

Working Group on Introduction and Transfers of Marine Organisms (WGITMO)

2019/FT/HAPISG01 The Working Group on Introductions and Transfers of Marine Organisms (WGITMO), chaired by Cynthia McKenzie, Canada, will work on ToRs and generate deliverables as listed in the Table below.

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
Year 2020	4–6 March	Gdynia, Poland		Joint meetings with WGBOSV and WGHABD
Year 2021	1–3 March	Online meeting		
Year 2022			Final report by DATE to SCICOM	

ToR descriptors

TOR	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	EXPECTED DELIVERABLES
a	Advance research, develop collaborations and address surveillance and knowledge gaps in issues related to the introduction and transfer of marine organisms, through annual reviews of national/international activities and responding to advice requests.	Data, information and knowledge collated and synthesised ensures timely update of AquaNIS as well as national and international databases as appropriate. This information will be used as an underlying information source for other ToRs, responding to incoming advice requests as well as organising collaboration with other international science organisations (e.g. PICES and CIESM).	2.1, 2.4, 3.3	3 years	Annual reports to ICES. Further develop and advance AquaNIS database, and populate it with new data. Respond to incoming advice requests as requested.
b	Evaluate the impact climate change may have on the introduction and spread of non-indigenous marine organisms, including Arctic environments.	This work will be carried out jointly with WGBOSV. Contributes to SICCOME and ICES high-priority action areas 'Arctic research'.	2.5, 2.2, 3.6	3 years	Primary publication on the Arctic environment and the spread of non-indigenous species.
c	Investigate biofouling as a vector for the introduction and transfer of aquatic organisms on vessels and artificial hard structures, their pressure and impact on the ecosystem with a comparison of prevention or selective mitigation methodologies.	Biofouling has been increasing recognized as an important vector in the introduction and transfer of aquatic organisms. Elements of this work will be carried out jointly with WGBOSV as a comparison vector in invasion pathways. Biofouling is an increasing concern for aquaculture, energy installations, and coastal development as stressors on coastal environments.	2.7, 2.1, 6.4	3 years	Input on the general applicability of preventive measures and selective mitigation technologies through a technical paper or manuscript submitted to a peer-reviewed scientific journal. Input to IMO Biofouling guidelines.

d	Advance knowledge base to further develop indicators to evaluate the status and impact of non-indigenous species in marine environments	The aim is to develop a wider knowledge-base to more effectively address several legislative acts related to introductions of non-native species, such as EU IAS Regulation and EU MSFD (D2). Specifically, WGITMO aims to improve/develop metrics and critically evaluate the underlying uncertainties, including the ongoing global trial of the Aquatic Species Invasiveness Screening Kit (AS-ISK) and a comparison of AS-ISK and the Canadian Marine Invasive Species Tool (CMIST).	2.2, 2.7, 6.1	3 years	At least one manuscript to be submitted to a peer-reviewed scientific journal.
e	Evaluate the development and utilization of DNA- and RNA-based molecular approaches to provide science-based tools for strategic planning, policy development, and operational processes regarding non-native species and biological invasions (including detection and monitoring, reconstruction of patterns and vectors of introduction and spread, assessment of establishment and impact risk, and application for invasive species control)	Molecular (DNA-based and RNA-based) approaches have been increasingly used in the past decades to uncover cryptic introduced species, understand underlying processes of population establishment and spread, and detect novel introductions and monitor existing ones. Recent innovations have increased the power of these approaches to understand invasion risk and offer possibilities for novel biotechnological solutions for control or eradication of invasive populations. With the advent of recent technologies, it is timely to assess and evaluate their potential applications as well as their limitations.	2.5, 1.6, 4.4	3 years	Input on the effective utilization of these methods for international and national policies and regulations through meeting participation, group correspondence, and/or development of technical reports or peer-reviewed papers.
f	Investigate the role of human-produced marine debris as a vector and facilitator for the introduction and spread of non-indigenous species (NIS). Advance research and identify knowledge gaps on marine debris-NIS interactions (eg. Marine debris as a facilitator for jellyfish blooms).	The accumulation of debris in the ocean is severely affecting ocean and coastal ecosystems, as its ingestion and entanglement directly impacts marine organisms. Furthermore, recent research indicates that marine debris is both a growing vector for the introduction of non-indigenous species (NIS), with transoceanic rafting already likely to intensify species invasions worldwide and a potential facilitator of marine diseases. Develop collaborations with other working groups (HELCOM-TGML; OSPAR ICG-ML,	2.5, 2.6, 2.1	3 years	Review paper on NIS introduced to European waters via marine debris

		ICES-WGML, MSFD-ML; PICES; CIESM)			
g	Investigate best practices to minimize the role of aquaculture as a vector for the introduction and transfer of non-indigenous aquatic organisms. This would include both non-indigenous species targeted for aquaculture and hitchhikers (biofouling and interstitial, parasites and pathogens). Impacts of non-indigenous species on aquaculture and on ecosystems will be addressed.	Aquaculture has been recognized as an important vector in the introduction and transfer of aquatic organisms. ENSARS provided some baseline information on aquaculture risk analysis, including development and global testing of ENSARS' derivative, the AS-ISK. There are important social and economic impacts (positive and negative) of introductions related to aquaculture. Linkages with aquaculture working groups, and WGPDMO will be sought as well as a close collaboration with WGECON.	2.1,2.2, 5.6	3 years	Input on the general applicability of preventive measures (good practice codes) and selective mitigation technologies through technical guidance and/or a peer-reviewed paper.

Summary of the Work Plan

Year 1	Work on all ToRs with special focus on a, c, e, f, g
Year 2	Work on all ToRs with special focus on a, b, d, e, f
Year 3	Report on All ToRs

Supporting information

Priority	The work of the Group forms the scientific basis for essential advice related to the introduction and transfer of marine organisms, particularly non-indigenous species. 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 resources required to undertake additional activities in the framework of this group are negligible.
Participants	The Group is normally attended by some 40-50 members and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and group under ACOM	The group will serve as primary respondents to incoming advice requests on various issues relating to introduction and transfer of marine organisms, including non-indigenous species.
Linkages to other committees or groups	There is a very close working relationship with the Working Group on Ballast Water and Other Ship Vectors (WGBOSV). In addition to relevance to the Working Group on Harmful Algal Bloom Dynamics (WGHABD), Biodiversity Science (WGBIODIV), and aquaculture focused working groups, WGITMO also contributes to Integrated Ecosystem Assessment EG's. Anticipate building linkages with the Working Group on Integrated Morphological and Molecular Techniques (WGIMT) during the next three years under these ToRs. Potential linkages with WGML, WGECON, WGPDMO.
Linkages to other organization	PICES, CIESM, IMO, HELCOM, OSPAR