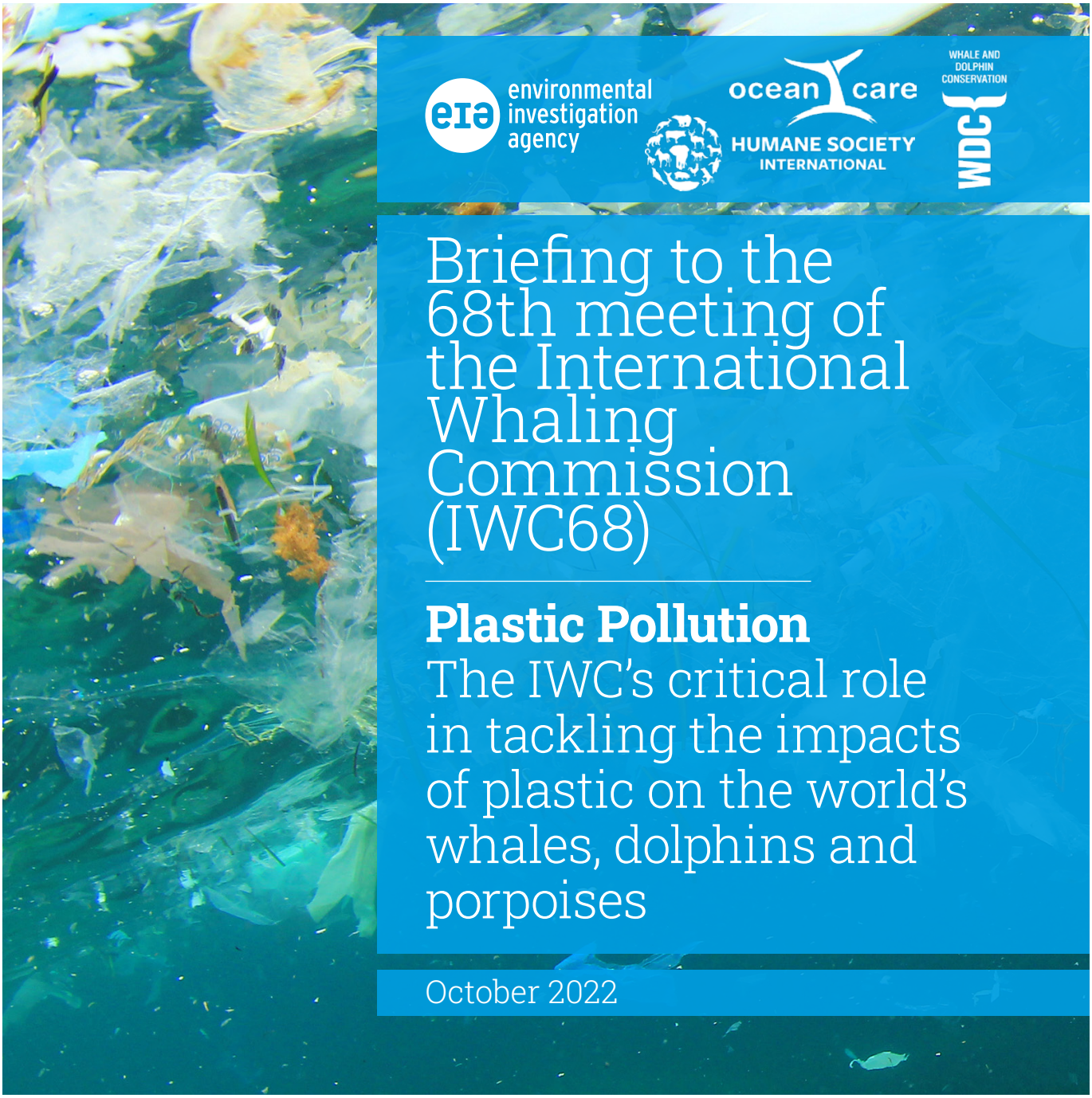

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HUMANE SOCIETY INTERNATIONAL

WHALE AND DOLPHIN CONSERVATION

WDC

Briefing to the 68th meeting of the International Whaling Commission (IWC68)

Plastic Pollution

The IWC's critical role in tackling the impacts of plastic on the world's whales, dolphins and porpoises

October 2022

Background

Global production of virgin (primary) plastics has increased from two million tonnes in 1950 to 460 million tonnes in 2021 – an increase of 22,900 per cent.

To date, humans have produced about 10 billion tonnes of plastics – half of which has been produced since 2005 and half of which is now in landfill or the open environment.

