10. Keeping Sinking States Afloat: The Crisis of Climate Change-Induced Sea-Level Rise and the International Legal Framework

International Tribunal for the Law of the Sea Advisory Opinion on Climate Change and Law of the Sea (2024)

'Final report of the Study Group on sea-level rise in relation to international law,' UN International Law Commission (2025)

INTERNATIONAL TRIBUNAL FOR THE LAW OF THE SEA

YEAR 2024

21 May 2024

List of cases:
No. 31

REQUEST FOR AN ADVISORY OPINION SUBMITTED BY THE COMMISSION OF SMALL ISLAND STATES ON CLIMATE CHANGE AND INTERNATIONAL LAW

ADVISORY OPINION

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ADVISORY OPINION

Present: *President* HOFFMANN; *Vice-President* HEIDAR; *Judges* JESUS, PAWLAK, YANAI, KATEKA, BOUGUETAIA, PAIK, ATTARD, KULYK, GÓMEZ-ROBLEDO, CABELLO, CHADHA, KITTICHAISAREE, KOLODKIN, LIJNZAAD, INFANTE CAFFI, DUAN, BROWN, CARACCIOLO, KAMGA; *Registrar* HINRICHS OYARCE.

On the Request submitted to the Tribunal by the Commission of Small Island States on Climate Change and International Law,

THE TRIBUNAL,

composed as above,

gives the following Advisory Opinion:

I. Introduction

A. Request

1. By letter dated 12 December 2022, received electronically by the Registry of the Tribunal on the same day, the Co-Chairs of the Commission of Small Island States on Climate Change and International Law (hereinafter "the Commission") transmitted to the Tribunal a request for an advisory opinion (hereinafter "the Request"), pursuant to a decision of the third meeting of the Commission held on 26 August 2022. The originals of that letter and of the decision of the Commission were filed with the Registry on 20 December 2022.

2. The Commission was created pursuant to the Agreement for the establishment of the Commission of Small Island States on Climate Change and International Law (hereinafter the "COSIS Agreement"), which was concluded on 31 October 2021 and entered into force on the same date. At the time of the filing of the Request, Antigua and Barbuda, Tuvalu, the Republic of Palau, Niue, the

Republic of Vanuatu and Saint Lucia were parties to the COSIS Agreement. Subsequently, Saint Vincent and the Grenadines, Saint Christopher (Saint Kitts) and Nevis, and the Commonwealth of the Bahamas also acceded to it. All parties to the COSIS Agreement are also States Parties to the United Nations Convention on the Law of the Sea (hereinafter "the Convention").

3. At its third meeting, the Commission adopted the following decisions:

DECISIONS OF THE THIRD MEETING OF THE COMMISSION OF SMALL ISLAND STATES ON CLIMATE CHANGE AND INTERNATIONAL LAW (*)

Virtual Meeting 26 August 2022

The Commission of Small Island States, pursuant to Article 3(5) of the Agreement of 31 October 2021, has decided as follows:

1. Further to the Co-Chairs' 24 November 2022 request for a recommendation regarding an Advisory Opinion from the International Tribunal for the Law of the Sea (ITLOS), the Commission notes with appreciation the work of the Sub-Committee on Protection and Preservation of the Marine Environment and approves the 18 June 2022 *Recommendation CLE. 1/2022/Rec* of the Committee of Legal Experts to request the following Advisory Opinion from ITLOS consistent with Article 2(2) of the Agreement:

   "What are the specific obligations of State Parties to the United Nations Convention on the Law of the Sea ('UNCLOS'), including under Part XII:

   (a) to prevent, reduce and control pollution of the marine environment in relation to the deleterious effects that result or are likely to result from climate change, including through ocean warming and sea level rise, and ocean acidification, which are caused by anthropogenic greenhouse gas emissions into the atmosphere?

   (b) to protect and preserve the marine environment in relation to climate change impacts, including ocean warming and sea level rise, and ocean acidification?"

2. The Commission expresses it support for the initiative of Vanuatu to request an Advisory Opinion on climate change from the International Court of Justice ("ICJ") and decides that the Committee of Legal Experts should assist members of the Commission in making submissions to the ICJ as appropriate.

3. The Commission requests the Sub-Committees on Sea-Level Rise, Human Rights, and Loss and Damages respectively, to propose further activities that the Commission may undertake to contribute

> to the definition, implementation, and progressive development of rules and principles of international law concerning climate change, consistent with its mandate under Article 1(3) of the Agreement.
>
> *(*) Adopted unanimously by COSIS Members meeting virtually: (1) Hon. Gaston Browne, Prime Minister of Antigua and Barbuda; (2) Hon. Kausea Natano, Prime Minister of Tuvalu; and (3) Hon. Surangel Whipps Jr., President of the Republic of Palau.*
>
> *Vote recorded by Meeting Chair, Eselealofa Apinelu, High Commissioner of Tuvalu to Fiji*
>
> *(Signed)* *(Signed)* *(Signed)*
> *(Eselealofa Apinelu)* *(Gaston Browne)* *(Surangel Whipps Jr.)*
>
> *(Signed)*
> *(Kausea Natano)*

4. In their letter dated 12 December 2022, the Co-Chairs of the Commission stated that they were "representing the Commission pursuant to Article 3(3) of the Agreement for the Establishment of the Commission" and were "hereby submit[ting] a request for an advisory opinion". The Co-Chairs of the Commission also referred to article 21 of the Statute of the Tribunal (hereinafter "the Statute") and article 138 of the Rules of the Tribunal (hereinafter "the Rules") and noted that,

> [i]n this respect, Article 2(2) of the Agreement provides (emphasis added):
>
> > Having regard to the fundamental importance of oceans as sinks and reservoirs of greenhouse gases and the direct relevance of the marine environment to the adverse effects of climate change on Small Island States, *the Commission shall be authorized* to request advisory opinions from the International Tribunal for the Law of the Sea ("ITLOS") on any legal question within the scope of the 1982 United Nations Convention on the Law of the Sea, consistent with Article 21 of the ITLOS Statute and Article 138 of its Rules.

5. In the same letter, the Co-Chairs informed the Tribunal of the appointment of Mr Payam Akhavan and Ms Catherine Amirfar as the Representative and Co-representative, respectively, of the Commission for the proceedings.

6. Together with the said letter, the Co-Chairs of the Commission transmitted to the Tribunal documents likely to throw light upon the questions contained in the request for an advisory opinion, pursuant to article 131 of the Rules. All these documents were posted on the website of the Tribunal.

7. On 12 December 2022, the Request was entered into the List of cases as Case No. 31, which was named “Request for an advisory opinion submitted by the Commission of Small Island States on Climate Change and International Law”. By letter of the same date, the Registrar of the Tribunal informed the Co-Chairs that the Request had been filed with the Registry on 12 December 2022 and entered into the List of cases as Case No. 31.

8. By a communication dated 19 December 2022, the Representative of the Commission corrected the date in paragraph 1, first line, of the decisions of 26 August 2022 adopted by the Commission to read 24 November 2021 instead of 24 November 2022.

B. Chronology of the procedure

9. By notes verbales dated 13 December 2022, in accordance with article 133, paragraph 1, of the Rules, the Registrar notified all States Parties to the United Nations Convention on the Law of the Sea (hereinafter “States Parties”) of the Request.

10. By letter of the same date, pursuant to the Agreement on Cooperation and Relationship between the United Nations and the International Tribunal for the Law of the Sea of 18 December 1997, the Registrar notified the Secretary-General of the United Nations of the Request.

11. By Order dated 16 December 2022, pursuant to article 133, paragraph 2, of the Rules, the President of the Tribunal decided “that the intergovernmental organizations listed in the annex to the … order are considered likely to be able to furnish information on the questions submitted to the Tribunal for an advisory opinion”. By the same Order, pursuant to article 133, paragraph 3, of the Rules, the President invited the States Parties, the Commission and the aforementioned intergovernmental organizations to present written statements on those questions and fixed 16 May 2023 as the time limit within which written statements could be presented to the Tribunal. By the same Order, the President decided that, in accordance with article 133, paragraph 4, of the Rules, oral proceedings would be

held. The Order was notified to the States Parties, the Commission and the intergovernmental organizations listed in its annex.

12. By letter dated 31 January 2023, the African Union requested that it be identified, pursuant to article 133, paragraph 2, of the Rules, “as an intergovernmental organization able to furnish information on the questions submitted to the Tribunal for an advisory opinion, thereby permitting [the African Union] to participate in the proceedings”. By letter dated 2 February 2023, the Registrar informed the African Union of the decision of the President to consider the African Union as such an intergovernmental organization and invited the African Union to furnish information within the time limit fixed by the Order of 16 December 2022.

13. By letter dated 3 February 2023, the European Commission requested the President “to extend the deadline to present written statements pursuant to Order 2022/4 by one month, until 16 June 2023.” By Order dated 15 February 2023, the President extended, pursuant to article 133, paragraph 3, of the Rules, to 16 June 2023 the time limit within which written statements could be presented to the Tribunal. The same Order recorded the President’s decision to consider the African Union as an intergovernmental organization likely to be able to furnish information on the questions submitted to the Tribunal for an advisory opinion. The Order was notified to the States Parties, the Commission, the intergovernmental organizations listed in the annex to the Order of 16 December 2022, and the African Union.

14. By letter dated 20 February 2023, the International Seabed Authority (hereinafter “the Authority”) requested the President “to consider the Authority as one of the intergovernmental organizations … likely to be able to furnish information on the questions submitted to the Tribunal and therefore to invite the Authority to present its written statement within the time limit as extended by the President of the Tribunal.” By letter dated 24 February 2023, the Registrar informed the Authority of the decision of the President to consider it as an intergovernmental organization likely to be able to furnish such information and invited the Authority to do so within the extended time limit fixed by the Order of 15 February 2023.

15. By letter dated 31 May 2023, received by the Registry on 8 June 2023, the Pacific Community requested, in accordance with article 133, paragraph 2, of the Rules, “the Tribunal’s authorisation to present observations on the questions submitted by the Commission … for an advisory opinion” and that the Tribunal include the Pacific Community “among those intergovernmental organisations invited to present observations in Case No. 31”. By letter dated 8 June 2023, the Registrar informed the Pacific Community of the decision of the President to consider the Pacific Community as an intergovernmental organization likely to be able to furnish information on the questions submitted to the Tribunal for an advisory opinion and invited it to do so within the extended time limit fixed by the Order of 15 February 2023.

16. By note verbale dated 5 June 2023, the Permanent Mission of India to the United Nations requested that “the deadline to submit written statement[s] to the Tribunal … further be extended for at least two months or as appropriate to enable member states to furnish written statements to the Tribunal.” By letter dated 6 June 2023, the Registrar informed the Permanent Mission of India, at the request of the President, that “at this stage of the written proceedings it is not contemplated to grant a further extension of the time limit prescribed” and invited India “to submit a written statement as soon as possible.”

17. Within the time limit fixed by the President in his Order dated 15 February 2023, written statements were submitted by the following 31 States Parties, which are listed in the order in which their statements were received: the Democratic Republic of the Congo, Poland, New Zealand, Japan, Norway, Germany, Italy, China, the European Union, Mozambique, Australia, Mauritius, Indonesia, Latvia, Singapore, the Republic of Korea, Egypt, Brazil, France, Chile, Bangladesh, Nauru, Belize, Portugal, Canada, Guatemala, the United Kingdom, the Netherlands, Sierra Leone, Micronesia (Federated States of) and Djibouti. Within the same time limit, written statements were also submitted by the Commission and the following seven intergovernmental organizations, which are listed in the order in which their statements were received: the United Nations; the International Union for Conservation of Nature (hereinafter “the IUCN”); the International Maritime

Organization (hereinafter “the IMO”); the Pacific Community; the United Nations Environment Programme; the African Union and the Authority.

18. By letter dated 20 June 2023, in accordance with article 133, paragraph 3, of the Rules, the Registrar notified the States Parties, the Commission and the intergovernmental organizations that had submitted written statements of the list of those participants. By the same letter, the Registrar also informed them that these statements were accessible in a dedicated section of the Tribunal’s website.

19. In addition, statements were submitted by the following entities: the United Nations Special Rapporteurs on Human Rights and Climate Change, Toxics and Human Rights and Human Rights and the Environment (on 31 May 2023); the High Seas Alliance (on 15 June 2023); ClientEarth (on 15 June 2023); Opportunity Green (on 15 June 2023); the Center for International Environmental Law and Greenpeace International (on 15 June 2023); the Advisory Committee on Protection of the Sea (on 16 June 2023); the World Wide Fund for Nature (on 16 June 2023); Our Children’s Trust and Oxfam International (on 16 June 2023); the Observatory for Marine and Coastal Governance (on 16 June 2023); and One Ocean Hub (on 17 June 2023).

20. The statements from the High Seas Alliance, Opportunity Green, the Center for International Environmental Law and Greenpeace International, and Our Children’s Trust and Oxfam International were accompanied by a petition to be granted permission to act as amici curiae in the proceedings. Furthermore, in a communication transmitting its statement, ClientEarth sought permission to “[i]ntervene in the Advisory Proceedings of Case No. 31”.

21. At the request of the President, the Registrar, by separate letters dated 5, 15, 16 and 19 June 2023, respectively, informed the entities mentioned in paragraph 20 above that their statements would not be included in the case file since they had not been transmitted under article 133 of the Rules; the statements would, however, be transmitted to the States Parties, the Commission and the intergovernmental organizations that had presented written statements, and also posted on the website of the Tribunal in a separate section of documents relating to the case. By letter

dated 20 June 2023, the aforementioned States Parties, the Commission and the intergovernmental organizations were informed thereof.

22. By note verbale dated 19 June 2023, after the expiry of the time limit for the submission of written statements, Rwanda submitted a written statement. By the said note verbale, Rwanda also transmitted a letter dated 17 June 2023 from the Minister of Justice/Attorney-General of Rwanda. Therein, the Minister of Justice/Attorney-General stated that "Rwanda recognises the slight delay in this submission, owing to the fact that the Convention did not enter into force for Rwanda until today." By note verbale of the Tribunal dated 20 June 2023, Rwanda was informed that, in light of the reasons provided in the letter dated 17 June 2023, the President had decided that the written statement of Rwanda should be admitted and included in the case file.

23. By communication dated 21 June 2023, after the expiry of the time limit for the submission of written statements, the Food and Agriculture Organization of the United Nations (hereinafter "the FAO") submitted a written statement. By letter of the same date, the Registrar informed the FAO that, although the statement had reached the Registry after the expiry of the time limit for the submission of statements, the President had decided that the statement should be admitted and included in the case file.

24. By communication dated 23 June 2023, the Registrar informed the States Parties, the Commission and the intergovernmental organizations that had presented written statements of the submission of the statements of Rwanda and of the FAO. These statements were posted on the Tribunal's website in a section entitled "Statements received after the expiry of the time limit fixed by Order 2023/1 of 15 February 2023".

25. On 26 June 2023, pursuant to article 134 of the Rules, all written statements submitted to the Tribunal were made accessible to the public on the Tribunal's website.

26. By Order dated 30 June 2023, in accordance with article 133, paragraph 4, of the Rules, the President fixed 11 September 2023 as the date for the opening of the hearing at which oral statements could be made by the States Parties, the Commission and the intergovernmental organizations listed in the annex to the Order of the President of 16 December 2022, as well as the African Union, the Authority and the Pacific Community. The same Order recorded the President's decisions to consider the Authority and the Pacific Community as intergovernmental organizations likely to be able to furnish information on the questions submitted to the Tribunal for an advisory opinion (see paras. 14 and 15 above). By the same Order, the States Parties, the Commission and the above-mentioned intergovernmental organizations were invited to indicate to the Registrar, no later than 4 August 2023, their intention to make oral statements at the hearing. The Order was notified to the States Parties, the Commission and the above-mentioned intergovernmental organizations.

27. By note verbale dated 30 June 2023, after the expiry of the time limit for the submission of written statements, Viet Nam submitted a written statement. By note verbale of the Tribunal dated 13 July 2023, Viet Nam was informed that, although the statement had reached the Registry after the expiry of the time limit for the submission of statements, the President had decided that the statement should be admitted and included in the case file. By communication dated 14 July 2023, the Registrar informed the States Parties, the Commission and the intergovernmental organizations that had presented written statements of the submission of the statement of Viet Nam. The statement was posted on the Tribunal's website in a section entitled "Statements received after the expiry of the time limit fixed by Order 2023/1 of 15 February 2023".

