Climate Change Policy

Executive Summary

1. ICOMIA members, who represent the international recreational marine industry, are committed to supporting a sustainable boating industry which is contingent upon a boating sector that is adaptable and prepared to take reasonable steps to mitigate the threats and risks associated with climate-related events.

2. Much has been achieved by industry to support sustainable environmental practices over recent decades influenced by market forces, regulation and a willingness by industry to reduce impacts on the environment. We must build upon those efforts to increase resilience and capabilities to adapt to and support counter measures to the rising challenge of Climate Change.

3. The current trajectory of Climate Change[1][2][3] leads to irreversible changes to weather patterns and an increased frequency of extreme weather events and forms a key challenge for the marine industry.

4. This paper outlines the background, the threats and risks, the increasing global concern and proposes a call to action. In the context of this paper the threat is Climate Change exhibiting itself through issues such as changes in the frequency and intensity of sea level rise, water temperatures, storms, waves, flood and drought; while the risk is anything that may be exposed to vulnerability, damage, or destruction; and that includes both risks to infrastructure and participation in boating.

5. ICOMIA is committed to collaboration with other marine industry organisations such as PIANC[4] to acknowledge the science; the need for action across all aspects the industry; and the need for development of an in-depth evidence-based Policy Statement to inform strategies and counter measures to be adopted by ICOMIA and its members.

Background

6. The boating environment – our waterways and marine ecosystems – are on centre stage when it comes to environmental threats and risks arising from fundamental changes to our weather systems. These environmental risks have significant implications for the global ocean which covers 71% of the Earth's surface and contains about 97% of the Earth's water, with all people on Earth depending directly or indirectly on the ocean and cryosphere.[5]

7. Environmental threats impact the recreational boating industry directly with Climate Change causing damage to marinas, harbours and vessels; disrupting aquatic activity, marine ecosystems, and fish habitats; and endangering lives at sea. In addition, rising sea levels will have an impact along coastlines.

---

[1] National Oceanic and Atmospheric Administration https://www.climate.gov/news-features/understanding-climate/new-research-examines-climate-change%E2%80%99s-role-2018-extreme-weather

[2] Climate Council – Craning up the Intensity: Climate Change and Extreme Weather https://www.climatecouncil.org.au/uploads/1b331044fb03fd0997c4a4946705606b.pdf

[3] Climate Council - WEATHER GONE WILD: CLIMATE CHANGEFUELLED EXTREME WEATHER IN 2018 https://www.climatecouncil.org.au/wp-content/uploads/2019/02/Climate-council-extreme-weather-report.pdf

[4] https://www.pianc.org/navigating-a-changing-climate

[5] https://www.ipcc.ch/site/assets/uploads/sites/3/2019/11/03_SROCC_SPM_FINAL.pdf

ICOMIA
International Council of Marine Industry Associations

8. Internationally, there is increasing awareness and support for the need to address the issue presented by Climate Change as identified in the UN Sustainable Development Goals[6]. Concerns about environmental risks have been rising over the last decade. For the first time in the history of the World Economic Forum (WEF) Global Risks Report (2020), environmental threats dominate the top five long-term risks by likelihood and occupy three of the top five spots by impact.[7]

9. The WEF advises that Climate Change is striking harder and more rapidly than many expected. The last five years are on track to be the warmest on record, natural disasters are becoming more intense and more frequent, and 2019 witnessed unprecedented extreme weather throughout the world. Global temperatures are on track to increase by at least 3°C towards the end of the century—twice what climate experts have warned is the limit to avoid the most severe economic, social and environmental consequences.[8]

10. Costs and economic losses arising from Climate Change damage to infrastructure, as well as from operational disruptions and delay across closely interconnected global supply chains may be extensive. As a guide for marine industries, the United Nations Climate Change Impacts and Adaption for Coastal Infrastructure: A Compilation of Policies and Practices (2020) report provides an insight with studies that have provided maritime cost estimates. A study by Lenton et al. (2009), which included tipping points in the climatic forcing, estimated that, by 2050, asset exposure to flooding in 136 port megacities will be close to 28 trillion US$. Hoshino et al (2016) estimated inundation levels and potential costs under the combined mean sea level rise and typhoon storm surges for the Tokyo Bay area and found that costs could be crippling (up to US$ 690 billion in today's values). A recent study indicates that, by 2100, global flood damages due to sea level rise (and related extreme events) might amount to up to US$ 27 trillion per year – or about 2.8 per cent of 2100 global GDP (Jevrejeva et al., 2018).[9]

11. In Australia, Deloitte Access Economics released in November 2020 a report 'A new choice Australia's climate for growth' [10]. Deloitte Access Economics has found the economic effects of climate change will be more severe than those of the COVID-19 Pandemic by 2070 and will continue indefinitely unless decisive action is taken to decarbonise the economy.