Plastic is pervasive in all environments on Earth, contaminating marine life,[1,2] farmland,[3] bottled and tap water,[4,5] beer and table salt,[6] as well as existing atmospherically in particulate form.[7] In fact, the degree of exposure is such that plastics and their associated toxic contaminants are accumulating in our bodies and microplastics are often found in wastewater effluent.[8]

Plastics have delivered a wealth of benefits to society. Yet rather than being valued as the precious commodities they are, plastics continue to be irresponsibly produced, frivolously used and negligently disposed of. Plastic pollution, including the 13 million tonnes estimated to enter the oceans each year, is symptomatic of the unsustainable linear model of 'take, make, dispose' that still dominates the convenience economy, causing untold damage to human health and the environment.

Plastic pollution impacts on cetaceans

From Antarctic Sea ice to the deepest ocean trenches, plastic pollution is ubiquitous in marine ecosystems. At least 914 species are directly impacted, with recorded instances of plastic ingestion in all marine turtle species, nearly half of all surveyed seabird and marine mammal species as well as 69 freshwater birds and 49 land birds from 53 families.[9]

Approximately 68 per cent of cetacean species are known to be affected by plastic pollution.[10] However, impacts are not limited to the often-lethal consequences of ingestion and entanglement. Sub-lethal impacts are an increasingly recognised reality, causing malnutrition, disease and reduced reproduction, growth and longevity.[11,12]

Furthermore, as cetaceans sit at the apex of marine food webs, they can be treated as indicator species for microplastic ingestion and transfer.[13] While the impacts of microplastics on cetaceans have yet to be fully established, they are likely to elicit inflammation, cellular tissue damage and altered molecular pathways.

Considering the keystone role cetaceans play in marine ecosystems, a broader and more representative understanding of secondary impacts include changes to carbon and nutrient cycles, ecotoxicity, habitat changes within sediments and marine ecosystems, co-occurring biological impacts on other endangered or keystone species and related societal impacts.[14]

There are documented cases of plastic ingestion in at least 57 out of the 90 known cetacean species (63.3 per cent),[15] with ingestion strongly correlated with stranding incidences around the world.[16] More than 34 per cent of cetacean species have had at least one documented case of entanglement, almost all involving abandoned, lost or otherwise discarded fishing gear (ALDFG).[17]

The critically endangered North Atlantic right whale (NARW) *(Eubalaena glacialis)* has a total population of approximately 400 individuals and entanglement in fishing gear is the leading cause of death for large whales in the western North Atlantic.[18] Movement models show that the southern New England coastal region of the north-eastern US is an important destination for NARW, including reproductive females.[19]

Below: A Cuvier's beaked whale that was stranded dead on the beach of Kremasti, Rhodes in April 2022, was found to have ingested about 15kg of plastics.

This same region is also home to a well-established lobster fishing industry, with more than three million active lobster traps set in the Gulf of Maine each season. More than 83 per cent of NARW bear entanglement scars and 59 per cent have been entangled at least twice, meaning that almost every animal in an entire species has been injured by fishing lines. While it is extremely difficult to distinguish whether the gear was active or passive at the time of entanglement, 85 per cent of diagnosed NARW deaths between 2014-19 were attributed to entanglement in fishing gear.[20]

Right whale body measurements collected over a 20-year period demonstrate a link between entanglements in fishing gear with shorter whales and a steady decrease in right whale body lengths since 1981.[21] Arrested growth may lead to reduced reproductive success and increased probability of lethal gear entanglements.

In addition, entanglements result in significant elevations in chronic stress[22] and drag from fishing gear consumes up to eight per cent of a female's reproductive energy budget, delaying the energetic equilibrium (e.g. restoring the energy lost by a particular entanglement) required for reproduction by months to years.[23] Given that pregnant and nursing females will naturally lose up to a third of their body weight during that life phase, a lack of food likely results in a longer recovery time for breeding females. In 2017, only five calves were born within the entire population[24] and in 2018 no new calves were recorded for the species.