28. Within the time limit prescribed by the Order of the President of 30 June 2023, 34 States Parties, listed as follows in alphabetical order, expressed their intention to participate in the oral proceedings: Argentina, Australia, Bangladesh, Bolivia, Chile, China, Comoros, the Democratic Republic of Congo, Djibouti, the European Union, France, Germany, Guatemala, India, Indonesia, Italy, Latvia, Mauritius, Mexico, Micronesia (Federated States of), Mozambique, Nauru, the Netherlands, New Zealand, Norway, the Philippines, Portugal, the Republic of Korea, Saudi Arabia,

Sierra Leone, Singapore, Timor-Leste, the United Kingdom and Viet Nam. Within the same time limit, the Commission, the African Union, the IUCN and the Pacific Community also expressed their intention to participate in the oral proceedings.

29. By separate notes verbales dated 18 July 2023, the United Kingdom and the Netherlands, respectively, requested the Tribunal "to order a second round of written statements and to revise the date for the oral hearings accordingly". Both States Parties stated that "introducing a second round of written statements is necessary and appropriate in a case of this significance and complexity", that "[t]his would allow participating States and intergovernmental organizations to respond in writing to statements" already made, and that it would facilitate "narrowing of the issues before the Tribunal", leading to "a more efficient oral phase of the proceedings". In their respective notes verbales, the United Kingdom and the Netherlands further stated that, should the Tribunal decline to accede to that request, they invited it "to bear firmly in mind the lack of opportunity afforded to States Parties and participating intergovernmental organizations to respond in writing to the written statements when the Tribunal comes to consider the appropriate procedure for the hearing, including in particular a fair allocation of time", and that "all participants should be accorded an equal allocation of time at the hearing", which "includes the Commission of Small Island States on Climate Change and International Law (COSIS)". They added that "the status of COSIS as the international organization requesting the advisory opinion should give it no greater procedural rights, including in particular time allocation for oral submissions, than any of the participating States Parties to UNCLOS."

30. By letter dated 20 July 2023, France requested a postponement of the hearing by a few weeks to allow States more time to prepare the oral statements, taking account of the number of written statements made and the importance and complexity of the legal issues raised in the Request. By letter dated 21 July 2023, Italy suggested a postponement of the hearing "by a few weeks, in consideration of the significant number of statements filed and of the complexity of the issues raised by the Request of Advisory Opinion."

31. By separate notes verbales of the Tribunal dated 7 August 2023, the United Kingdom and the Netherlands were informed that the matter raised in their respective notes verbales had been brought to the attention of the Tribunal, that the Tribunal had concluded that a second round of written statements was not required, and that no further time limit would be fixed pursuant to article 133, paragraph 3, of the Rules within which States Parties and the intergovernmental organizations which had made written statements could present written statements on the statements made. The United Kingdom and the Netherlands were further informed that the Tribunal would allow delegations sufficient time at the hearing to make their oral submissions and also to respond to the written statements made by other participants.

32. By letters dated 7 and 8 August 2023 addressed to Italy and France, respectively, the Registrar, at the request of the President, informed the two States that the matter raised in their respective letters had been brought to the attention of the Tribunal and that, in the view of the Tribunal, a postponement of the date for the opening of the hearing was not required. The Registrar further indicated that the Tribunal however considered that the schedule of the hearing should be organized in such a manner so as to grant delegations sufficient time to make their oral statements and also to respond to the written statements made by other participants.

33. By letter dated 28 July 2023, the Commission “provide[d] notice of its intention to examine two expert witnesses, Dr. Sarah Cooley and Dr. Shobha Maharaj, each of whom ha[d] submitted a report annexed to the Commission’s written statement, and request[ed] permission to proceed as such at the hearing under Articles 73(2), 77(2), and 78(1) of the Rules of the Tribunal.” By letter dated 8 August 2023, the Registrar, at the request of the President, invited the Commission to include Dr Cooley and Dr Maharaj as members of its delegation in order to allow them to address the Tribunal.

34. By letter dated 21 August 2023, the Sub-Regional Fisheries Commission (hereinafter “the SRFC”) requested permission to make oral statements at the hearing. By letter dated 28 August 2023, the Registrar informed the SRFC, at the

request of the President, that since the SRFC was not included in the Order of 30 June 2023, its request to participate in the oral proceedings was not granted.

35. By note verbale dated 28 August 2023, after the expiry of the time limit for the submission of written statements, India submitted a written statement. By note verbale of the Tribunal dated 8 September 2023, India was informed that although the statement had reached the Registry after the expiry of the time limit for the submission of statements, the Tribunal had decided that the statement should be admitted and included in the case file. By communication of the same date, the States Parties, the Commission and the intergovernmental organizations that had presented written statements were informed of the submission of the statement of India. The statement was posted on the Tribunal's website in a section entitled "Statements received after the expiry of the time limit fixed by Order 2023/1 of 15 February 2023".

36. By note verbale dated 5 September 2023, Belize informed the Tribunal of its intention to participate in the hearing. By note verbale of the Tribunal dated 8 September 2023, Belize was informed that, "[w]hile noting that the note verbale dated 5 September 2023 was received after the date fixed in the Order of the President of 30 June 2023 for a State Party to indicate its intention to make an oral statement at the hearing, the Tribunal nevertheless decided to allow Belize to make an oral statement at the hearing."

37. Prior to the opening of the oral proceedings, the Tribunal held initial deliberations on 7 and 8 September 2023.

38. The Tribunal held 18 public sittings on 11, 12, 13, 14, 15, 18, 19, 20, 21 and 25 September 2023, at which it heard oral statements, in the following order, from:

For the Commission of Small Island States on Climate Change and International Law:	Mr Gaston Browne, Prime Minister of Antigua and Barbuda, Co-Chair of COSIS, Mr Kausea Natano, Prime Minister of Tuvalu, Co-Chair of COSIS,

Mr Arnold Kiel Loughman, Attorney General, Republic of Vanuatu,

Mr Payam Akhavan, SJD OOnt FRSC, Professor of International Law, Chair in Human Rights, and Senior Fellow, Massey College, University of Toronto; member, Permanent Court of Arbitration; associate member, Institut de droit international; member, Bar of New York; member, Law Society of Ontario,

Ms Naima Te Maile Fifita, Founder, Moana Tasi Project; 2023 Sue Taei Ocean Fellow,

Ms Phoebe Okowa, Professor of International Law, Queen Mary University, London; member, International Law Commission; advocate, High Court of Kenya,

Ms Sarah Cooley, Director of Climate Science, Ocean Conservancy,

Ms Shobha Maharaj, Science Director, Terraformation,

Ms Margaretha Wewerinke-Singh, Associate Professor of Sustainability Law, University of Amsterdam; Adjunct Professor of Law, University of Fiji; member, Bar of Vanuatu; Blue Ocean Law,

Mr Makane Moïse Mbengue, Professor of International Law, University of Geneva; member, Curatorium of the Hague Academy of International Law; associate member, Institut de droit international,

Mr Brian McGarry, Assistant Professor of Public International Law, Grotius Centre for International Legal Studies, Leiden University; member, Bar of New York,

Ms Jutta Brunnée, Dean, Faculty of Law, University of Toronto; University Professor; associate member, Institut de droit international,

Mr Jean-Marc Thouvenin, Professor, University Paris Nanterre; Secretary-General, The Hague Academy of International Law; associate member, Institut de droit international; member, Paris Bar; Sygna Partners,

Ms Catherine Amirfar, Debevoise & Plimpton LLP; member, Bars of New York and of the Supreme Court of the United States; Immediate Past President, American Society of International Law,

Ms Philippa Webb, Professor of Public International Law, King's College, London; Barrister, Twenty Essex; member, Bar of England and Wales; member, Bar of New York; member, Bar of Belize,

Ms Nilüfer Oral, Director, Centre for International Law, National University of Singapore; member, International Law Commission; associate member, Institut de droit international,

Mr Conway Blake, Debevoise & Plimpton LLP; solicitor advocate of the senior courts of England and Wales; member, Bar of the Eastern Caribbean Supreme Court,

Mr Eden Charles, Special Representative of the Secretary-General, International Seabed Authority; Lecturer of Law, University of the West Indies; Chair, Advisory Board, One Ocean Hub, UK Research and Innovation,

Mr Zachary Phillips, Crown Counsel, Attorney General's Chambers, Ministry of Legal Affairs, Antigua and Barbuda; member, Bar of Antigua and Barbuda,

and

Mr Vaughan Lowe KC, Emeritus Chichele Professor of International Law, University of Oxford; barrister, Essex Court Chambers; member, Institut de droit international; member, Bar of England and Wales;

For Australia:

Mr Jesse Clarke, General Counsel (International Law), Office of International Law, Attorney-General's Department,

Mr Stephen Donaghue KC, Solicitor-General of Australia,

and

Ms Kate Parlett, member of the Bar of England and Wales, Twenty Essex;

For Germany:	Ms Tania Freiin von Uslar-Gleichen, Legal Adviser, Federal Foreign Office;
For Saudi Arabia:	Ms Noorah Mohammed S. Algethami, Legal Consultant;
For Argentina:	Mr Gabriel Herrera, Minister, Legal Adviser, Ministry of Foreign Affairs, International Trade and Worship;
For Bangladesh:	Mr Md. Khurshed Alam, Rear Admiral (Retd.), BN, Secretary, Maritime Affairs Unit, Ministry of Foreign Affairs, Ms Catherine Amirfar, Debevoise & Plimpton LLP; member, Bars of New York and of the Supreme Court of the United States; Immediate Past President, American Society of International Law, and Mr Payam Akhavan, SJD OOnt FRSC, Professor of International Law, Chair in Human Rights, and Senior Fellow, Massey College, University of Toronto; member, Permanent Court of Arbitration; associate member, Institut de droit international; member, Bar of New York; member, Law Society of Ontario;
For Chile:	Ms Ximena Fuentes Torrijo, Representative;
For Portugal:	Ms Patrícia Galvão Teles, Director-General for Legal Affairs, Ministry of Foreign Affairs;
For Djibouti:	Mr Yacin Houssein Doualé, Ambassador of the Republic of Djibouti, Germany, and Mr Guled Yusuf, Partner, Allen & Overy LLP;
For Guatemala:	Mr Lesther Antonio Ortega Lemus, Minister Counsellor and Chargé d'Affaires, Embassy of the Republic of Guatemala in the Kingdom of the Netherlands, and

Mr Alfredo Crosato Neumann, PhD, Geneva Graduate Institute; Member, Bar of Lima;

For India: Mr Luther M. Rangreji, Joint Secretary (L&T), Ministry of External Affairs;

For Nauru: Ms Anastasia Francilia Adire, Legal Advisor, Permanent Mission of the Republic of Nauru to the United Nations, New York,

and

Mr Eirik Bjorge, Professor of International Law, University of Bristol, United Kingdom;

For Indonesia: Mr L. Amrih Jinangkung, Director General for Legal Affairs and International Treaties, Ministry of Foreign Affairs;

For Latvia: Ms Kristīne Līce, Legislation and International Law Adviser to the President of Latvia,

and

Mr Mārtiņš Paparinskis, Professor of Public International Law, University College London; member, International Law Commission; member, Permanent Court of Arbitration;

For Mauritius: Mr Jagdish Dharamchand Koonjul, G.C.S.K., G.O.S.K., Ambassador and Permanent Representative of the Republic of Mauritius to the United Nations, New York,

Mr Philippe Joseph Sands KC, G.C.S.K., Professor of International Law, University College London; Barrister, 11 King’s Bench Walk, London,

and

Ms Kate Cook, Barrister, Matrix Chambers, London;

For Micronesia: Mr Clement Yow Mulalap, Adviser (Legal), Permanent Mission of the Federated States of Micronesia to the United Nations, New York;

For New Zealand:	Ms Victoria Hallum, Deputy Secretary, Multilateral and Legal Affairs Group, Ministry of Foreign Affairs and Trade, and Ms Charlotte Skerten, Lead Adviser, Legal Division, Ministry of Foreign Affairs and Trade;
For the Republic of Korea:	Mr Hwang Jun-shik, Director-General for International Legal Affairs, Ministry of Foreign Affairs;
For China:	Mr Ma Xinmin, Director-General, Department of Treaty and Law, Ministry of Foreign Affairs;
For Mozambique:	Ms Paula da Conceição Machatine Honwana, Representative, Mr Charles C. Jalloh, Professor, Florida International University; Member, Special Rapporteur and Second-Vice Chairperson, International Law Commission, Ms Phoebe Okowa, Professor, Queen Mary University, London; Member, International Law Commission, and Mr Andrew Loewenstein, Partner, Foley Hoag LLP;
For Norway:	Mr Andreas Motzfeldt Kravik, State Secretary, Ministry of Foreign Affairs;
For Belize:	Mr Lennox Gladden, Chief Climate Change Officer, National Climate Change Office, Ministry of Sustainable Development, Climate Change and Disaster Risk Management, Mr Sean Aughey, Barrister, Essex Court Chambers, member of the Bar of England and Wales, and Mr Sam Wordsworth KC, Barrister, Essex Court Chambers, member of the Bar of England and Wales, member of the Paris Bar;

For the Philippines:	Mr Carlos D. Sorreta, Permanent Representative, Permanent Mission to the United Nations, Geneva, Mr Gilbert U. Medrano, Assistant Solicitor General, Office of Solicitor General, and Ms Maria Angela A. Ponce, Assistant Secretary, Maritime and Ocean Affairs Office, Department of Foreign Affairs;
For Sierra Leone:	Mr Alpha Sesay, Deputy Minister of Justice, Mr Dire D. Tladi, Professor, University of Pretoria; former Member, Special Rapporteur and Chair, International Law Commission, Mr Charles C. Jalloh, Professor, Florida International University; Member, Special Rapporteur and Second-Vice Chairperson (74th session), International Law Commission, and Ms Christina Hioureas, Partner, Foley Hoag LLP;
For Singapore:	Mr Lionel Yee, Deputy Attorney-General, Attorney-General's Chambers;
For Timor-Leste:	Ms Elizabeth Exposto, Chief of Staff to the Prime Minister; Chief Executive Officer, Land and Maritime Boundary Office, Mr John Middleton AM KC, Senior Advisor, DLA Piper; Former Judge, Federal Court of Australia, and Mr Eran Sthoeger, Legal Counsel;
For the European Union:	Mr André Bouquet, Legal Adviser, Legal Service, European Commission, and

Ms Margherita Bruti Liberati, Member, Legal Service, European Commission;

For Viet Nam: Ms Le Duc Hanh, Director-General, Department of International Law and Treaties, Ministry of Foreign Affairs;

For the Pacific Community: Ms Rhonda Robinson, Director, SPC Geoscience, Energy and Maritime Division,

and

Ms Kathy Jetñil-Kijiner, Climate Envoy;

For Comoros: Mr Youssouf Mondoha Assoumani, Ambassador of the Union of Comoros to the Federal Democratic Republic of Ethiopia; Permanent Representative to the African Union,

Mr Iain Sandford, Partner, Sidley Austin LLP, Geneva; Barrister and Solicitor, High Court of Australia, Supreme Court of the Australian Capital Territory and High Court of New Zealand,

Mr Dominic Coppens, Senior Managing Associate, Sidley Austin LLP, Brussels; Professor, Department of International and European Law, Maastricht University; Member, Brussels Bar – A list,

and

Ms Katherine Connolly, Senior Managing Associate, Sidley Austin LLP, Geneva; Barrister and Solicitor, Supreme Court of New South Wales;

For the Democratic Republic of the Congo: Mr Ivon Mingashang, Professor of International Law, Law Faculty, University of Kinshasa; member of the International Law Commission; member, Kinshasa/Gombe Bar,

Mr Sylvain Lumu Mbaya, Professor of International Law, Law Faculty, University of Kinshasa; Judge at the Constitutional Court of the DRC,

Mr Jean-Paul Segihobe Bigira, Professor of International Law, Department of Public International Law and International Relations, Law Faculty, University of Kinshasa; Member of Parliament; member, Kinshasa/Gombe Bar,

and

Mr Nicolas Angelet, Professor of International Law, Université libre de Bruxelles; member, Brussels Bar;

For the International Union for Conservation of Nature:

Ms Christina Voigt, Chair, IUCN World Commission on Environmental Law (WCEL); Co-Chair, Paris Agreement Implementation and Compliance Committee; Professor, Department of Public and International Law, University of Oslo,

Ms Cymie R. Payne, Chair, IUCN-WCEL Ocean Law Specialist Group; Associate Professor, Rutgers University, New Jersey,

and

Ms Tara Davenport, Assistant Professor, Faculty of Law, National University of Singapore (NUS); Co-Head, Oceans Law and Policy Programme, Centre for International Law, Singapore;

For the African Union:

Mr Tordeta Ratebaye, Ambassador, Deputy Chief of Staff, Cabinet of the Chairperson, African Union Commission,

Mr Mohamed Salem Boukhari Khalil, Acting Legal Counsel, Director of Legal Affairs, African Union Commission,

Mr Nicolas J.S. Lockhart, Partner, Sidley Austin LLP, Geneva; Solicitor (Scotland),

Mr Deepak Raju, Senior Managing Associate, Sidley Austin LLP, Geneva; Solicitor (England and Wales); Advocate (Maharashtra and Goa, India),

and

Mr Mamadou Hébié, Associate Professor of International Law, Grotius Centre for International Legal Studies, Leiden University; Member, Bar of the State of New York;

For France:

Ms Sandrine Barbier, Deputy Director of Legal Affairs, Ministry for Europe and Foreign Affairs,

and

	Mr Mathias Forteau, Professor, University of Paris Nanterre;
For Italy:	Mr Stefano Zanini, Head, Service for Legal Affairs, Diplomatic Disputes and International Agreements, Ministry of Foreign Affairs and International Cooperation,
	and
	Mr Roberto Virzo, Professor of International Law, University of Messina;
For the Netherlands:	Mr René J.M. Lefeber, Legal Adviser, Ministry of Foreign Affairs;
For the United Kingdom:	Mr Ben Juratowitch KC, Barrister, Essex Court Chambers,
	and
	Ms Amy Sander, Barrister, Essex Court Chambers.