Climate Changing

12. The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science. IPCC[11] advises that over the last decades, global warming has led to widespread shrinking of the cryosphere, with mass loss from ice sheets and glaciers, reductions in snow cover and Arctic sea ice extent and thickness and increased permafrost temperature.

13. IPCC says it is virtually certain that the global ocean has warmed unabated since 1970 and since 1993, the rate of ocean warming has more than doubled. By absorbing more CO2, the

[6] https://sdgs.un.org/goals

[7] The Global Risks Report 2020, World Economic Forum, Insight Report 15th Edition

[8] The Global Risks Report 2020, World Economic Forum, Insight Report 15th Edition

[9] **Climate Change Impacts and Adaptation for Coastal Transport Infrastructure: A Compilation of Policies and Practices, United Nations …** https://unctad.org/en/PublicationsLibrary/dtltlb2019d1_en.pdf

[10] https://www2.deloitte.com/au/en/pages/economics/articles/new-choice-climate-growth.html

[11] https://www.ipcc.ch/srocc/chapter/summary-for-policymakers/

ICOMIA
International Council of Marine Industry Associations

ocean has undergone increasing surface acidification. Global mean sea level (GMSL) is rising, with acceleration in recent decades due to increasing rates of ice loss from the Greenland and Antarctic ice sheets, as well as continued glacier mass loss and ocean thermal expansion. Increases in tropical cyclone winds and rainfall, and increases in extreme waves, combined with relative sea level rise, exacerbate extreme sea level events and coastal hazards. Noting that sea level rise is not globally uniform and varies regionally.

14. Sea level rise is projected to continue beyond 2100 in all scenarios. Extreme sea levels and coastal hazards will be exacerbated by projected increases in tropical cyclone intensity and precipitation. Recent updated IPCC projections of global mean sea level rise by 2100 range from 0.61 to 1.10 m (predicted 0.85, likely range (Horton et al., 2020; Oppenheimer et al., 2019) and a number of studies suggest that, due to large uncertainties in the stability of Greenland and Antarctic ice sheets, scenarios of 2 – 2.5 m by 2100 are within the possible range (Bamber et al., 2019; DeConto and Pollard, 2016; Horton et al., 2020).[12]

15. The average intensity of tropical cyclones, the proportion of Category 4 and 5 tropical cyclones are projected to increase for a 2ºC global temperature rise above any baseline period. Rising mean sea levels will contribute to higher extreme sea levels associated with tropical cyclones. Coastal hazards will be exacerbated by an increase in the average intensity, magnitude of storm surge and precipitation rates of tropical cyclones.[13]

16. The implications are significant, wide-ranging and intersecting. Furthermore, the complexity of the climate system means that some impacts are still unknown.[14]

Maritime threats and risks

17. The United Nations' Climate Change Impacts and Adaptation for Coastal Transport Infrastructure: A Compilation of Policies and Practices[15] warns climatic changes pose serious threats to coastal infrastructure and services.

18. Direct threats include accelerated coastal erosion, port and coastal road inundation/ submersion, increased runoff and siltation requiring increased dredging, water supply problems, access restrictions to docks and marinas, deterioration of the condition and problems with the structural integrity of road pavements, bridges and railway tracks. In addition to causing damage to infrastructure and equipment which includes aids to navigation, Climate Change impacts may also result in delay and disruption and lead to extensive economic and trade-related losses. Indirect impacts of Climate Change on coastal infrastructure include those arising from climate-driven changes to demand for transportation through for example, changes

[12] https://www.nature.com/articles/s41558-020-0790-4
[13] https://www.ipcc.ch/site/assets/uploads/sites/3/2019/11/03_SROCC_SPM_FINAL.pdf
[14] The Global Risks Report 2020, World Economic Forum, Insight Report 15th Edition
[15] https://unctad.org/en/PublicationsLibrary/dtltlb2019d1_en.pdf

in the population concentration/ distribution, as well as through changes in production, trade and consumption patterns.[16]

19. The United Nations Conference on Trade and Development 2020 report[17] identified the following:

20. **Temperature** increases in mean averages, and the frequency and duration of heat waves will pose substantial challenges to infrastructure and aquatic activities/ operations, including to the safety/ health of the public and industry personnel. There is also a recent Nature paper that highlights how tidal rivers are heating significantly faster than the ocean.[18]