The extraordinarily low birth rate of right whales is due not only to entanglements but also because the Gulf of Maine is one of the fastest-warming bodies of water on the planet. The plastics lifecycle is a major source of greenhouse gas emissions; production of virgin plastic polymers and their conversion from fossil fuels are responsible for 90 per cent of the plastic life cycle's carbon footprint[25] and are expected to double from 2016-40.[26,27]

Production trends have the largest influence over the already emissions-intensive plastics lifecycle, which is further driving climate change. Right whales need an average of 2,000lb of krill a day to survive and warmer waters are sending them further north.[28] This is forcing longer feeding migrations and prevents breeding females from gaining the weight needed to carry pregnancies to term. This, in turn, has led to lower birth rates and delayed sexual maturity in males.[29]

While the long-term population consequences of plastic pollution on cetacean species are yet to be adequately assessed, the sub-lethal effects such as those elaborated upon above can compromise feeding and cause malnutrition, disease and reduced reproduction, growth and longevity.[30]

Micro- and nanoplastics present significant concerns for cetacean species. Due to the overlap between whale feeding areas and high microplastic density, consumption of contaminated prey likely poses a major threat to the health of at least some cetacean species.[31] Studies show that micro- (1 µm-5 mm) and nanoplastics (<1 µm) ingestion can lead to inflammation, cellular tissue damage and altered molecular pathways in other marine species.[32,33] Furthermore, ingestion of microplastics has the potential to increase the bioavailability of toxic substances, which is likely to impact all parts of the marine food chain, including cetacean prey species.[34]

Due to recognition as a largely irreversible, compounding and global threat to populations and ecosystem services worldwide, plastic pollution has accelerated up the social, political and conservation agendas rapidly in recent years. As such, plastic pollution is recognised as a major global threat, not only to cetacean species but also to related climate stability, planetary boundaries, biosphere integrity and livelihoods.[35]

IWC action on marine plastic pollution

The International Whaling Commission (IWC) recognised the potential significance of marine debris impacts on cetaceans almost two decades ago;[36] indeed, plastic pollution spans five of the eight priority areas of environmental concern identified by the IWC Scientific Committee and endorsed by the Commission in 1997.[37] The IWC has since undertaken a number of actions to understand, manage and mitigate the impact of marine debris, increasingly focused on plastics.

Marine debris has been a standing item on the Conservation Committee's agenda since 2011 and the Scientific Committee's since 2014. In 2018, an Intersessional Correspondence Group on Marine Debris was established to take forward the IWC's marine debris work and now reports to both the Scientific and Conservation Committees.

In 2013, the Scientific Committee held the first IWC marine debris workshop, which focused on scientific aspects of marine debris interactions with cetaceans. The workshop concluded that marine debris and its contribution to entanglement, exposures including ingestion or inhalation and associated impacts including toxicity, are welfare and conservation issues for cetaceans on a global scale and a growing concern.[38]

The second workshop, in 2014, explored how the IWC could engage with existing international and regional mitigation efforts, share information about cetacean-specific impacts of marine debris and lead and engage with

action in regions where marine debris has the greatest potential impacts on cetacean populations.[39]

The third workshop, *Marine Debris: The Way Forward*, was held in 2019.[40] This was an international expert workshop hosted by the IWC to better understand the scale, nature and impacts of marine debris on cetaceans.

The 2019 workshop report made a series of recommendations, noting the importance of long-term studies and the need to support strandings networks and the IWC Strandings Initiative. The need for standardised approaches to post-mortem examinations was highlighted and the workshop recommended that the IWC Scientific Committee consider development of a database of marine debris information from these. The need to integrate marine debris into Conservation Management Plans was recommended.[41]

The IWC Scientific Committee reviewed the report in May 2020 and endorsed its recommendations. The Scientific Committee noted the alarming scale of actual and projected increases in plastic and recognised that the impacts of marine debris on cetaceans are more substantial than was previously thought.[42]

In September 2020, the IWC Conservation Committee also endorsed the workshop report and approved an interim marine debris workplan as proposed by the intersessional correspondence group for 2020/21. A more detailed, costed workplan will be considered at IWC68.[43]

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ALDFG and entanglement

The IWC has hosted three workshops on large whale entanglement in fishing gear, including some consideration of ALDFG.[44] In 2011, the IWC launched the Global Whale Entanglement Response Network with the aim of building safe and effective entanglement response capability around the world and ultimately preventing entanglements from happening in the first place.[45]

In 2018, the IWC adopted a "Resolution on Ghost Gear Entanglement among Cetaceans" by consensus. The resolution confirmed the importance of addressing ALDFG as a key threat to cetaceans and called on Contracting Parties to improve reporting and increase collaboration and cooperation to develop best practices to avoid ALDFG.

A new global governance framework

In recent years, plastic pollution has been put squarely on the international agenda. As part of the 2030 Agenda for Sustainable Development, Sustainable Development Goal (SDG) 14.1 states the need by 2025 [to] "prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution," making the issue of plastic pollution a global priority.