39. The hearing was broadcast on the Internet as a webcast.

40. On 11 September 2023, the Registrar communicated questions posed by Judge Kittichaisaree pursuant to article 76 of the Rules to the Commission and to the IUCN. The question posed to the Commission was as follows:

> In light of Chapters 6, 7 and 8 of your Written Statement, could you please clarify further which specific obligations mentioned by you insofar as they are relevant to the Request for an Advisory Opinion are, in your view, obligations of conduct and which ones are obligations of result, and why?

The question posed to the IUCN was as follows:

> In light of paragraph 74 *et seq.* of your Written Statement, could you please clarify further which specific obligations mentioned by you insofar as they are relevant to the Request for an Advisory Opinion are, in your view, obligations of conduct and which ones are obligations of result, and why?

The Commission and the IUCN were requested to respond to the respective questions orally during the oral arguments and/or in writing by the end of the hearing.

41. By letter dated 24 September 2023, the Commission transmitted a written response to the question put to it. During the sitting held on 21 September 2023, the IUCN provided a response to the question put to it. The written response of the Commission and a transcript of the oral response of the IUCN were posted on the Tribunal's website.

42. By communication dated 25 September 2023, the Registrar invited the States Parties, the Commission and the intergovernmental organizations that had participated in the oral proceedings to submit comments on the responses of the Commission and the IUCN by 2 October 2023. Comments were received from Australia, France, Latvia, the Netherlands and the United Kingdom by separate communications dated 2 October 2023 and from Timor-Leste by letter dated 4 October 2023. By communication dated 16 October 2023, the Registrar informed the States Parties, the Commission and the intergovernmental organizations that had participated in the hearing of the comments received. These comments were posted on the Tribunal's website.

43. By communications dated 18 and 20 September 2023, the IMO transmitted two documents to the Tribunal and requested that those documents be considered documents in support of the written statement submitted by the IMO on 16 June 2023. By letter dated 13 October 2023, the Registrar informed the IMO that the Tribunal had decided, on 12 October 2023, to admit the two documents in support of the IMO's written statement and therefore considered them as part of the case file.

44. In accordance with article 17 of the Rules, President Hoffmann and Judges Pawlak, Yanai, Kateka, Paik and Gómez-Robledo, whose term of office expired on 30 September 2023, having participated in the meeting mentioned in article 68 of the Rules, continued to sit in the case until its completion. President Hoffmann continued to preside over the Tribunal in the present case until completion, pursuant to article 16, paragraph 2, of the Rules.

II. Background

45. The Tribunal notes that the Request submitted by the Commission has scientific aspects. It further notes that various international instruments have been adopted to address climate change. The Tribunal thus finds it appropriate to provide at the outset an overview of the science and legal regime relating to climate change as a background to the Request.

A. Scientific aspects

46. The phenomenon of climate change is central to the Request and the questions contained therein necessarily have scientific aspects. In their written and oral submissions, the participants in the present proceedings addressed at length scientific aspects related to climate change and the ocean, and submitted or referred to abundant materials on scientific issues.

47. In relation to the phenomenon of climate change, the Tribunal notes that, in its resolution 43/53 of 6 December 1988, the United Nations General Assembly (hereinafter “the General Assembly”) recognized, for the first time, that “climate change is a common concern of mankind”. In the same resolution, the General Assembly stated that “the emerging evidence indicates that continued growth in atmospheric concentrations of ‘greenhouse’ gases could produce global warming with an eventual rise in sea levels, the effects of which could be disastrous for mankind if timely steps are not taken at all levels”. In this resolution, the General Assembly also endorsed the action of the World Meteorological Organization and the United Nations Environment Programme in jointly establishing an Intergovernmental Panel on Climate Change (hereinafter “the IPCC”) to provide “internationally coordinated scientific assessments of the magnitude, timing and potential environmental and socio-economic impact of climate change and realistic response strategies”. At present, there are 195 member countries of the IPCC. In its resolution 67/210 of 21 December 2012, the General Assembly declared that “climate change is one of the greatest challenges of our time”. This statement has been subsequently reaffirmed by the General Assembly in several resolutions. The Tribunal further notes that, in its resolution 76/296 of 25 July 2022, the General

Assembly endorsed the declaration adopted by the 2022 United Nations Ocean Conference that it was “deeply alarmed by the adverse effects of climate change on the ocean and marine life”.

48. Since its establishment in 1988, the IPCC has produced several assessment reports on climate change, the latest within the sixth assessment cycle concluded in 2023. This cycle produced several special reports, such as the 2018 Special Report on Global Warming of 1.5°C (hereinafter “the 2018 Report”) and the 2019 Special Report on the Ocean and Cryosphere in a Changing Climate (hereinafter “the 2019 Report”). The sixth assessment cycle also produced three separate working group reports – the Working Group I report entitled “Climate Change 2021: The Physical Science Basis” finalized on 6 August 2021 (hereinafter “the WGI 2021 Report”), the Working Group II report entitled “Climate Change 2022: Impacts, Adaptation and Vulnerability” finalized on 27 February 2022 (hereinafter “the WGII 2022 Report”), and the Working Group III report entitled “Climate Change 2022: Mitigation of Climate Change” finalized on 4 April 2022 – and a Synthesis Report published in March 2023 (hereinafter “the 2023 Synthesis Report”).

49. The Tribunal notes that the IPCC reports are subject to review and endorsement by the IPCC member countries. According to the IPCC, such endorsement “acknowledges that the report is a definitive assessment that has been developed following the IPCC’s defined procedures, underpinning the report’s authority” (IPCC Factsheet, “How does the IPCC approve reports?”, first paragraph). Different levels of formal endorsement apply to the different types of materials prepared by the IPCC. The summary for policymakers, which is prepared for each IPCC report, including for synthesis reports, is submitted for “approval”, where approval means that the summary has been subject to detailed, line-by-line discussion and agreement during an IPCC plenary session. The body of the underlying reports is subject to “acceptance” by the plenary. “Acceptance” means that, while “the material has not been subject to line by line discussion and agreement, it nevertheless presents a comprehensive, objective and balanced view of the subject matter” (Principles Governing IPCC Work, Appendix A, p. 2). The synthesis report of an IPCC cycle summarizes the key findings of the working group reports and any special reports of that cycle. While its summary for policymakers is

again approved line by line, the body of the synthesis report is subject to “adoption”, section by section and not line by line.

50. With regard to the confidence levels used in IPCC reports, the IPCC explains the following:

> A level of confidence is expressed using five qualifiers: very low, low, medium, high and very high, and typeset in italics, for example, *medium confidence*. The following terms have been used to indicate the assessed likelihood of an outcome or result: virtually certain 99–100% probability; very likely 90–100%; likely 66–100%; about as likely as not 33–66%; unlikely 0–33%; very unlikely 0–10%; and exceptionally unlikely 0–1%. Additional terms (extremely likely 95–100%; more likely than not >50–100%; and extremely unlikely 0–5%) are also used when appropriate. Assessed likelihood is typeset in italics, for example, *very likely*.
> (WGI 2021 Report, p. 4, fn. 4)

51. The Tribunal observes that most of the participants in the proceedings referred to reports of the IPCC, recognizing them as authoritative assessments of the scientific knowledge on climate change, and that none of the participants challenged the authoritative value of these reports.

52. The Tribunal notes that the IPCC defines climate change as:

> A change in the state of the *climate* that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. *Climate change* may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent *anthropogenic* changes in the composition of the *atmosphere* or in *land use*.
> (WGII 2022 Report, p. 2902)

53. Successive IPCC reports provide important findings in relation to the changes of the Earth’s climate that have occurred over time and their causes. The 2023 Synthesis Report states that “[w]idespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred”, and that “[h]uman-caused climate change is already affecting many weather and climate extremes in every region across the globe” (2023 Synthesis Report, p. 46). The same report further states that “[i]t is unequivocal that human influence has warmed the atmosphere, ocean and land” and that “[t]he scale of recent changes across the climate system as a whole

and the present state of many aspects of the climate system are unprecedented over many centuries to many thousands of years" (2023 Synthesis Report, p. 46).

54. The IPCC affirms in its 2023 Synthesis Report that human activities, principally through greenhouse gases (hereinafter "GHGs"), "have unequivocally caused global warming" (2023 Synthesis Report, p. 42). Greenhouse gases are "[g]aseous constituents of the *atmosphere*, both natural and *anthropogenic*, that absorb and emit radiation at specific wavelengths within the spectrum of radiation emitted by the Earth's *ocean* and *land* surface, by the *atmosphere* itself and by clouds" (WGII 2022 Report, p. 2911). The most common GHGs in the Earth's atmosphere include carbon dioxide, methane and nitrous oxide. The IPCC explains that GHGs "absorb infrared radiation, emitted by the Earth's surface, the atmosphere and clouds", and "[t]hey emit in turn infrared radiation in all directions including downward to the Earth's surface" (Climate Change 2001, The Scientific Basis, pp. 89-90). According to the IPCC, GHGs thus "trap heat within the atmosphere" (Climate Change 2001, The Scientific Basis, p. 90). Anthropogenic GHG emissions, according to the Climate Change 2014 Synthesis Report of the IPCC (hereinafter "the 2014 Synthesis Report"), "have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever", and this "has led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide that are unprecedented in at least the last 800,000 years" (2014 Synthesis Report, p. 4). In this regard, the Tribunal notes that the IPCC defines the term "anthropogenic" as "[r]esulting from or produced by human activities" which "include the burning of *fossil fuels, deforestation, land use* and land use changes …, livestock production, fertilisation, waste management, and industrial processes," and the term "anthropogenic emissions" as "[e]missions of *greenhouse gases (GHGs), precursors* of GHGs, and *aerosols*, caused by human activities" (2019 Report, p. 679).

55. The IPCC has also assessed the role of the ocean in the climate system. The 2019 Report observes that the ocean is "a fundamental climate regulator on seasonal to millennial time scales" (2019 Report, p. 78). This role is twofold: the ocean "stores heat trapped in the atmosphere caused by increasing concentrations of greenhouse gases" and thus "masks and slows surface warming"; at the same time, it also stores excess carbon dioxide (*ibid*., p. 456), and such carbon storage

represents a major control on atmospheric carbon dioxide. According to the IPCC, "[a]bout a quarter of carbon dioxide (CO_2) released by human activities is taken up by the ocean" (*ibid*., p. 218) and "[a]bsorption by the ocean and uptake by plants and soils are the primary natural CO_2 sinks on decadal to centennial time scales" (WGI 2021 Report, p. 179).

56. The IPCC observes that "[c]oastal blue carbon ecosystems, such as mangroves, salt marshes and seagrasses, can help reduce the risks and impacts of climate change, with multiple co-benefits" (WGII 2022 Report, p. 2692). These coastal habitats "are characterised by high, yet variable, organic carbon storage in their soils and sediments" (2019 Report, p. 522) and "have sequestered carbon dioxide from the atmosphere continuously over thousands of years, building stocks of carbon in biomass and organic rich soils" (WGII 2022 Report, p. 1480). The IPCC further observes that "the protection and enhancement of coastal blue carbon can be an important contribution to both mitigation and adaptation at the national scale" (2019 Report, p. 454), while noting that "[t]he potential climatic benefits of blue carbon ecosystems can only be a very modest addition to, and not a replacement for, the very rapid reduction of greenhouse gas emissions" (*ibid.*, p. 454).

57. The reports of the IPCC indicate that the accumulation of anthropogenic GHGs in the atmosphere has had numerous effects on the ocean. The 2023 Synthesis Report states that climate change has caused "substantial damages and increasingly irreversible losses", including in "cryospheric and coastal and open ocean ecosystems (*high confidence*)" (2023 Synthesis Report, p. 46). According to the 2019 Report, "[c]limate change-related effects in the ocean include sea level rise, increasing ocean heat content and marine heat waves, ocean deoxygenation, and ocean acidification" (2019 Report, p. 79).

58. With respect to ocean warming, the WGI 2021 Report observes that "the dominant effect of human activities is apparent not only in the warming of global surface temperature, but also in … the warming of the ocean" (WGI 2021 Report, p. 515). The 2019 Report states that "[i]t is virtually certain that the global ocean has warmed unabated since 1970 and has taken up more than 90% of the excess heat in the climate system (*high confidence*)" (2019 Report, p. 9). The report further states

that “[s]ince 1993, the rate of ocean warming has more than doubled (*likely*). Marine heatwaves have very likely doubled in frequency since 1982 and are increasing in intensity (*very high confidence*)” (*ibid*., p. 9). The report states that “[w]arming of the ocean reduces not only the amount of oxygen it can hold, but also tend[s] to stratify it” and that, “[a]s a result, less oxygen is transported to depth, where it is needed to support ocean life” (2019 Report, p. 113). It further states that “[i]n response to ocean warming and increased stratification, open ocean nutrient cycles are being perturbed” (*ibid*., p. 450) and that “[w]arming-induced changes in spatial distribution and abundance of fish stocks have already challenged the management of some important fisheries and their economic benefits (*high confidence*)” (*ibid*., p. 451).

59. Regarding sea level rise, the WGI 2021 Report indicates that “[h]eating of the climate system has caused global mean sea level rise through ice loss on land and thermal expansion from ocean warming” (WGI 2021 Report, p. 11). According to the 2023 Synthesis Report, “[g]lobal mean sea level increased by 0.20 [0.15 to 0.25] m between 1901 and 2018” and “[h]uman influence was *very likely* the main driver of these increases since at least 1971” (2023 Synthesis Report, p. 46). Among other effects, the 2019 Report indicates that “[g]lobal mean sea level rise will cause the frequency of extreme sea level events at most locations to increase”, that “[c]oastal tidal amplitudes and patterns are projected to change”, that “[r]ising mean sea levels will contribute to higher extreme sea levels associated with tropical cyclones”, and that “[c]oastal hazards will be exacerbated by an increase in the average intensity, magnitude of storm surge and precipitation rates of tropical cyclones” (2019 Report, pp. 20-21). The 2019 Report also states that “[c]oastal ecosystems are observed to be under stress from ocean warming and SLR [sea level rise] that are exacerbated by non-climatic pressures from human activities on ocean and land (*high confidence*)” (*ibid*., p. 451). The WGII 2022 Report notes that “[s]ea level rise poses an existential threat for some Small Islands and some low-lying coasts (*medium confidence*)” (WGII 2022 Report, p. 15).

