO and will provide information for ToRs b-i	5.6	3 years	Summary in annual reports
b	Deliver leaflets on pathology and diseases of marine organisms	A number of ICES publications currently in preparation will be reviewed by WGPDMO. This is an ongoing, annual ToR	5.6	3 Years	Publication in ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish
c	Synthesize information on the spread and impact of <i>Bonamia ostreae</i> in flat oysters in the ICES area	<i>Bonamia ostreae</i> is a major pathogen of European flat oysters that has expanded its range in recent years. The present distribution, recent trends in parasite prevalence and infection intensity, and the effectiveness of contemporary management strategies will be summarized, with perspective on the related species <i>Bonamia exitiosa</i> , recently documented in oysters from some ICES member countries. This is a continuing ToR from the previous cycle	2.1, 5.6	2 Years	Publication in the peer-reviewed literature
d	Summarise the role of <i>Vibrio</i> pathogens contributing to mortalities in shellfish aquaculture and to	<i>Vibrio</i> bacteria have long been associated with larval production problems in shellfish hatcheries, but the potential impacts of vibriosis in sub-market and market-sized Pacific oysters in	2.1, 5.6, 5.8	3 Years	Peer-reviewed journal article

	seafood-associated disease risks in humans	European production areas has become an important emerging concern. Likewise, concern about <i>Vibrio</i> risks to human consumers has also grown. This ToR will synthesize the current knowledge on <i>Vibrio</i> highlight critical gaps in our understanding of these species. This is a continuing ToR from the previous cycle			
e	Synthesize perspective on complex gill disease (CGD) in salmon and identify strategies for mitigation	Complex gill disease (CGD) is an emergent, economically important health issue that limits productivity in salmon aquaculture. CGD is believed to results from a complex interaction of environmental, host and infectious factors. The performance and survival of affected fish is influenced by the severity of the gill lesions. Environmental factors associated with CGD include exposure to harmful algae, jellyfish, low dissolved oxygen and elevated water temperatures. Relevant infectious agents include Atlantic salmon paramyxovirus, salmonid gill poxvirus, <i>Candidatus Piscichlamydia salmonis</i> and the microsporidian <i>Desmozoan lepeophtherii</i> . This ToR will describe the causes and consequences of CGD in salmon aquaculture in ICES member countries and identify mitigation strategies in the context of climate change	5.6, 6.1	3 Years	Peer-reviewed journal article
f	Integrate perspective on emerging health issues affecting wild salmon populations of Baltic member countries	National reporting in recent years has revealed an array of disease concerns in Baltic salmon populations, with elevated mortality being widely reported. Determining similarities and differences in patterns of disease and mortality and gaining insight into potential aetiological factors is urgent for effective management of salmon health in the region. This ToR will involve coordination among representatives of member countries around the Baltic to consolidate information concerning Baltic salmon health problems and identify strategies for better understanding and mitigating them	5.6, 6.1	3 Years	Peer-reviewed journal article

g	Identify strategies to prevent further spread of ostreid herpesvirus OsHV-1 within the ICES region and mitigate impacts where it occurs	The emergence of ‘microvar’ variants of the ostreid herpesvirus OsHV-1, which have caused significant Pacific oyster mortality from Europe to Australia and New Zealand, is the most significant mollusc disease development in decades. Preventing further spread of these pathogens and mitigating damage in affected areas are twin challenges of OsHV-1 management today. This ToR will aim to identify strategies to prevent OsHV-1 microvariant dispersal to North American member countries, presently free of the microvars, and to maintain commercial production should an epizootic emerge. It will also more broadly consider the OsHV-1 microvar emergence as a case study in response to emerging viral and bacterial pathogens, to identify general strategies for future responses and potential pitfalls with regard to their application	5.6, 6.1	3 Years	ICES Journal of Marine Science article
h	Complete assessment and refine application of the Fish Disease Index (FDI)	Results of assessment of the FDI will be reviewed, and data harmonisation and quality assurance will be addressed as refined guidelines are produced for FDI application	5.6	3 Years	Publication in final WGPDMO report
i	Provide expert knowledge and management advice on fish and shellfish diseases, if requested, and related data to the ICES Data Centre	This is an annual ToR in compliance with a requests from the ICES Data Centre	5.6, 6.1	3 Years	Ad hoc reports

## Summary of the Work Plan

Year 1	Three terms of reference (a, b and i) are annual tasks and form a core part of WGPDMO activities. New fish and shellfish disease leaflets will also be prepared under ToR b in each of the three years. A working draft concerning <i>Bonamia ostreae</i> in flat oysters (ToR c) will be developed, and work will commence on synthesis related to <i>Vibrio</i> pathogens in shellfish, complex gill disease in salmon, Baltic salmon health, and OsHV-1 in oysters (ToRs d-g). Results of the Fish Disease Index assessment will be reviewed (ToR h).
Year 2	A final draft manuscript on <i>B. ostreae</i> (ToR c) will be produced and discussed. A Workshop on Emerging Mollusc Pathogens (WKEMOP) including OsHV-1 (ToR g) will be conducted with a draft report produced for discussion. Terms of reference d-f will be developed as working draft manuscripts.
Year 3	Final draft reports on <i>B. ostreae</i> (ToR c), <i>Vibrio</i> pathogens (ToR d), complex gill disease (ToR e), Baltic salmon health (ToR f), OsHV-1 and emerging mollusc pathogens (ToR g), and the Fish Disease Index (ToR h) will be produced and discussed.

## Supporting information

Priority	The current activities of this Group will provide key perspective on disease impacts on fisheries and aquaculture, and on potential avenues for mitigation to promote sustainable industries. It will lead ICES into new areas of consideration with regard to aquaculture-environment interactions. Consequently, these activities are considered to have a very high priority.
Resource requirements	The research programmes which provide the main input to this group are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible.
Participants	The Group is normally attended by some 10–15 members and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	ACOM/ SCICOM group
Linkages to other committees or groups	There are clear linkages to the groups of ASG, WGSEDA and WGAGFA, that we will seek to develop.
Linkages to other organizations	OSPAR, HELCOM, EAFF, OIE