However, plastic pollution also holds direct relevance to SDGs 3, 6, 11, 12, 13, 15 and 17, among others. Plastic pollution has been repeatedly highlighted by the United Nations Environment Assembly (UNEA) in a series of resolutions:

Resolution 1/6: Marine plastic debris and microplastics (2014) At its inaugural session, UNEA stressed the importance of the precautionary approach, called for comprehensive action on marine plastic pollution and requested an extensive study to identify key sources and possible measures.[46,47]

Resolution 2/11: Marine plastic litter and microplastics (2016) UNEA recognised marine plastic pollution as a "rapidly increasing serious issue of global concern that needs an urgent global response."[48,49] Following a review of 18 international instruments and 36 regional instruments, UNEP concluded that "current governance strategies and approaches provide a fragmented approach that does not adequately address marine plastic litter and microplastics."[50]

Resolution 3/7: Marine litter and microplastics (2017) UNEA stressed "the importance of long-term elimination of discharge of [plastic] litter and microplastics to the oceans," encouraged national action and international cooperation and established an Ad Hoc Open-Ended Expert Group to examine options to combat marine plastic pollution from all sources, including international response options and legally binding strategies and approaches.[51,52]

Resolution 4/6: Marine plastic litter and microplastics (2019) UNEA reaffirmed the importance of the long-term elimination of discharges and further stressed "the importance of more sustainable management of plastics throughout their lifecycle in order to increase sustainable consumption and production patterns, including but not limited to the circular economy" and extended the mandate of the expert group to include exploring technical and financial resources and mechanisms and the effectiveness of an international response option.[53,54]

In March 2022, UNEA adopted Resolution 5/14 titled "End plastic pollution: Towards an international legally binding instrument." Resolution 5/14 convenes an intergovernmental negotiating committee (INC) to develop the new global agreement on plastic pollution. The mandate to the INC calls for addressing plastic pollution in all environments through a comprehensive approach addressing the full plastics lifecycle and sets out a series of provisions to be developed.

The recognition that plastic pollution traverses areas of relevance to at least eight SDGs is exemplified by the deletion of the word "marine" in front of "plastic pollution" in the final Resolution 5/14 text and inclusion of a reference to sustainable production and consumption of plastics (SDG12). As such, the new plastics treaty needs to be developed, implemented and embedded within the broader sustainable development landscape.

The expressed aim is to conclude negotiations by the end of 2024, after which it would be adopted and opened for signature at a Conference of the Plenipotentiaries in 2025. The resulting agreement has the potential to re-define humanity's relationship with plastics for the decades to come, meaning negotiators have a tremendous responsibility to ensure it is fit-for-purpose.

Conclusion and recommendations

Environmental crises do not exist in isolation – they are intricately interconnected and mutually reinforcing. The UN report *Making Peace with Nature* substantiates this and urges member states to better align goals, targets, commitments and mechanisms under environmental agreements to be more effective.[55]

A new global plastics treaty holds the potential to radically reduce the human-induced threats posed to cetaceans, not just from ingestion and entanglement, but from climate change, chemical pollution and biodiversity loss. The IWC has a key role to play in understanding and addressing the significant impacts of plastic pollution on cetaceans as the premium global authority on cetacean conservation and welfare.

The European Union has submitted "Draft Resolution on Marine Plastic Pollution" to IWC68, which acknowledges the importance of plastic pollution as a priority concern for the IWC, the need for regional and international cooperation and which recognises the unique role of the IWC in understanding and addressing the impacts of plastic pollution on cetaceans.[56] Adoption of this Resolution will encourage the development and support of a comprehensive work programme under the IWC, with clear and appropriately supported roles for the IWC Secretariat and the various committees and working groups.

By setting out a clear plan for engagement in the broader global context on plastic pollution, including support for and engaging as a stakeholder within discussions on a new global agreement on plastic pollution, the IWC can significantly and efficiently contribute to the effectiveness of global efforts to reduce plastic pollution, including its impact on the conservation of cetaceans.

The following non-governmental organisations strongly urge IWC Contracting Governments to support the adoption of the EU-led "Draft Resolution on Marine Plastic Pollution" at IWC68.

Environmental Investigation Agency (EIA)
www.eia-international.org

Humane Society International
www.hsi.org

OceanCare
www.oceancare.org

Whale and Dolphin Conservation
www.whales.org

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