60. The IPCC defines ocean acidification as follows:

> A reduction in the *pH* of the *ocean*, accompanied by other chemical changes (primarily in the levels of carbonate and bicarbonate ions), over an extended period, typically decades or longer, which is caused primarily

> by *uptake* of *carbon dioxide (CO_2)* from the *atmosphere*, but can also be caused by other chemical additions or subtractions from the ocean. *Anthropogenic* OA [ocean acidification] refers to the component of pH reduction that is caused by human activity.
> (2019 Report, p. 693)

A 2001 IPCC report notes that, "[b]ecause of its solubility and chemical reactivity, CO_2 is taken up by the ocean much more effectively than other anthropogenic gases" (Climate Change 2001, The Scientific Basis, p. 197). The IPCC, in its WGI 2021 Report, explains that, "[o]nce dissolved in seawater, CO_2 reacts with water and forms carbonic acid" (WGI 2021 Report, p. 714) and that, as it explains in a 2007 report, as carbon dioxide increases, the pH decreases and therefore the ocean becomes more acidic. According to the 2014 Synthesis Report, "[s]ince the beginning of the industrial era, oceanic uptake of CO_2 has resulted in acidification of the ocean; the pH of ocean surface water has decreased by 0.1 (*high confidence*), corresponding to a 26% increase in acidity" (2014 Synthesis Report, p. 41).

61. Regarding the effects of ocean acidification, the same report indicates that "[m]arine ecosystems, especially coral reefs and polar ecosystems, are at risk" from this process, which "has impacts on the physiology, behaviour and population dynamics of organisms" and "acts together with other global changes (e.g., warming, progressively lower oxygen levels) and with local changes (e.g., pollution, eutrophication) (*high confidence*), leading to interactive, complex and amplified impacts for species and ecosystems" (*ibid*., p. 67). With regard to the effects on species, a 2014 IPCC report states that "the absorption of rising atmospheric CO_2 by … organisms changes carbonate system variables … in organism internal fluids" and that "[a]ccumulation of CO_2 and the resulting acidification can also affect a wide range of organismal functions" (Climate Change 2014, Impacts, Adaptation, and Vulnerability, p. 436). As to species producing calcified exoskeletons, the 2019 Report states that dissolved carbon dioxide taken up by the ocean "makes the water more corrosive for marine organisms that build their shells and structures out of mineral carbonates, such as corals, shellfish and plankton" (2019 Report, p. 113). According to the same report, "[b]iogenic shallow reefs with calcified organisms (e.g., corals, mussels, calcified algae) are particularly sensitive to ocean acidification" (*ibid*., p. 502). The 2019 Report further states that "[p]rojected ocean acidification

and oxygen loss will also affect deep ocean biodiversity and habitats that are linked to provisioning services in the deep ocean" (*ibid*., p. 509). Furthermore, as stated in the 2018 Report, "[l]arge-scale changes to foodweb structure are occurring in all oceans" (2018 Report, p. 227).

62. With regard to climate-related risks, the IPCC, in its 2023 Synthesis Report, concludes that "[r]isks and projected adverse impacts and related losses and damages from climate change escalate with every increment of global warming (*very high confidence*)" (2023 Synthesis Report, p. 14), and, in the 2018 Report, states that they "are higher for global warming of 1.5°C than at present, but lower than at 2°C (*high confidence*)" (2018 Report, p. 5). The WGI 2021 Report also indicates that "[m]any changes due to past and future greenhouse gas emissions are irreversible for centuries to millennia, especially changes in the ocean, ice sheets and global sea level" (WGI 2021 Report, p. 21). In addition, the 2019 Report anticipates that, "[o]ver the 21st century, the ocean is projected to transition to unprecedented conditions with increased temperatures (*virtually certain*), greater upper ocean stratification (*very likely*) [and] further acidification (*virtually certain*)" (2019 Report, p. 18). According to the 2023 Synthesis Report, the "[i]ncreasing frequency of marine heatwaves will increase risks of biodiversity loss in the oceans, including from mass mortality events (*high confidence*)" (2023 Synthesis Report, p. 98). In particular, "[w]arm-water corals are at high risk already and are projected to transition to very high risk even if global warming is limited to 1.5°C (*very high confidence*)" (2019 Report, p. 24).

63. In the 2018 Report, the IPCC states that "[l]imiting warming to 1.5°C implies reaching net zero CO_2 emissions globally around 2050 and concurrent deep reductions in emissions of non-CO_2 forcers, particularly methane (*high confidence*)" (2018 Report, p. 95). As to what is required to reach this goal, in the same report, the IPCC further states:

> Such mitigation pathways are characterized by energy-demand reductions, decarbonization of electricity and other fuels, electrification of energy end use, deep reductions in agricultural emissions, and some form of CDR [carbon dioxide removal] with carbon storage on land or sequestration in geological reservoirs. Low energy demand and low demand for land- and GHG-intensive

> consumption goods facilitate limiting warming to as close as possible to 1.5°C. (*Ibid*., p. 95)

64. Furthermore, the 2018 Report observes that "1.5°C implies very ambitious, internationally cooperative policy environments that transform both supply and demand (*high confidence*)" (2018 Report, p. 95) and that, "[i]n comparison to a 2°C limit, the transformations required to limit warming to 1.5°C are qualitatively similar but more pronounced and rapid over the next decades (*high confidence*)" (*ibid*., p. 95).

65. The IPCC concludes, in its 2023 Synthesis Report, that "[g]lobal warming will continue to increase in the near term in nearly all considered scenarios and modelled pathways" (2023 Synthesis Report, p. 68). With regard to climate change mitigation, i.e., "human intervention to reduce emissions or enhance the sinks of greenhouse gases" (2023 Synthesis Report, Annex I, p. 126), the IPCC finds in the same report that "[d]eep, rapid, and sustained GHG emissions reductions, reaching net zero CO_2 emissions and including strong emissions reductions of other GHGs, in particular CH_4, are necessary to limit warming to 1.5°C … or less than 2°C … by the end of century *(high confidence*)" (2023 Synthesis Report, p. 68).

66. The Tribunal notes that the IPCC, in its 2023 Synthesis Report, states that "climate change is a threat to human well-being and planetary health" (2023 Synthesis Report, p. 89), and that "[v]ulnerable communities who have historically contributed the least to current climate change are disproportionately affected (*high confidence*)" (2023 Synthesis Report, p. 5). The 2019 Report observes that "[h]uman communities in close connection with coastal environments … are particularly exposed to ocean and cryosphere change" (2019 Report, p. 5). For instance, the same report identifies future shifts in fish distribution and decreases in fisheries which would affect "income, livelihoods, and food security of marine resource-dependent communities", as well as impacts on marine ecosystems which would put "key cultural dimensions of lives and livelihoods at risk" (*ibid*., p. 26). In addition, the WGII 2022 Report indicates that "[c]limate hazards are a growing driver of involuntary migration and displacement" and that "[c]limate-related illnesses … and threats to mental health and well-being are increasing" (WGII 2022 Report, p. 1044).

In this respect, the Tribunal notes that climate change represents an existential threat and raises human rights concerns.

B. International instruments on climate change

67. The Tribunal notes that various international agreements and other instruments have been negotiated and adopted to address the issue of climate change. At the core of these agreements is the United Nations Framework Convention on Climate Change (hereinafter "UNFCCC"), which opened for signature in June 1992 at the United Nations Conference on Environment and Development in Rio de Janeiro and entered into force on 21 March 1994. To date, there are 198 Parties to the UNFCCC, including all States Parties to the Convention.

68. The objective of the UNFCCC, as set out in its Article 2, is to achieve "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." This provision further specifies that such a level should be achieved "within a timeframe sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner." The UNFCCC defines climate change in Article 1, paragraph 2, as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods." In Article 1, paragraph 4, the term "[e]missions" is defined as "the release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time." In Article 1, paragraph 5, the term "[g]reenhouse gases" is defined as "those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation." The use by the UNFCCC of the plural ("emissions") and of the qualifier "over a period of time" suggests that these are multiple and, to a certain extent, lasting releases of GHGs, which, *inter alia*, indicates their eventual accumulation or concentration.

69. With a view to achieving the objective of the UNFCCC and the implementation of its provisions, the Parties to the UNFCCC are guided by the provisions of Article 3.

These provisions refer, *inter alia*, to common but differentiated responsibilities and respective capabilities, specific needs and special circumstances of developing country Parties, precautionary measures, sustainable development and cooperation. Article 4, paragraph 1, contains general commitments for all Parties to the UNFCCC, while paragraph 2 of the same article formulates specific commitments applicable only to Parties listed in Annex I to the UNFCCC (hereinafter “Annex I Parties”), which includes developed country Parties and country Parties that are undergoing the process of transition to a market economy. These commitments relate to all GHGs not controlled by the Montreal Protocol on Substances that Deplete the Ozone Layer (hereinafter “the Montreal Protocol”). The UNFCCC also establishes the Conference of the Parties (hereinafter “COP”), which, in accordance with Article 7, is entrusted to “keep under regular review the implementation of the [UNFCCC] and any related legal instruments that the [COP] may adopt, and shall make, within its mandate, the decisions necessary to promote the effective implementation of the [UNFCCC].” In the implementation of commitments, “full consideration” is to be given to the specific needs and concerns of developing country Parties arising from the adverse effects of climate change or the impact of the implementation of response measures (see Article 4, para. 8). Low-lying and other small island countries, countries with low-lying coastal, arid and semi-arid areas or areas liable to floods, drought and desertification, and developing countries with fragile mountainous ecosystems are identified as those particularly vulnerable to the adverse effects of climate change (see nineteenth preambular paragraph).

70. On 11 December 1997, the third COP adopted the Kyoto Protocol to the UNFCCC, which entered into force on 16 February 2005. To date, there are 192 Parties to it, including 167 States Parties to the Convention. The Kyoto Protocol operationalizes the UNFCCC by setting quantified emission reduction targets for Annex I Parties. It establishes commitments for these Parties to limit and reduce their GHG emissions in accordance with agreed individual targets over a first commitment period from 2008 to 2012 (see Article 3, para. 1). Moreover, the Kyoto Protocol introduces flexible market-based mechanisms that rely on the trade of emissions permits (see Articles 6, 12 and 17) and establishes an extensive monitoring, review and verification system for ensuring compliance with commitments (see Articles 5, 7, 8 and 18). The Doha Amendment, which was

adopted on 8 December 2012, *inter alia*, established a second commitment period for Annex I Parties from 2013 until 2020.

71. Under the Kyoto Protocol, Annex I Parties are also required to limit or reduce GHG emissions from aviation and marine bunker fuels. This commitment is to be achieved by "working through" the International Civil Aviation Organization (hereinafter "ICAO") and the IMO, respectively (see Article 2, para. 2, of the Kyoto Protocol).

72. On 12 December 2015, the twenty-first COP adopted the Paris Agreement, which entered into force on 4 November 2016. To date, there are 195 Parties to it, including 168 States Parties to the Convention. The Paris Agreement aims to strengthen the global response to the threat of climate change, including by setting a temperature goal which is defined in Article 2, paragraph 1(a), as follows:

> Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.

73. In order to achieve the temperature goal set out in Article 2 of the Paris Agreement, Article 4, paragraph 1, thereof provides that

> Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty.

74. In accordance with Article 4, paragraph 2, of the Paris Agreement, the temperature and emissions goals of this treaty are to be attained, *inter alia*, through the preparation, communication and maintenance of successive nationally determined contributions that each Party intends to achieve and the pursuance of domestic mitigation measures. In accordance with Article 4, paragraph 3,

> [e]ach Party's successive nationally determined contribution will represent a progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition, reflecting its common

> but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

Article 4, paragraph 6, provides that the least developed countries and Small Island Developing States "may" prepare and communicate strategies, plans and actions for low GHG emissions development reflecting their special circumstances.

75. A further aim of the Paris Agreement is to increase the ability to adapt to the adverse impacts of climate change and foster climate resilience and low GHG emissions development in a manner that does not threaten food production (see Article 2, para. 1(b)). Accordingly, each Party is required, as appropriate, to engage in adaptation planning processes and the implementation of actions, including the development or enhancement of relevant plans, policies and/or contributions (see Article 7, para. 9).

76. Making finance flows consistent with a pathway towards low GHG emissions and climate-resilient development is another aim of the Paris Agreement (see Article 2, para. 1(c)). In this regard, Article 9, paragraph 1, of the Paris Agreement requires developed country Parties to provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the UNFCCC.

77. The Tribunal also notes that the COP has adopted numerous decisions in relation to the UNFCCC, the Kyoto Protocol and the Paris Agreement. Thus, on 20 November 2022, the twenty-seventh COP adopted the Sharm el-Sheikh Implementation Plan, in which it "[*r*]*ecognizes* that limiting global warming to 1.5°C requires rapid, deep and sustained reductions in global greenhouse gas emissions of 43 per cent by 2030", "[*a*]*lso recognizes* that this requires accelerated action" and "*requests* Parties that have not yet done so to revisit and strengthen the 2030 targets in their nationally determined contributions as necessary to align with the Paris Agreement temperature goal by the end of 2023, taking into account different national circumstances" (Decision 1/CMA.4 of 20 November 2022, paras. 15, 16 and 23). In its decision 1/CP.27 of 20 November 2022, the COP "[*r*]*eiterates* that the impacts of climate change will be much lower at the temperature increase of 1.5°C

compared with 2 °C and *resolves* to pursue further efforts to limit the temperature increase to 1.5 °C". On 13 December 2023, the twenty-eighth COP adopted the First Global Stocktake, where it, *inter alia*, in paragraph 28, recognized "the need for deep, rapid and sustained reductions in greenhouse gas emissions in line with 1.5°C pathways" and called on Parties to contribute to certain global efforts enumerated therein (Decision FCCC/PA/CMA/2023/L.17 of 13 December 2023). Several COP decisions address matters relating to climate change and the ocean (Decision 1/CP.25 of 15 December 2019, para. 31; Decision 1/CP.26 of 12 November 2021, paras. 60-61; Decision 1/CP.27 of 20 November 2022, paras. 49-50; Decision 1/CMA.4 of 20 November 2022, para. 79).

78. The Tribunal further notes that international instruments adopted within the framework of the IMO, ICAO and the Montreal Protocol also address matters related to climate change.

79. On 15 July 2011, the IMO adopted amendments to Annex VI to the International Convention for the Prevention of Pollution from Ships of 2 November 1973, as modified by the Protocol of 1978 (hereinafter "MARPOL"). Annex VI deals with the prevention of air pollution from ships. The 2011 amendments were made with a view to reducing GHG emissions from ships through the inclusion of regulations concerning energy efficiency (Resolution MEPC.203(62), Annex). Pursuant to the regulations, new ships engaged in international voyages are required to meet gradually increasing levels of energy efficiency. In 2018, the IMO introduced the Initial IMO Strategy on reduction of GHG emissions from ships. In 2021, the IMO adopted amendments to Annex VI (Resolution MEPC.328(76), Annex), which entered into force in November 2022. Regulation 20 of Annex VI, as amended, states that the goal of the relevant regulations "is to reduce the carbon intensity of international shipping, working towards the levels of ambition set out in the *Initial IMO Strategy on reduction of GHG emissions from ships* [adopted in 2018]."

80. On 7 July 2023, the IMO adopted the 2023 IMO Strategy on Reduction of GHG Emissions from Ships (hereinafter "the 2023 IMO GHG Strategy"). It seeks to enhance IMO's contribution to global efforts by addressing GHG emissions from international shipping. The 2023 IMO GHG Strategy identifies a set of levels of

ambition for the sector, notably “to peak GHG emissions from international shipping as soon as possible and to reach net-zero GHG emissions by or around, i.e. close to, 2050, taking into account different national circumstances” (see paras. 1.10.1, 3.1 and 3.3.4 of the 2023 IMO GHG Strategy).

81. In 2017 and 2018, the ICAO adopted Volumes III and IV, respectively, of Annex 16 to the Convention on International Civil Aviation (hereinafter “the Chicago Convention”). Annex 16 to the Chicago Convention contains international standards and recommended practices that govern the environmental impacts of international aviation. Volumes III and IV of Annex 16 relate to climate change mitigation. Volume III concerns the certification of aeroplane carbon dioxide emissions, while Volume IV establishes a carbon offsetting and reduction scheme for international aviation.

82. On 16 September 1987, the Montreal Protocol was adopted as a protocol to the Vienna Convention for the Protection of the Ozone Layer and entered into force on 1 January 1989. To date, there are 197 Parties to it, including all States Parties to the Convention. The Montreal Protocol deals with the phase-out of the production and consumption of chemicals that deplete the ozone layer, including chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), which are GHGs. An amendment to the Montreal Protocol adopted on 15 October 2016 (hereinafter “the Kigali Amendment”) provides for the phase-down of hydrofluorocarbons (HFCs), used to replace HCFCs, and which are substances that are not ozone depleting but are potent GHGs. The Kigali Amendment entered into force on 1 January 2019 (with the exception of the amendment to article 4 of the Montreal Protocol (control of trade with non-parties) which will enter into force on 1 January 2033). To date, there are 159 Parties to the Kigali Amendment.