21. Since the 1980s, the wildfire season has lengthened across a quarter of the world's vegetated surface, and in some places like California, fire has become nearly a year-round risk.[19] In Australia this presented itself in the summer of 2019-20 resulting in widespread social disruption, damage/ loss of infrastructure including more than 3000 houses, and 33 fatalities.[20] The Australia Bureau of Meteorology noted in its Annual Climate Statement 2019, published on 9 January 2020, that, 'The extensive and long-lived fires appear to be the largest in scale in the modern record in New South Wales, while the total area burnt appears to be the largest in a single recorded fire season for eastern Australia'.[21]

22. **Coastal inundation** from sea level rise and/ or extreme events can temporarily damage or disable the use of maritime infrastructure and could lead to displacement and/ or relocation of coastal infrastructure. The impact would include disruption to aquatic activity.

23. **Precipitation** globally shows an increasing trend, especially in middle and high latitudes (Schneider et al., 2017). Precipitation shows a high natural variability as it can be strongly influenced by e.g., the El Niño-Southern Oscillation (ENSO). It is expected to change in a complex manner, with increases in precipitation projected for some regions and droughts for others (IPCC, 2013; 2018).

24. Heavy rainfall and flooding can damage infrastructure and affect maritime operations due to poor visibility and decreased manoeuvrability of vessels caused by suddenly increased water levels/speeds. The impact would include disruption to aquatic activity.

25. **Extreme winds and waves** can cause coastal erosion, coastal infrastructure overtopping, and flooding of the coastal transportation infrastructure. Windstorms such as severe tropical and extra-tropical storms, are fed by the increasing upper ocean heat content, and it is expected

---

[16] Climate Change Impacts and Adaptation for Coastal Transport Infrastructure: A Compilation of Policies and Practices, United Nations … https://unctad.org/en/PublicationsLibrary/dtltlb2019d1_en.pdf

[17] **Climate Change Impacts and Adaptation for Coastal Transport Infrastructure: A Compilation of Policies and Practices, United Nations … https://unctad.org/en/PublicationsLibrary/dtltlb2019d1_en.pdf**

[18] http://estuaries.wrl.unsw.edu.au/index.php/climate-change/risk-assessment-guide/

[19] https://climate.nasa.gov/news/2912/satellite-data-record-shows-climate-changes-impact-on-fires/

[20] https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1920/Quick_Guides/AustralianBushfires

[21] http://www.bom.gov.au/climate/current/annual/aus/#tabs=Events

that storm intensity will increase under climate change (e.g. Emanuel, 2005; Trenberth et al., 2018; WMO, 2018). Tropical and extra-tropical storms are usually associated with extreme winds, rainfall and coastal flooding that can have severe impacts on coastal transport infrastructure (e.g., Becker et al., 2013). The impact would include disruption to aquatic activity.

26. **Marine ecosystems** are already experiencing warming and if unchecked, Climate Change poses a serious threat to life in our seas. Whilst some coral species are more resilient that others, impacts vary between regions, and further reef degradation due to climate factors seems inevitable. Fish stocks, particularly in tropical areas, will be impacted through depletion and movement between regions.[22] If the global temperature increases by more than 2 or more degrees, the consequence could be a loss of 100% of coral reefs.

27. **Impacts** presented by Climate Change will affect marine industries and range from disruptions, failure, damage or loss of marine infrastructure to disruption or abandonment of aquatic activities. The impacts, particularly when extreme events are connected, can significantly compromise the ability of society (including governments) to respond adequately to an emergency.[23]

Time for Action

28. The World Economic Forum's Global Risks Report survey identifies, "Failure of climate change mitigation and adaption" as the number one risk by impact and number two by likelihood over the next 10 years.[24]

29. In late 2019, UN Secretary-General António Guterres warned that a "point of no-return" on climate change is "in sight and hurtling toward us".[25] At the Climate Action Summit 2019 (September) it was noted that 1.5℃ is the socially, economically, politically and scientifically safe limit to global warming by the end of this century, and to achieve this, the world needs to work to achieve net zero emissions by 2050. The Summit also demonstrated the need to urgently update and enhance their short-term commitments by 2020, and the mid-term commitments by 2030.

30. The Summit highlighted how climate action can have tangible and beneficial impacts on people's lives, including on their jobs and health, and therefore the need to align policies and systems to accelerate the implementation of both the Paris Agreement and the Sustainable Development Goals (SDGs).