III. Jurisdiction and discretion

83. The Tribunal will now proceed to the issue of jurisdiction and discretion. It will first consider whether it has jurisdiction to give the advisory opinion requested by the

Commission and, if so, whether there is any reason the Tribunal should, in the exercise of its discretion, decline to answer the Request.

A. Jurisdiction

84. The Tribunal's jurisdiction to render an advisory opinion is based on article 21 of its Statute. This provision reads: "The jurisdiction of the Tribunal comprises all disputes and all applications submitted to it in accordance with this Convention and all matters specifically provided for in any other agreement which confers jurisdiction on the Tribunal."

85. In *Request for an Advisory Opinion submitted by the Sub-Regional Fisheries Commission (SRFC)* (hereinafter "the *SRFC Advisory Opinion*"), the Tribunal stated that its jurisdiction comprises three elements:

> (i) all "disputes" submitted to the Tribunal in accordance with the Convention; (ii) all "applications" submitted to the Tribunal in accordance with the Convention; and (iii) all "matters" ("toutes les fois que cela" in French) specifically provided for in any other agreement which confers jurisdiction on the Tribunal
> (*Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015, ITLOS Reports 2015,* p. 4, at p. 21, para. 54).

86. The Tribunal further stated that the term "all matters" ("*toutes les fois que cela*" in French) includes advisory opinions, if specifically provided for in "any other agreement which confers jurisdiction on the Tribunal" (*Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015*, *ITLOS Reports 2015*, p. 4, at p. 21, para. 56).

87. The Tribunal also clarified that the expression "all matters specifically provided for in any other agreement which confers jurisdiction on the Tribunal" does not by itself establish the advisory jurisdiction of the Tribunal. In terms of article 21 of the Statute, it is the "other agreement" which confers such jurisdiction on the Tribunal. When the "other agreement" confers advisory jurisdiction on the Tribunal, the Tribunal is then rendered competent to exercise such jurisdiction with regard to "all matters" specifically provided for in the "other agreement". Article 21 and the

"other agreement" conferring jurisdiction on the Tribunal are interconnected and constitute the substantive legal basis of the advisory jurisdiction of the Tribunal (*Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015*, *ITLOS Reports 2015*, p. 4, at p. 22, para. 58).

88. Article 2, paragraph 2, of the COSIS Agreement states:

> Having regard to the fundamental importance of oceans as sinks and reservoirs of greenhouse gases and the direct relevance of the marine environment to the adverse effects of climate change on Small Island States, the Commission shall be authorized to request advisory opinions from the International Tribunal for the Law of the Sea ("ITLOS") on any legal question within the scope of the 1982 United Nations Convention on the Law of the Sea, consistent with Article 21 of the ITLOS Statute and Article 138 of its Rules.

The Tribunal considers that by providing for authorization enabling the Commission to request advisory opinions from the Tribunal, the COSIS Agreement "confers jurisdiction on the Tribunal" within the meaning of article 21 of the Statute.

89. Thus, article 21 of the Statute and the COSIS Agreement conferring jurisdiction on the Tribunal constitute the substantive legal basis of the advisory jurisdiction of the Tribunal in this case.

90. The Tribunal notes that its finding in the *SRFC Advisory Opinion* regarding the legal basis of its advisory jurisdiction has been supported by most States Parties to the Convention.

91. The Tribunal further notes that most participants in the current proceedings expressed the view that the Tribunal has jurisdiction to render the advisory opinion requested by the Commission.

92. The Tribunal also observes that the Agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (hereinafter "the BBNJ Agreement"), the latest agreement adopted to ensure the effective

implementation of the Convention, specifically provides that the Conference of the Parties may request the Tribunal to give an advisory opinion. This Agreement was adopted by consensus on 19 June 2023 and has not yet entered into force.

93. The Tribunal now turns to the prerequisites to be satisfied in order for the Tribunal to exercise its jurisdiction. Article 138, paragraphs 1 and 2, of the Rules reads as follows:

> 1. The Tribunal may give an advisory opinion on a legal question if an international agreement related to the purposes of the Convention specifically provides for the submission to the Tribunal of a request for such an opinion.
>
> 2. A request for an advisory opinion shall be transmitted to the Tribunal by whatever body is authorized by or in accordance with the agreement to make the request to the Tribunal.

94. As the Tribunal clarified in the *SRFC Advisory Opinion*, article 138 of the Rules does not establish the jurisdiction of the Tribunal but only furnishes the prerequisites that must be met before the Tribunal can exercise its advisory jurisdiction (see *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015*, *ITLOS Reports 2015*, p. 4, at p. 22, para. 59).

95. These prerequisites are as follows: (a) there is an international agreement related to the purposes of the Convention which specifically provides for the submission to the Tribunal of a request for an advisory opinion; (b) the request has been transmitted to the Tribunal by a body authorized by or in accordance with the agreement; and (c) the request submitted to the Tribunal concerns a legal question.

96. As regards the first prerequisite, the Tribunal notes that the COSIS Agreement is an international agreement which entered into force on 31 October 2021 and to which six States were Parties at the time the Request was filed.

97. As set out in its preamble, the basis for the COSIS Agreement is the need to address the adverse effects that GHG emissions have on the marine environment,

including marine living resources, and their devastating impact for small island States. Furthermore, the Commission's mandate, as stated in article 1, paragraph 3, of the COSIS Agreement, is "to promote and contribute to the definition, implementation, and progressive development of rules and principles of international law concerning climate change, including, but not limited to, the obligations of States relating to the protection and preservation of the marine environment and their responsibility for injuries arising from internationally wrongful acts in respect of the breach of such obligations."

98. Considering that one of the main objectives of the Convention is the protection and preservation of the marine environment, to which Part XII is dedicated, it is clear that the COSIS Agreement is an international agreement related to the purposes of the Convention.

99. In article 1, paragraph 1, the COSIS Agreement establishes the Commission of Small Island States on Climate Change and International Law as an intergovernmental organization with international legal personality. Pursuant to article 3, membership of the Commission is open to all members of the Alliance of Small Island States (AOSIS) that become parties to the COSIS Agreement.

100. The Tribunal further observes that article 2, paragraph 2, of the COSIS Agreement specifically states that "the Commission shall be authorized to request advisory opinions from the International Tribunal for the Law of the Sea ("ITLOS") on any legal question within the scope of the 1982 United Nations Convention on the Law of the Sea, consistent with Article 21 of the ITLOS Statute and Article 138 of its Rules."

101. As to the second prerequisite whereby the request must be transmitted to the Tribunal by a body authorized by or in accordance with the COSIS Agreement, the Tribunal notes that the Commission, during its Third Meeting, convened on 26 August 2022, unanimously decided to submit to the Tribunal a request for an advisory opinion pursuant to article 3, paragraph 5, of the Agreement. The Request was subsequently transmitted to the Tribunal by the Co-Chairs of the Commission (see paras. 1 and 3 above).

102. The Tribunal now turns to the third prerequisite whereby the request for an advisory opinion must concern a legal question. The questions read as follows:

> What are the specific obligations of State Parties to the United Nations Convention on the Law of the Sea ('UNCLOS'), including under Part XII:
>
> (a) to prevent, reduce and control pollution of the marine environment in relation to the deleterious effects that result or are likely to result from climate change, including through ocean warming and sea level rise, and ocean acidification, which are caused by anthropogenic greenhouse gas emissions into the atmosphere?
>
> (b) to protect and preserve the marine environment in relation to climate change impacts, including ocean warming and sea level rise, and ocean acidification?

103. The Tribunal considers that these questions have been framed in terms of law. To respond to these questions, the Tribunal is called upon to interpret the relevant provisions of the Convention and of the COSIS Agreement and to identify other relevant rules of international law (see *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015*, *ITLOS Reports 2015*, p. 4, at pp. 23-24, para. 65).

104. The Tribunal therefore concludes that the questions raised by the Commission are of a legal nature.

105. In addition to the aforementioned prerequisites, article 21 of the Statute lays down that the jurisdiction of the Tribunal extends to "all matters specifically provided for in any other agreement which confers jurisdiction on the Tribunal." Accordingly, it is necessary for the Tribunal to assess whether the questions posed by the Commission constitute matters which fall within the framework of the COSIS Agreement (see *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015*, *ITLOS Reports 2015*, p. 4, at p. 24, para. 67).

106. In this regard, the questions need not necessarily be limited to the interpretation or application of any specific provision of the COSIS Agreement. It is

enough if the questions have a “sufficient connection” with the purpose of the COSIS Agreement (see *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015*, *ITLOS Reports 2015*, p. 4, at p. 24, para. 68).

107. The Tribunal notes that article 2, paragraph 1, of the COSIS Agreement provides that the purpose of the Commission is to, *inter alia*, “[assist] Small Island States to promote and contribute to the definition, implementation, and progressive development of rules and principles of international law concerning climate change, in particular the protection and preservation of the marine environment”.

108. The Tribunal is satisfied in the present case that the questions posed by the Commission (see para. 102 above) have a sufficient connection with the purpose of the COSIS Agreement. The questions are directly relevant to matters which fall within the framework of the Agreement.

109. For the aforementioned reasons, the Tribunal finds that it has jurisdiction to give the advisory opinion requested by the Commission.

B. Discretion

110. Having found that it has jurisdiction to entertain the Request, the Tribunal will now turn to the issue of its discretionary power to decline to render an advisory opinion in the present case.

111. The Tribunal stated in the *SRFC Advisory Opinion* that “[a]rticle 138 of the Rules, which provides that ‘the Tribunal may give an advisory opinion’, should be interpreted to mean that the Tribunal has a discretionary power to refuse to give an advisory opinion even if the conditions of jurisdiction are satisfied” (see *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015*, *ITLOS Reports 2015*, p. 4, at p. 25, para. 71). The Tribunal further stated that “[i]t is well settled that a request for an advisory opinion should not in principle be refused except for ‘compelling reasons’” (see *ibid*.; see also *Legality of*

the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996, p. 226, at p. 235, para. 14).

112. Some participants in the present proceedings expressed the view that the lack of consent of States not party to the COSIS Agreement to any aspect of the Request might constitute a ground for the Tribunal to decline to give an advisory opinion.

113. Contrary to this view, it was contended that the fact that the advisory opinion has been requested by some States Parties to the Convention, and not by all, cannot be a reason for the Tribunal to refrain from giving the opinion. The lack of consent, it was stated, has no bearing on the discretionary power of the Tribunal to refuse to give an advisory opinion to an entity entitled to request it.

114. The Tribunal notes that an advisory opinion is given to the requesting entity, which considers it desirable in order to obtain enlightenment as to the course of action it should take. An advisory opinion as such has no binding force and the consent of States not members of the requesting entity is not relevant (see *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015*, *ITLOS Reports 2015*, p. 4, at p. 26, para. 76).

115. The Tribunal observes that, in response to its invitation, a large number of participants in the written and oral proceedings furnished the Tribunal with information relevant to the Request. A vast majority of the participating States Parties expressed support for an advisory opinion to be rendered by the Tribunal and were of the view that the present proceedings did not give rise to any compelling reasons for the Tribunal to exercise its discretion to decline to give an advisory opinion. Some participants drew attention to the urgency of the threat of climate change to member States of the Commission and also to the collective interest of States Parties to the Convention in emphasizing that there were compelling reasons for the Tribunal to proceed expeditiously to answer the questions.

116. Another reason the Tribunal might decline to exercise its jurisdiction is the possibility that the questions raised in the Request may be closely related to questions which are the subject of a dispute affecting the rights and obligations of

third States that have not consented to the Request (see *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015*, *ITLOS Reports 2015*, p. 4, at pp. 25-26, para. 75). The Tribunal is not aware of any legal dispute between the members of the Commission and any other States relating to the subject matter of the advisory opinion which would require the latter's consent.

117. Some participants expressed the view that the Commission, in this case, was not seeking guidance in respect of its own actions but rather clarification in respect of the obligations of States Parties to the Convention regarding the protection and preservation of the marine environment.

118. In this regard, the Tribunal is aware of the importance of the questions in the Request for the members of the Commission and that by answering the questions, the Tribunal would be assisting the Commission in the performance of its activities and contributing to the fulfilment of its mandate, including the implementation of the Convention.

119. It was further argued by some participants that the Request contains questions that are wide, abstract and of a general nature and that since the Request is framed in broad terms, the Tribunal should have careful regard to the parameters of its judicial function. On the other hand, it was contended that the questions in the Request are clear enough and that there is sufficient information and evidence to enable the Tribunal to give an advisory opinion.

120. The Tribunal is of the view that the questions raised by the Commission are clear and specific enough to enable it to give an advisory opinion. The Tribunal considers that sufficient information and evidence have been made available on which to base its findings. The Tribunal further finds that the Request is compatible with its judicial functions, as it is called upon to clarify and provide guidance concerning the specific obligations of States Parties to the Convention by interpreting and applying the provisions of the Convention, in particular the provisions of Part XII, and other relevant rules of international law. As the Tribunal made clear in the *SRFC Advisory Opinion*, it "does not take a position on issues beyond the scope of its

judicial functions" (see *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015*, *ITLOS Reports 2015*, p. 4, at p. 25, para. 74).

121. In light of the foregoing, the Tribunal deems it appropriate to render the advisory opinion requested by the Commission.

122. The Tribunal is mindful of the fact that climate change is recognized internationally as a common concern of humankind. The Tribunal is also conscious of the deleterious effects climate change has on the marine environment and the devastating consequences it has and will continue to have on small island States, considered to be among the most vulnerable to such impacts. Bearing this in mind, the Tribunal will provide clarification on the issues raised by the Commission.

IV. Applicable law

123. The Tribunal will now address the applicable law in this case. Article 138, paragraph 3, of the Rules states that "[t]he Tribunal shall apply *mutatis mutandis* articles 130 to 137" of the Rules in the exercise of its functions relating to advisory opinions. These articles are those which lay down the rules applicable to the Seabed Disputes Chamber in the exercise of its functions relating to advisory opinions.

124. Article 130, paragraph 1, of the Rules states:

> In the exercise of its functions relating to advisory opinions, the Seabed Disputes Chamber shall apply this section and be guided, to the extent to which it recognizes them to be applicable, by the provisions of the Statute and of these Rules applicable in contentious cases.

125. The Tribunal refers in this regard to article 23 of the Statute, which provides that "[t]he Tribunal shall decide all disputes and applications in accordance with article 293."

126. Article 293, paragraph 1, of the Convention reads:

> A court or tribunal having jurisdiction under this section shall apply this Convention and other rules of international law not incompatible with this Convention.

127. Therefore, the Tribunal concludes that the Convention, the COSIS Agreement and other relevant rules of international law not incompatible with the Convention constitute the applicable law in this case.

V. Interpretation of the Convention and the relationship between the Convention and external rules

128. Having addressed the applicable law, the Tribunal will now proceed to the question of the interpretation of the Convention and the relationship between the Convention and other relevant rules of international law (external rules). The questions posed by the Commission to the Tribunal relate to the interpretation of the Convention. The rules governing treaty interpretation are codified in articles 31 to 33 of the Vienna Convention on the Law of Treaties (hereinafter "VCLT") and form part of the applicable law in this case.

129. The general rule of treaty interpretation is contained in article 31 of the VCLT and reads:

> *General rule of interpretation*
>
> 1. A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.
>
> 2. The context for the purpose of the interpretation of a treaty shall comprise, in addition to the text, including its preamble and annexes:
>
> (a) any agreement relating to the treaty which was made between all the parties in connection with the conclusion of the treaty;
>
> (b) any instrument which was made by one or more parties in connection with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty.

> 3. There shall be taken into account, together with the context:
>
> (a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions;
>
> (b) any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation;
>
> (c) any relevant rules of international law applicable in the relations between the parties.
>
> 4. A special meaning shall be given to a term if it is established that the parties so intended.

130. The Tribunal notes that many participants in the present proceedings have emphasized the open character of the Convention and its constitutional and framework nature. In the Tribunal's view, coordination and harmonization between the Convention and external rules are important to clarify, and to inform the meaning of, the provisions of the Convention and to ensure that the Convention serves as a living instrument. The relationship between the provisions of Part XII of the Convention, entitled "Protection and Preservation of the Marine Environment", and external rules is of particular relevance in this case.

131. In this regard, the Tribunal points out the following mechanisms through which a relationship between the provisions of Part XII of the Convention and external rules is formed. First, the Convention contains certain provisions – also called rules of reference – that refer to external rules. These rules of reference employ different terms and have both a different scope and legal effect.

132. Second, article 237 of the Convention clarifies the relationship of Part XII of the Convention with other treaties relating to the protection and preservation of the marine environment. Article 237 reads:

> *Obligations under other conventions on the protection and preservation of the marine environment*
>
> 1. The provisions of this Part are without prejudice to the specific obligations assumed by States under special conventions and agreements concluded previously which relate to the protection and preservation of the marine environment and to agreements which may be concluded in furtherance of the general principles set forth in this Convention.

> 2. Specific obligations assumed by States under special conventions, with respect to the protection and preservation of the marine environment, should be carried out in a manner consistent with the general principles and objectives of this Convention.

133. Article 237 of the Convention reflects the need for consistency and mutual supportiveness between the applicable rules. On the one hand, Part XII of the Convention is without prejudice to the specific obligations of States under special conventions and agreements concluded previously in this field and to agreements which may be concluded in furtherance of the general principles of the Convention. On the other hand, such specific obligations should be carried out in a manner consistent with the general principles and objectives of the Convention.

134. The rules of reference contained in Part XII of the Convention and article 237 of the Convention demonstrate the openness of Part XII to other treaty regimes.

135. Third, article 31, paragraph 3(c), of the VCLT (see para. 129 above) requires that account be taken, together with the context, of any relevant rules of international law applicable in the relations between the parties. This method of interpretation ensures, as observed by the International Court of Justice (hereinafter “the ICJ”), that treaties do not operate in isolation but are “interpreted and applied within the framework of the entire legal system prevailing at the time of the interpretation” (*Legal Consequences for States of the Continued Presence of South Africa in Namibia (South West Africa) notwithstanding Security Council Resolution 276 (1970), Advisory Opinion, I.C.J. Reports 1971*, p. 16, at p. 31, para. 53). The term “any relevant rules of international law“ includes both relevant rules of treaty law and customary law.

136. The Tribunal is of the view that, subject to article 293 of the Convention, the provisions of the Convention and external rules should, to the extent possible, be interpreted consistently. In this context, the Tribunal notes that the Study Group of the International Law Commission (hereinafter “the ILC”), in its 2006 Report on the Fragmentation of International Law, concluded that “[i]t is a generally accepted principle that when several norms bear on a single issue they should, to the extent

possible, be interpreted so as to give rise to a single set of compatible obligations" (Fragmentation of International Law, Report of the Study Group of the ILC, 2006, p. 8; see also Guideline 9 of the 2021 ILC Guidelines on the protection of the atmosphere).

137. As reflected in paragraphs 67 to 82 above, there is an extensive treaty regime addressing climate change that includes the UNFCCC, the Kyoto Protocol, the Paris Agreement, Annex VI to MARPOL, Annex 16 to the Chicago Convention, and the Montreal Protocol, including the Kigali Amendment. The Tribunal considers that, in the present case, relevant external rules may be found, in particular, in those agreements.

VI. Scope of the Request and relationship between the questions

A. Scope of the Request

138. Before responding to the questions submitted to it, the Tribunal wishes to examine the scope of the Request.

139. There are two questions before the Tribunal:

> What are the specific obligations of State Parties to the United Nations Convention on the Law of the Sea ('UNCLOS'), including under Part XII:
>
> (a) to prevent, reduce and control pollution of the marine environment in relation to the deleterious effects that result or are likely to result from climate change, including through ocean warming and sea level rise, and ocean acidification, which are caused by anthropogenic greenhouse gas emissions into the atmosphere?
>
> (b) to protect and preserve the marine environment in relation to climate change impacts, including ocean warming and sea level rise, and ocean acidification?

The phrase: "What are the specific obligations of State Parties to the United Nations Convention on the Law of the Sea …, including under Part XII", applies both to Question (a) and Question (b). As the Tribunal has stated above, the questions raised by the Commission are clear enough to enable it to give an advisory opinion

(see para. 120 above). However, certain elements of that phrase have elicited divergent views in the present proceedings. Since the phrase is important to the scope of the Request, the Tribunal will now address these elements.

140. The questions posed to the Tribunal are concerned with the specific obligations "of State Parties to the United Nations Convention on the Law of the Sea". This wording suggests that the Commission seeks an opinion from the Tribunal on the specific obligations under the Convention. However, in the present proceedings, certain participants invited the Tribunal to provide guidance on States Parties' obligations under international law to curb anthropogenic GHG emissions into the atmosphere and the marine environment. In particular, it was suggested that the Tribunal could determine specific obligations assumed by States under the UNFCCC and the Paris Agreement.

141. Article 2, paragraph 2, of the COSIS Agreement authorizes the Commission to request advisory opinions from the Tribunal "on any legal question *within the scope of the 1982 United Nations Convention on the Law of the Sea*, consistent with Article 21 of the ITLOS Statute and Article 138 of its Rules" (emphasis added). The Commission itself has suggested that both questions concern States Parties' obligations under the Convention. Specifically, in its final oral statement in the present proceedings, the Commission asked the Tribunal "to state, clearly and objectively *what the current legal duties of States Parties are under UNCLOS* in relation to the impact of climate change on the marine environment" (emphasis added).

142. The Tribunal concludes that it is requested to render an advisory opinion on the specific obligations of States Parties under the Convention. In order to identify these obligations and clarify their content, the Tribunal will have to interpret the Convention and, in doing so, also take into account external rules, as appropriate.

143. The questions posed to the Tribunal refer to the specific obligations of States Parties to the Convention, "including under Part XII". Many participants focused their pleadings on the obligations contained in Part XII. However, other participants noted

that the questions are not limited to the obligations under Part XII of the Convention and addressed obligations under other parts of the Convention as well.

144. The Tribunal is of the view that, as a matter of ordinary interpretation, the word “including” in the above phrase indicates that the Tribunal is requested to provide guidance as to the specific obligations of the States Parties under Part XII as well as other relevant provisions of the Convention.

145. The Tribunal will now consider whether the issues of responsibility and liability fall within the scope of the Request. Some participants in the present proceedings have stated that issues of responsibility and liability are relevant, in particular because the Request refers to obligations without characterizing them as primary or secondary. In contrast, it has been argued that the Request concerns only primary obligations and does not involve issues of responsibility and liability, nor does it invite the Tribunal to consider legal consequences arising from the breach of obligations. The Commission, for instance, has explained that it is asking the Tribunal to state what the legal duties of States Parties are in relation to the impacts of climate change on the marine environment and not for which acts or omissions injunctive relief or compensation is available.

146. The Commission asks the Tribunal to identify specific “obligations” under the Convention; terms such as “responsibility” and “liability” do not appear in the Request. The Tribunal notes that article 1, paragraph 3, of the COSIS Agreement clearly distinguishes between the obligations, on the one hand, and responsibility for their breaches, on the other (see para. 97 above). Considering the Request against the backdrop of this provision, the Tribunal is of the view that if the Commission had intended for the Tribunal to address issues of responsibility and liability, it would have expressly formulated the Request accordingly.

147. In this regard, the Request is notably different from the requests for advisory opinion previously dealt with by the Seabed Disputes Chamber and the Tribunal. The request submitted to the Seabed Disputes Chamber explicitly asked not only about the responsibilities and obligations of States Parties with respect to the sponsorship of activities in the Area but also, *inter alia*, about the extent of liability of a State Party

for any failure to comply with the provisions of the Convention and the Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 by an entity it has sponsored (*Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion, 1 February 2011, ITLOS Reports 2011*, p. 10, at p. 15, para. 1). The request to the Tribunal for an advisory opinion submitted by the SRFC expressly asked not only about the obligations of the flag State but also, *inter alia,* about the extent to which a State should be held liable for illegal, unreported and unregulated fishing activities conducted by vessels under its flag (*Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission,* Advisory Opinion*, 2 April 2015, ITLOS Reports 2015*, p. 4, at p. 8, para. 2).

148. In both previous advisory opinions, a distinction has been made between primary and secondary obligations under international law (see *Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion, 1 February 2011, ITLOS Reports 2011*, p. 10, at pp. 30-31, paras. 64-71; *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015, ITLOS Reports 2015*, p. 4, at p. 44, para. 145). In the present case, the Tribunal will confine itself to primary obligations. However, to the extent necessary to clarify the scope and nature of primary obligations, the Tribunal may have to refer to responsibility and liability.

149. The Tribunal wishes to address another issue concerning the Request's scope. Some participants, referring to the mention of sea level rise in the Request, invited the Tribunal to deal with the issue of the relationship between sea level rise and existing maritime claims or entitlements. On the other hand, other participants expressed the view that, while acknowledging the importance of this issue, the present proceedings should focus instead on environmental issues. The Commission, in particular, explained that questions relating to consequences of sea level rise upon maritime zones, entitlements and boundaries are not before the Tribunal in the present case.

150. The Request mentions sea level rise in both questions. The preamble of the COSIS Agreement states, *inter alia*, that the Parties to the Agreement affirm that

maritime zones, as established and notified to the Secretary-General of the United Nations in accordance with the Convention, and the rights and entitlements that flow from them, “shall continue to apply, without reduction, notwithstanding any physical changes connected to climate change-related sea-level rise”. However, neither the Request nor the decision that approved it refers to this provision or otherwise addresses the issue of base points, baselines, claims, rights or entitlements to maritime zones established under the Convention, or maritime boundaries, and the corresponding obligations in the context of “physical changes connected to climate change-related sea-level rise”. Instead, the Request employs sea level rise to form part of the context within which the Tribunal should consider the specific obligations concerning the protection and preservation of the marine environment, a matter on which the Request clearly concentrates. The Tribunal is of the view that if the Commission had intended to solicit an opinion on the consequences of sea level rise for base points, baselines, claims, rights or entitlements to the maritime zones established under the Convention, or maritime boundaries, and the corresponding obligations, it would have expressly formulated the Request accordingly.

B. Relationship between the questions

151. Before examining the two questions in the Request, the Tribunal wishes to address the relationship between them. Several participants in the proceedings expressed the view that the obligation to protect and preserve the marine environment reflected in the second question is more comprehensive than the obligation to prevent, reduce and control pollution of the marine environment reflected in the first question; therefore, the second question is broader than the first question. In this regard, some participants proposed that the Tribunal address Question (b) prior to Question (a).

152. The Tribunal considers that the obligation addressed in the second question is broader in scope than the obligation addressed in the first question. The obligation to protect and preserve the marine environment encompasses the obligation to prevent, reduce and control marine pollution. In addition, it extends to the protection of the marine environment from any negative impacts. As the arbitral tribunal in the *Chagos Marine Protected Area* case stated, “[w]hile the control of pollution is

certainly an important aspect of environmental protection, it is by no means the only one" (*Arbitration regarding the Chagos Marine Protected Area between Mauritius and the United Kingdom of Great Britain and Northern Ireland, Award of 18 March 2015, RIAA, Vol. XXXI*, p. 359, at pp. 499-500, para. 320; see also *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission*, *Advisory Opinion*, *2 April 2015, ITLOS Reports 2015*, p. 4, at p. 37, para. 120; *Southern Bluefin Tuna (New Zealand* v. *Japan; Australia* v. *Japan), Provisional Measures, Order of 27 August 1999, ITLOS Reports 1999,* p. 280, at p. 295, para. 70; *The South China Sea Arbitration between the Republic of the Philippines and the People's Republic of China, Award of 12 July 2016*, *RIAA, Vol. XXXIII*, p. 153, at pp. 521-522, para. 945). Thus, implementing the obligation to prevent, reduce and control pollution of the marine environment does not exhaust the implementation of the obligation to protect and preserve it. Given this relationship between the two obligations addressed in the questions before the Tribunal, it is plain that the second question is more comprehensive than the first question. The Tribunal will follow the order of the questions as they were posed in the Request and in its response to the second question will deal with the obligations not addressed in the first question.

VII. Question (a)

153. The Tribunal will now turn to the first question posed by the Commission. The question reads:

> What are the specific obligations of State Parties to the United Nations Convention on the Law of the Sea (the 'UNCLOS'), including under Part XII:
>
> (a) to prevent, reduce and control pollution of the marine environment in relation to the deleterious effects that result or are likely to result from climate change, including through ocean warming and sea level rise, and ocean acidification, which are caused by anthropogenic greenhouse gas emissions into the atmosphere?

A. Clarification of terms and expressions

154. The first question posed to the Tribunal by the Commission concerns the specific obligations of States Parties to the Convention to prevent, reduce and

control marine pollution in relation to the deleterious effects that result or are likely to result from climate change and ocean acidification, which are caused by anthropogenic GHG emissions into the atmosphere. Before responding to the question, the Tribunal wishes to clarify certain terms and expressions employed therein to determine the precise meaning of the question.

155. The Tribunal first notes that the question asks the Tribunal to identify specific obligations of “State Parties to UNCLOS”. The term “State Parties” refers to States and international organizations which have become Parties to the Convention in accordance with article 1, paragraph 2, subparagraphs 1 and 2, of the Convention. Currently, 168 States and one international organization are Parties to the Convention.

156. The next point the Tribunal wishes to clarify is the meaning of “specific obligations” to prevent, reduce and control pollution of the marine environment. The term “specific obligations” may denote concrete or particularized obligations, in contrast to general obligations. It may also mean obligations specific to pollution of the marine environment in relation to the deleterious effects arising from climate change and ocean acidification. In responding to the question, the Tribunal will bear in mind both aspects of the term “specific”.

157. The terms “climate change”, “greenhouse gas emissions”, and “ocean acidification” do not appear in the Convention. The Tribunal understands that those terms are used in Question (a) as they are defined in relevant legal instruments relating to climate change or in authoritative scientific works such as in the IPCC reports. For the purpose of responding to Question (a), the Tribunal accepts those definitions and usage, which have already been explained in paragraphs 52, 54, 60 and 68 above.

158. Question (a) points to the specific obligations under the Convention to prevent, reduce and control marine pollution “in relation to” the deleterious effects that result or are likely to result from climate change and ocean acidification, which are caused by anthropogenic GHG emissions. The Tribunal observes that the question is formulated on the premise that these obligations necessarily apply to

climate change and ocean acidification. However, in the Tribunal's view, the validity of this premise cannot be presumed and needs to be examined. Therefore, the Tribunal will first address whether the obligations under the Convention apply to climate change and ocean acidification. If they do, the Tribunal will then examine how those obligations should be interpreted and applied in relation to the deleterious effects caused by anthropogenic GHG emissions.

B. Whether anthropogenic GHG emissions fall within the definition of marine pollution under the Convention

159. In responding to Question (a), the first issue that should be addressed is whether anthropogenic GHG emissions into the atmosphere fall under the definition of "pollution of the marine environment" under article 1, paragraph 1, subparagraph 4, of the Convention.

160. A large majority of the participants in the proceedings recognized that anthropogenic GHG emissions meet the definition of "pollution of the marine environment" under article 1, paragraph 1, subparagraph 4, of the Convention. On the other hand, some participants argued that GHG emissions should not be considered "pollution of the marine environment" and that to include them within the ambit of "pollution of the marine environment" would be tantamount to the Tribunal exercising legislative functions.

161. Article 1, paragraph 1, subparagraph 4, of the Convention reads:

> For the purposes of this Convention … "pollution of the marine environment" means the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.

This definition does not provide a list of pollutants or forms of pollution of the marine environment. Instead, it sets out three criteria to determine what constitutes such pollution: (1) there must be a substance or energy; (2) this substance or energy must be introduced by humans, directly or indirectly, into the marine environment; and

(3) such introduction must result or be likely to result in deleterious effects. These criteria are cumulative; all of them must be satisfied to meet the definition. The definition is general in that it encompasses whatever satisfies these criteria.

162. The Tribunal will now examine whether anthropogenic GHG emissions satisfy the criteria set out above.

163. The terms “substance” and “energy” have a broad meaning. The Tribunal is of the view that, in the context of the present case, the term “substance” refers to any particular kind of matter with uniform properties or a kind of matter of a definite chemical composition. As to the term “energy”, the Tribunal notes that one of the forms of energy is thermal energy or heat. It further notes that the ILC, in its commentary to the definition of “atmospheric pollution” – and specifically to the “introduction of energy” – in the 2021 Draft guidelines on the protection of the atmosphere, explains that this reference to energy is understood to include heat (ILC Draft guidelines on the protection of the atmosphere, Commentary to Guideline 1, subpara. (b)).