31. UN Secretary-General António Guterres, in closing the Summit, said "You have delivered a boost in momentum, cooperation and ambition. But we have a long way to go." "We need more concrete plans, more ambition from more countries and more businesses. We need all financial institutions, public and private, to choose, once and for all, the green economy."[26]

---

[22] https://www.ipcc.ch/srocc/about/faq/final-faq-chapter-5/
[23] https://www.nature.com/articles/s41558-020-0790-4
[24] The Global Risks Report 2020, World Economic Forum, Insight Report 15th
[25] https://www.euronews.com/2019/12/02/live-un-leaders-and-delegates-arrive-in-madrid-for-the-climate-change-summit
[26] https://www.un.org/en/climatechange/assets/pdf/CAS_closing_release.pdf

32. Nine major maritime associations have formed an international alliance through an unprecedented collaboration under the World Association for Waterborne Transport Infrastructure (PIANC), the partners in PIANC's Navigating a Changing Climate Partnership have committed to work together to support the inland and maritime navigation infrastructure sector as they respond to climate change. By furthering understanding, providing targeted technical support, and building capacity, the partnership will encourage the owners, operators and users of waterborne transport infrastructure to:
    a. Reduce greenhouse gas emissions and shift to low carbon maritime and inland navigation infrastructure
    b. Act urgently to strengthen resilience and improve preparedness to adapt to the changing climate.[27]

33. The UN Department of Economic and Social Affairs is calling for urgent action to combat climate change and its impacts.[28]

A Proper Course

34. Marine industries require a shift in the strategic paradigm to address threats and risks arising from Climate Change, and to support and coordinate global efforts to adapt and mitigate the threats of the challenge.

35. The course of action should include consideration of the following: education and promotion of climate literacy; monitoring and forecasting; use of all available knowledge sources; sharing of data, information and knowledge; and collaborations with key stakeholders such as governments. This work needs to enable capacity-building, social learning, and participation in adaptation, as well as the negotiation of trade-offs and realisation of co-benefits in reducing short-term risks and building long-term resilience and sustainability.[29]

Justification for position

36. The marine industry is inextricably linked to Climate Change threats as they affect key areas such as: public participation levels, vessel capability, operator capability, operational capability, infrastructure, investment, insurance, business planning and safety. With irreversible changes to weather patterns all these factors, and more, are heightened in negative consequence.

37. The industry is well placed to take steps to mitigate risks and adapt to Climate Change.

38. Industry can help shape the Climate Change agenda where appropriate and not simply respond to government policy. There are several tools to help address the change in climate, and the marine industry will continue to investigate and participate in these deliberations. At the same time, the marine industry has a role to help ensure any such move and response by governments do not displace boating activity and boating infrastructure, and to explore the opportunities that exist from the use of these tools on tourism, local communities and associated activities.

---

[27] https://navclimate.pianc.org/about/navigating-a-changing-climate-partnership
[28] https://sdgs.un.org/goals/goal13
[29] https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030

39. ICOMIA brings together national marine industry associations in one global organisation and represents them at an international level, presenting a strong and united voice when dealing with issues challenging the industry[30]. It is appropriate for ICOMIA to declare its position on Climate Change and to join other international marine organisations in coordinated efforts to adapt and mitigate the threats and risks.

Commitments:

ICOMIA commits to the following:

- Acknowledges the climate is changing and the evidence is unequivocal
- Acknowledges the need to mitigate the threat and risks of Climate Change and take actions to adapt [31]
- Develop an evidence-based policy position to guide members in threat risk mitigation and adaption regarding Climate Change
- Develop an action plan to capture what industry has: i) achieved to date; ii) what we are doing now; and iii) what we will do in the future
- Become a reliable source of information for members in this area
- To publish a Letter of Declaration (**Attachment A**)

Further information

Definitions:

Anthropogenic - of, relating to, or resulting from the influence of human beings on nature[32]

Climate Change - significant and long-lasting change in the Earth's climate and weather patterns.[33]

Cryosphere - the part of the earth's surface characterized by the presence of frozen water[34]

Extreme Weather - Extreme weather or extreme climate events includes unexpected, unusual, severe, or unseasonal weather; weather at the extremes of the historical distribution.

[30] https://www.icomia.org/
[31] For example, the *Hong Kong Boating Industry Association – The Low Impact Boating Initiative dated 25 June 2020*
[32] https://www.merriam-webster.com/dictionary/anthropogenic
[33] https://www.merriam-webster.com/dictionary/climate%20change
[34] https://www.merriam-webster.com/dictionary/cryosphere#:~:text=plural%20cryospheres-,Definition%20of%20cryosphere,Raymond%20S.