164. The term “gas”, in the context of the present case, refers to a substance in a form like air that is neither solid nor liquid. It is clear from the ordinary meaning of the word “gas” and from the UNFCCC and IPCC definitions of the term “greenhouse gases” (see paras. 54 and 68 above) that they are substances. Consequently, the first criterion of the Convention’s definition of “pollution of the marine environment” is satisfied.

165. The Tribunal will now address the second criterion. The first question concerns, in the context of pollution of the marine environment, not GHGs as such but “anthropogenic emissions” thereof. In view of the definitions of the term “emissions” in the UNFCCC (see para. 68 above) and of the terms “anthropogenic” and “anthropogenic emissions” by the IPCC (see para. 54 above), it is clear that anthropogenic GHG emissions are produced “by man”, within the meaning of article 1, paragraph 1, subparagraph 4, of the Convention.

166. The term “marine environment” appears in many provisions of the Convention. However, the Convention does not give a definition of it. The term “marine” means belonging to, existing or found in, or produced by, the sea; belonging to, or situated at, the sea-side, bounded by the sea. The term “environment” denotes the area surrounding a place or thing; the surroundings or physical context and conditions in which an organism lives, develops, or a thing exists; the external conditions in general affecting the life, existence, or properties of an organism or object. The ICJ has recognized that the environment “represents the living space, the quality of life and the very health of human beings, including generations unborn” (*Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996*, p. 226, at p. 241, para. 29). Thus, it may be assumed that the term “marine environment” in article 1, paragraph 1, subparagraph 4, of the Convention combines both spatial and material components. This is supported, in particular, by the context in which the term is used in the Convention, in light of its object and purpose, by the relevant subsequent practice of the States Parties to the Convention regarding its interpretation, and by the corresponding international jurisprudence.

167. According to its fourth preambular paragraph, one of the main goals of the Convention is to establish a legal order for the seas and oceans that will promote the protection and preservation of the marine environment. Here, the marine environment is referred to in a general sense. The Tribunal notes that most of the provisions of Part XII and, in particular, articles 192 and 194, use the term “marine environment” generally, without specifying to which maritime zone it relates.

168. Article 1, paragraph 1, subparagraph 4, of the Convention refers to “the marine environment, including estuaries”. Articles 145, paragraph (a), and 211, paragraph 1, refer to “the marine environment, including the coastline”. This indicates that the marine environment under the Convention encompasses certain spaces beyond maritime zones established thereunder.

169. Under article 194, paragraph 5, of the Convention, the measures taken in accordance with Part XII, i.e., protection and preservation of the marine environment, “shall include those necessary to protect and preserve rare or fragile ecosystems as

well as the habitat of depleted, threatened or endangered species and other forms of marine life." The term "ecosystem" is not defined in the Convention, but article 2 of the Convention on Biological Diversity (hereinafter "the CBD"), which was adopted on 5 June 1992 and entered into force on 29 December 1993, defines ecosystem to mean "a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit." The IPCC defines "ecosystem" as a "functional unit consisting of living organisms, their non-living environment and the interactions within and between them" (2019 Report, Annex I, Glossary, p. 684). In this regard, the Tribunal recalls that in the *Southern Bluefin Tuna* cases and in the *SRFC Advisory Opinion*, it held that living resources of the sea and marine life are part of the marine environment (*Southern Bluefin Tuna (New Zealand* v. *Japan; Australia* v. *Japan), Provisional Measures, Order of 27 August 1999, ITLOS Reports 1999*, p. 280, at p. 295, para. 70; *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015, ITLOS Reports 2015*, p. 4, at p. 61, para. 216; see also *Arbitration regarding the Chagos Marine Protected Area between Mauritius and the United Kingdom of Great Britain and Northern Ireland, Award of 18 March 2015, RIAA, Vol. XXXI*, p. 359, at p. 580, para. 538).

170. The Tribunal notes that the term "marine environment" is defined in the regulations relating to prospecting and exploration of mineral resources in the Area adopted by the Authority. These regulations all provide the same definition of the term "marine environment", stating that it

> includes the physical, chemical, geological and biological components, conditions and factors which interact and determine the productivity, state, condition and quality of the marine ecosystem, the waters of the seas and oceans and the airspace above those waters, as well as the seabed and ocean floor and subsoil thereof.
> (Regulations on prospecting and exploration for polymetallic sulphides in the Area, regulation 1, para. 3(c); Regulations on Prospecting and Exploration for Cobalt-rich Ferromanganese Crusts in the Area, regulation 1, paragraph 3(d); Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, regulation 1, paragraph 3(c).)

This definition of the marine environment has spatial and material dimensions. In clarifying the term "marine environment", the Tribunal has taken these regulations

into account as representing the practice of the States Parties to the Convention and of the Authority in this respect.

171. The Tribunal also notes that the participants in the present proceedings who addressed the meaning of the term “marine environment” expressed the view that it should be understood broadly.

172. The ordinary meaning of the word “introduction” relevant in the present context is the action of introducing, bringing in or inserting. The ordinary relevant meaning of the word “directly” indicates the absence of an intervening medium or agent; that is to say, through a direct process or mode. The ordinary relevant meaning of the word “indirectly” suggests indirect action or through indirect means, connection, agency or instrumentality, or an intervening person or thing. Given these ordinary meanings of “direct” and “indirect”, the introduction of the anthropogenic GHGs into the marine environment may take place either immediately, through a direct mode or in stages. According to the science (see para. 60 above), because of its solubility and chemical reactivity, carbon dioxide from human activities, which has the largest share and growth in gross GHG emissions (2023 Synthesis Report, p. 4), is taken up by the ocean much more effectively than other emitted gases. Carbon dioxide then dissolves in sea water and mixes into the deep ocean (see, e.g., Climate Change 2001, The Scientific Basis, pp. 187, 197-199). Thus, GHGs, as substances, are directly introduced by humans into the marine environment. Furthermore, according to the science (see para. 54 above), GHGs trap heat within the atmosphere and the ocean then stores this heat. In this way, and considering that heat is a form of energy, humans indirectly introduce energy into the marine environment through anthropogenic GHG emissions.

173. In light of the above, the Tribunal concludes that anthropogenic GHG emissions satisfy the second criterion of the “pollution of the marine environment” definition.

174. To fall within the definition of marine pollution, the introduction of substances or energy must result or be likely to result “in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine

activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities". The Tribunal notes that the "deleterious effects" illustrated in article 1, paragraph 1, subparagraph 4, of the Convention are not exhaustive, as implied by the words "such ... as" and, in any case, are not limited to the marine environment. This is clear, considering, for instance, that effects on human health, marine activities or amenities are mentioned. The definition also points to actual ("results") or potential ("likely to result") deleterious effects. The Tribunal further notes that the definition neither qualifies the "likelihood" of the deleterious effects nor specifies the level of "harm" that can be considered a deleterious effect.

175. The introduction of excess heat (energy) into the marine environment due to the accumulation of GHGs in the atmosphere results in ocean warming. Being itself a component of climate change, ocean warming, according to the IPCC findings made with high confidence, "accounted for 91% of the heating in the climate system" (WGI 2021 Report, p. 11). Anthropogenic GHG emissions thereby cause climate change, which includes ocean warming and sea level rise. The introduction of anthropogenic GHGs into the marine environment also causes ocean acidification (see para. 60 above). In turn, climate change, including ocean warming and sea level rise, and ocean acidification, interacting with other climatic and non-climatic factors, produce multiple deleterious effects on the marine environment and beyond. These effects of climate change and ocean acidification are observed and explained by the science and are widely acknowledged by States (see paras. 51 to 61 above). In particular, adverse effects of climate change are recognized by international climate treaties.

176. The UNFCCC has already acknowledged that human activities have been substantially increasing the atmospheric concentrations of GHGs, that this will result on average in an additional warming of the Earth's surface and atmosphere and may adversely affect natural ecosystems and humankind, and that climate change has adverse effects (UNFCCC, first and second preambular paragraphs). This has been further recognized in the Kyoto Protocol and the Paris Agreement.

177. The UNFCCC defines the adverse effects of climate change as

> changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare.
> (UNFCCC, Article 1, para. 1)

178. The adverse effects of climate change and ocean acidification satisfy the criterion relating to “deleterious effects” provided in article 1, paragraph 1, subparagraph 4, of the Convention. Thus, through the introduction of carbon dioxide and heat (energy) into the marine environment, anthropogenic GHG emissions cause climate change and ocean acidification, which results in the deleterious effects illustrated in the definition of pollution of the marine environment.

179. In light of the above, the Tribunal concludes that anthropogenic GHG emissions into the atmosphere constitute pollution of the marine environment within the meaning of article 1, paragraph 1, subparagraph 4, of the Convention.

C. Part XII of the Convention and marine pollution

180. Having found that anthropogenic GHG emissions into the atmosphere constitute “pollution of the marine environment” within the meaning of article 1, paragraph 1, subparagraph 4, of the Convention, the Tribunal will now turn to the specific obligations of States Parties to the Convention to prevent, reduce and control such pollution.

181. In this regard, the Tribunal will first identify the provisions of the Convention relevant to its response to Question (a). It will then interpret those provisions to the extent necessary to respond to the question and examine how they should be applied in relation to anthropogenic GHG emissions causing pollution of the marine environment. The Tribunal will conclude by setting out the specific obligations of States Parties to prevent, reduce and control pollution of the marine environment arising from climate change and ocean acidification.

182. The provisions of the Convention which are relevant to answering Question (a) are those dealing with the obligations to prevent, reduce and control pollution of the marine environment. These provisions are mostly found in Part XII of the Convention. Before identifying and analysing them, the Tribunal finds it appropriate to give an overview of the system for the protection and preservation of the marine environment set out in Part XII of the Convention, in particular the marine pollution regime.

183. As stated in the fourth preambular paragraph of the Convention, the protection and preservation of the marine environment is one of the goals to be achieved by the Convention. To that end, the Convention, in particular Part XII, sets out fundamental principles to provide direction and guidance to States in their endeavour to protect and preserve the marine environment, and imposes upon States various obligations in this regard.

184. Article 192 of the Convention, the first article of Part XII, provides that "States have the obligation to protect and preserve the marine environment." While article 192 imposes upon States a legal obligation, this provision is, at the same time, a statement of principle upon which the legal order for the protection and preservation of the marine environment under the Convention is based.

185. Article 193 of the Convention provides that

> States have the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment.

186. These two articles together reflect, in the context of the protection and preservation of the marine environment, a principle of international environmental law, which has its origin in the Stockholm Declaration on the Human Environment adopted on 16 June 1972 (hereinafter "the Stockholm Declaration"). Principle 21 of the Stockholm Declaration reads:

> States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do

> not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

This principle was further developed in Principle 2 of the Rio Declaration on Environment and Development adopted on 14 June 1992 (hereinafter "the Rio Declaration"), which refers to the sovereign right of States to exploit their own resources pursuant to their own environmental and "developmental" policies.

187. It should be noted that, while article 193 of the Convention recognizes the sovereign right of States to exploit their natural resources pursuant to their environmental policies, it further provides that States must exercise such right "in accordance with their duty to protect and preserve the marine environment." This article thus places a constraint upon States' exercise of their sovereign right. This shows the importance the Convention attaches to the protection and preservation of the marine environment.

188. The approach of the Convention to the protection and preservation of the marine environment is manifest in the subsequent provisions of Part XII. Those provisions impose upon States, among other obligations, those to prevent, reduce and control pollution of the marine environment. While the obligation to protect and preserve the marine environment is much broader in scope than the obligation to prevent, reduce and control marine pollution, the latter obligation constitutes the main component of the former obligation under the Convention.

189. Many provisions of Part XII of the Convention are directly or indirectly concerned with the prevention, reduction and control of pollution of the marine environment. They are structured in such a way as to provide for what may be called the regime for regulating marine pollution. The key provision in this regard is article 194 of the Convention, which requires States, *inter alia*, to take all necessary measures to prevent, reduce and control pollution of the marine environment from "any source". Thus, this article lays down an obligation common to all sources of pollution with which States must comply.

190. This obligation under article 194 of the Convention is complemented and elaborated upon by provisions in section 5 of Part XII (articles 207 to 212), which address the obligations of States with respect to specific sources of pollution. Those provisions are essentially concerned with the adoption of national legislation and the establishment of international rules and standards to regulate marine pollution. Section 6 of Part XII (articles 213 to 222), which corresponds to source-specific obligations under section 5, addresses the obligations of States to enforce national legislation and to implement international rules and standards.

191. In addition, there are other provisions in Part XII relevant to the prevention, reduction and control of pollution of the marine environment. They include provisions in section 2 on global and regional cooperation, section 3 on technical assistance and section 4 on monitoring and environmental assessment.

192. For the purpose of the present Advisory Opinion, the Tribunal will first consider the obligations of States under article 194 of the Convention and how they should be interpreted and applied in relation to marine pollution arising from anthropogenic GHG emissions. It will then proceed to examine the obligations of States with respect to the specific sources of pollution provided for in sections 5 and 6 of Part XII. The Tribunal will subsequently consider other relevant obligations under sections 2, 3 and 4 of Part XII.

D. Obligations applicable to any source of pollution under article 194 of the Convention

193. Article 194 of the Convention is the primary provision in the marine pollution regime set out in Part XII. This article provides for obligations to prevent, reduce and control marine pollution applicable to any source. Most of the participants in the proceedings took the view that article 194 of the Convention is a key provision in responding to Question (a).

194. Article 194 of the Convention reads:

Measures to prevent, reduce and control pollution of the marine environment

1. States shall take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonize their policies in this connection.

2. States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention.

3. The measures taken pursuant to this Part shall deal with all sources of pollution of the marine environment. These measures shall include, *inter alia*, those designed to minimize to the fullest possible extent:

(a) the release of toxic, harmful or noxious substances, especially those which are persistent, from land-based sources, from or through the atmosphere or by dumping;

(b) pollution from vessels, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, preventing intentional and unintentional discharges, and regulating the design, construction, equipment, operation and manning of vessels;

(c) pollution from installations and devices used in exploration or exploitation of the natural resources of the seabed and subsoil, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices;

(d) pollution from other installations and devices operating in the marine environment, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices.

4. In taking measures to prevent, reduce or control pollution of the marine environment, States shall refrain from unjustifiable interference with activities carried out by other States in the exercise of their rights and in pursuance of their duties in conformity with this Convention.

5. The measures taken in accordance with this Part shall include those necessary to protect and preserve rare or fragile ecosystems as well as the

> habitat of depleted, threatened or endangered species and other forms of marine life.

195. This article provides for three main obligations of States: first, the obligation under paragraph 1 to take necessary measures to prevent, reduce and control marine pollution; second, the obligation under paragraph 2 to take necessary measures to ensure that certain situations relating to pollution do not occur; and third, the obligation under paragraph 5 to take necessary measures to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.

196. Although the third obligation is included in article 194 of the Convention addressing measures to prevent, reduce and control marine pollution, it is clear that the measures envisaged under paragraph 5 are not circumscribed to merely those concerning pollution. For that reason, this paragraph refers to the measures taken in accordance with “this Part” rather than “this article”. The Tribunal considers that the third obligation can be more adequately addressed in the context of its reply to Question (b) as to the specific obligations to protect and preserve the marine environment. In its response to Question (a), the Tribunal will accordingly confine itself to the two obligations under paragraphs 1 and 2.

1. Obligation under article 194, paragraph 1, of the Convention

197. Article 194, paragraph 1, of the Convention imposes upon States an obligation to take all necessary measures to prevent, reduce and control marine pollution from any source, regardless of the specific sources of such pollution. This obligation is applicable to any kind of pollution. As anthropogenic GHG emissions into the atmosphere constitute pollution of the marine environment, it follows that article 194, paragraph 1, applies to such pollution. Most of the participants in the present proceedings expressed the same view.

(a) Scope and content of the obligation

Objective

198. The aim of the obligation to take all necessary measures under article 194, paragraph 1, of the Convention is to "prevent, reduce and control" pollution of the marine environment from any source. As the objective of prevention refers to preventing pollution from occurring at all, it necessarily applies to pollution that has not yet occurred, namely, future or potential pollution. On the other hand, the objective of reducing and controlling pollution presupposes the existence of pollution. Thus, the objective of preventing, reducing and controlling pollution means preventing future or potential pollution and reducing and controlling existing pollution. The compound objective to prevent, reduce and control marine pollution should be understood in the context of the comprehensive nature of the obligation under article 194, paragraph 1, to prevent, reduce and control any kind of pollution from any source. It is also a reflection of the reality that prevention of pollution from all sources at all times is, in practice, not possible.

199. In relation to anthropogenic GHG emissions, the objective of preventing, reducing and controlling marine pollution should be appreciated on the basis of the scientific assessment that, even if anthropogenic GHG emissions were to cease, the deleterious effects on the marine environment would nevertheless continue owing to the extent of GHGs already accumulated in the atmosphere. The obligation under article 194, paragraph 1, of the Convention requires States to take all necessary measures with a view to reducing and controlling existing marine pollution from such emissions and eventually preventing such pollution from occurring at all. Therefore, this obligation does not entail the immediate cessation of marine pollution from anthropogenic GHG emissions.

200. The Tribunal notes in this regard Article 4, paragraph 1, of the Paris Agreement, which provides that

> [i]n order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country

> Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century.

The Tribunal considers that the aim set out in the above provision is consistent with the objective of the obligation under article 194, paragraph 1, of the Convention.

Modalities

201. All measures necessary to prevent, reduce and control marine pollution shall be taken individually or jointly as appropriate. The phrase “as appropriate” in this context implies that there is no priority between an individual action and a joint action. Either action can be taken if it is appropriate. The appropriateness of an individual or joint action depends on the particular circumstances in which measures are taken. The reference to the word “jointly” indicates the importance of cooperation in addressing pollution of the marine environment. This point is also underscored by requiring States to “endeavour to harmonize their policies” in taking necessary measures as set forth in the final part of article 194, paragraph 1, of the Convention.

202. In relation to marine pollution from anthropogenic GHG emissions, given the global and transboundary nature of such pollution, joint actions should be actively pursued. It was contended in this regard that it is only through joint action that global levels of GHG emissions in the atmosphere and the consequent pollution of the marine environment can be prevented, reduced and controlled. While the importance of joint actions in regulating marine pollution from anthropogenic GHG emissions is undisputed, it does not follow that the obligation under article 194, paragraph 1, of the Convention is discharged exclusively through participation in the global efforts to address the problems of climate change. States are required to take all necessary measures, including individual actions as appropriate.

Necessary measures

203. Article 194, paragraph 1, of the Convention requires States to take “all measures … that are necessary” to prevent, reduce and control pollution of the

marine environment. The word “necessary” ordinarily means “indispensable”, “requisite” or “essential”. In the context of this provision, “necessary” should be understood broadly. Such understanding is consistent with the expansive scope of the obligation under article 194, paragraph 1, implied by words such as “all” measures or “any” source. It is further supported by the inclusive definition of “pollution of the marine environment” set forth in article 1, paragraph 1, subparagraph 4, of the Convention. Accordingly, necessary measures include not only measures which are indispensable to prevent, reduce and control marine pollution but also other measures which make it possible to achieve that objective.

204. However, such measures must be “consistent with [the] Convention”, as stated in article 194, paragraph 1, of the Convention. It is clear that measures to prevent, reduce and control marine pollution must be consistent with the Convention, in which rights and duties of the coastal State or flag State in various maritime zones are set out. In addition, necessary measures must not deny or unjustifiably interfere with the rights of States recognized by the Convention, such as navigational rights. This point is underscored by article 194, paragraph 4, which provides that

> [i]n taking measures to prevent, reduce or control pollution of the marine environment, States shall refrain from unjustifiable interference with activities carried out by other States in the exercise of their rights and in pursuance of their duties in conformity with this Convention.

205. Article 194, paragraph 1, of the Convention does not provide for any specific criteria as to what constitutes necessary measures. However, paragraph 3 of this article gives some indication about the kinds of measures that States must take with respect to specific sources of pollution. Among such measures, there are those designed to minimize, to the fullest possible extent, the release of toxic, harmful or noxious substances, especially those which are persistent. In the context of climate change, those measures are commonly known as “mitigation measures”. Central to such measures is the reduction of anthropogenic GHG emissions into the atmosphere.

206. While article 194, paragraph 1, of the Convention leaves it to each State to determine what measures are necessary to prevent, reduce and control marine

pollution, this does not mean that such measures are whatever measures States deem necessary to that end. Rather, necessary measures should be determined objectively. Many participants in the proceedings emphasized the importance of objectively determining those measures.

207. In the Tribunal's view, there are various factors States should consider in their objective assessment of necessary measures to prevent, reduce and control marine pollution from anthropogenic GHG emissions. It is evident that the science is particularly relevant in this regard. International rules and standards relating to climate change are another relevant factor. There are other factors that may be considered, such as available means and capabilities of the State concerned.

208. With regard to climate change and ocean acidification, the best available science is found in the works of the IPCC which reflect the scientific consensus. As noted in paragraph 51 above, most of the participants expressed the view that the IPCC reports are authoritative assessments of the scientific knowledge on climate change and referred to them in their pleadings in the present proceedings. In this regard, the Tribunal considers that the assessments of the IPCC relating to climate-related risks and climate change mitigation deserve particular consideration.

209. In the 2018 Report, the IPCC concludes that there is a high risk of a much worse outcome if temperature increases exceed 1.5°C above pre-industrial levels (2018 Report, Summary for Policymakers, p. 10). It points out significant differences in impacts when global temperature increases are maintained within 1.5°C as compared to 2°C. It states with high confidence that limiting global warming to 1.5°C compared to 2°C

> is projected to reduce increases in ocean temperature as well as associated increases in ocean acidity and decreases in ocean oxygen levels … Consequently, limiting global warming to 1.5°C is projected to reduce risks to marine biodiversity, fisheries, and ecosystems, and their functions and services to humans.
> (*ibid*., p. 8)

As to ocean acidification, the IPCC states with high confidence that

> [t]he level of ocean acidification due to increasing CO_2 concentrations associated with global warming of 1.5°C is projected to amplify the adverse effects of warming, and even further at 2°C, impacting the growth, development, calcification, survival, and thus abundance of a broad range of species, for example, from algae to fish.
> (*ibid*., p. 9)

210. As to emission pathways, the IPCC states in the 2018 Report that "[l]imiting warming to 1.5°C implies reaching net zero CO_2 emissions globally around 2050 and concurrent deep reductions in emissions of non-CO_2 forcers, particularly methane (*high confidence*)" (2018 Report, p. 95). It also states in the 2023 Synthesis Report that

> [d]eep, rapid, and sustained GHG emissions reductions, reaching net zero CO_2 emissions and including strong emissions reductions of other GHGs, in particular CH_4, are necessary to limit warming to 1.5°C … or less than 2°C … by the end of century (*high confidence*).
> (2023 Synthesis Report, p. 68)

211. The Tribunal notes that while most of the participants in the proceedings agree that States should refer to the science in determining necessary measures, there is disagreement among them as to its exact role. In this regard, it was contended that best available scientific standards require States, at a minimum, to take all measures objectively necessary to limit average global temperature rise to no more than 1.5°C above pre-industrial levels, without overshoot, taking into account any current emission gaps. It was also contended that States are required to reach global peaking of GHG emissions as soon as possible and undertake rapid reduction thereafter in accordance with the best available science. However, other participants took the view that while the best available science is a relevant factor for States to consider in assessing necessary measures under article 194, paragraph 1, of the Convention, it is not the only relevant factor to be considered. It was argued in this regard that the view that necessary measures must be aimed at limiting average temperature rise to 1.5°C above pre-industrial levels would be to elevate scientific information to the status of a legal obligation under the Convention, without accounting for the other factors. According to this view, some of those factors may point in different directions from others, and a State must weigh them in any particular circumstance.

212. The Tribunal considers that in the determination of necessary measures to prevent, reduce and control marine pollution from anthropogenic GHG emissions, the science undoubtedly plays a crucial role, as it is key to understanding the causes, effects and dynamics of such pollution and thus to providing the effective response. However, this does not mean that the science alone should determine the content of necessary measures. In the Tribunal's view, as indicated above, there are other relevant factors that should be considered and weighed together with the best available science.

213. The Tribunal wishes to add at this juncture that in determining necessary measures, scientific certainty is not required. In the absence of such certainty, States must apply the precautionary approach in regulating marine pollution from anthropogenic GHGs. While the precautionary approach is not explicitly referred to in the Convention, such approach is implicit in the very notion of pollution of the marine environment, which encompasses potential deleterious effects. In this regard, the Tribunal recalls the observation of the Seabed Disputes Chamber in *Responsibilities and Obligations of States with Respect to Activities in the Area* (hereinafter "the *Area Advisory Opinion*") that

> the precautionary approach has been incorporated into a growing number of international treaties and other instruments, many of which reflect the formulation of Principle 15 of the Rio Declaration. In the view of the Chamber, this has initiated a trend towards making this approach part of customary international law.
> (*Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion, 1 February 2011, ITLOS Reports 2011*, p. 10, at p. 47, para. 135)

For marine pollution arising from anthropogenic GHG emissions, the precautionary approach is all the more necessary given the serious and irreversible damage that may be caused to the marine environment by such pollution, as is assessed by the best available science.

214. Relevant international rules and standards are another reference point for assessing necessary measures. In the context of climate change, such international rules and standards are found in various climate-related treaties and instruments.

The UNFCCC and the Paris Agreement stand out in this regard as primary treaties addressing climate change. Annex VI to MARPOL, which was amended in 2011 and 2021 with a view to reducing GHG emissions from ships, is also relevant. Volumes III and IV of Annex 16 to the Chicago Convention can be referred to in taking necessary measures to prevent, reduce and control GHG emissions from aircraft. The Montreal Protocol, including the Kigali Amendment, is also of relevance.

215. Most of the participants in the proceedings referred to the UNFCCC and the Paris Agreement as being relevant to the assessment of necessary measures. In this regard, the Tribunal considers the global temperature goal and the timeline for emission pathways set forth in the Paris Agreement particularly relevant. They are based upon the best available science stated above.

216. Article 2, paragraph 1, of the Paris Agreement, as stated above (see para. 72), provides that the Agreement aims to strengthen the global response to the threat of climate change, including by

> [h]olding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.

The dual temperature goal stipulated in the Paris Agreement has been further strengthened by the successive decisions of the Parties to the Paris Agreement. In 2022, for example, the COP adopted the Sharm el-Sheikh Implementation Plan, in which it "[*r*]*eiterates* that the impacts of climate change will be much lower at the temperature increase of 1.5°C compared with 2 °C and *resolves* to pursue further efforts to limit the temperature increase to 1.5 °C" (Decision 1/CP.27 of 20 November 2022, para. 7; see also Decision FCCC/PA/CMA/2023/L.17 of 13 December 2023, para. 4).

217. Article 4, paragraph 1, of the Paris Agreement sets timelines for emission pathways to achieve the long-term temperature goal set out in Article 2. According to this provision,

> Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century.

218. Article 4, paragraph 2, of the Paris Agreement requires each Party to "prepare, communicate and maintain successive nationally determined contributions that it intends to achieve." Parties then "shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions." In addition, each Party's successive nationally determined contribution "will represent a progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances."

219. Most of the participants in the proceedings took the view that the international rules and standards set out in the UNFCCC and the Paris Agreement are relevant in determining necessary measures under article 194, paragraph 1, of the Convention. The Tribunal notes, however, that there is a divergence of views among participants as to the relationship between the obligations under the Convention, on the one hand, and the obligations and commitments contained in the Paris Agreement, on the other. This dissent concerns, *inter alia*, the role to be accorded to international rules and standards under the Paris Agreement in the determination of necessary measures under article 194, paragraph 1, of the Convention.

220. It was contended in this regard that compliance with the UNFCCC and the Paris Agreement satisfies the specific obligation under article 194 of the Convention to take measures to prevent, reduce and control pollution of the marine environment arising from anthropogenic GHG emissions. It was also argued that Part XII of the Convention should not be interpreted as imposing obligations with respect to such emissions that are inconsistent with, or that go beyond, those agreed by the international community in the specific context of the UNFCCC and the Paris Agreement. According to this view, the UNFCCC and the Paris Agreement are *lex specialis* in respect of the obligations of States Parties under the more general provisions of the Convention. In the same vein, several participants took the view

that, as concerns obligations regarding the effect of climate change, the Convention does not by itself impose more stringent commitments than those laid down in the UNFCCC and the Paris Agreement.

221. Other participants disagreed with those views. It was contended that the question of what measures are necessary to prevent, reduce and control pollution of the marine environment is not to be interpreted solely or primarily by reference to the separate and independent commitments under the specialized treaties on climate change. It was also contended that the Paris Agreement should be considered as a minimum standard for compliance with Part XII of the Convention as concerns the deleterious effects of climate change. Similarly, many participants expressed the view that the Paris Agreement does not exhaust States' obligations to protect and preserve the marine environment from the adverse impacts of climate change. It was stated in this regard that while any true obligations under those specialized treaties are to be taken into account, this in no way precludes the Tribunal from going beyond the Paris Agreement. Many participants also took the view that it is not necessary to apply the principle of *lex specialis,* as no conflict exists between the rules concerned.

222. In the view of the Tribunal, the UNFCCC and the Paris Agreement, as the primary legal instruments addressing the global problem of climate change, are relevant in interpreting and applying the Convention with respect to marine pollution from anthropogenic GHG emissions. In particular, the temperature goal and the timeline for emission pathways set out in the Paris Agreement inform the content of necessary measures to be taken under article 194, paragraph 1, of the Convention. However, the Paris Agreement does not require the Parties to reduce GHG emissions to any specific level according to a mandatory timeline but leaves each Party to determine its own national contributions in this regard.

223. The Tribunal does not consider that the obligation under article 194, paragraph 1, of the Convention would be satisfied simply by complying with the obligations and commitments under the Paris Agreement. The Convention and the Paris Agreement are separate agreements, with separate sets of obligations. While the Paris Agreement complements the Convention in relation to the obligation to

regulate marine pollution from anthropogenic GHG emissions, the former does not supersede the latter. Article 194, paragraph 1, imposes upon States a legal obligation to take all necessary measures to prevent, reduce and control marine pollution from anthropogenic GHG emissions, including measures to reduce such emissions. If a State fails to comply with this obligation, international responsibility would be engaged for that State.

224. The Tribunal also does not consider that the Paris Agreement modifies or limits the obligation under the Convention. In the Tribunal's view, the Paris Agreement is not *lex specialis* to the Convention and thus, in the present context, *lex specialis derogat legi generali* has no place in the interpretation of the Convention. Furthermore, as stated above, the protection and preservation of the marine environment is one of the goals to be achieved by the Convention. Even if the Paris Agreement had an element of *lex specialis* to the Convention, it nonetheless should be applied in such a way as not to frustrate the very goal of the Convention.

Available means and capabilities

225. The Tribunal will now consider other factors relevant to the determination of necessary measures to prevent, reduce and control marine pollution. Article 194, paragraph 1, of the Convention provides that States shall take necessary measures, using for this purpose "the best practicable means at their disposal" and "in accordance with their capabilities". Thus, the scope and content of necessary measures may vary depending on the means available to States and their capabilities, such as their scientific, technical, economic and financial capabilities.

226. The reference to "the best practicable means at their disposal" and "in accordance with their capabilities" injects a certain degree of flexibility in implementing the obligation under article 194, paragraph 1, of the Convention. In particular, it seeks to accommodate the needs and interests of States with limited means and capabilities, and to lessen the excessive burden that the implementation of this obligation may entail for those States. However, the reference to available means and capabilities should not be used as an excuse to unduly postpone, or

even be exempt from, the implementation of the obligation to take all necessary measures under article 194, paragraph 1.

227. In the context of marine pollution from anthropogenic GHG emissions, States with greater means and capabilities must do more to reduce such emissions than States with less means and capabilities. The Tribunal notes in this regard that both the UNFCCC and the Paris Agreement recognize the principle of common but differentiated responsibilities and respective capabilities as a key principle in their implementation. Article 3 of the UNFCCC refers to this principle as one of the principles to guide the Parties in their actions to achieve the objective of that Convention and to implement its provisions. Article 2, paragraph 2, of the Paris Agreement also states that "[t]his Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances."

228. Article 4, paragraph 4, of the Paris Agreement, in particular, stipulates the differentiated responsibilities between developed country Parties and developing country Parties with respect to GHG mitigation efforts as follows:

> Developed country Parties should continue taking the lead by undertaking economy-wide absolute emission reduction targets. Developing country Parties should continue enhancing their mitigation efforts, and are encouraged to move over time towards economy-wide emission reduction or limitation targets in the light of different national circumstances.

229. The Tribunal considers that while the obligation under article 194, paragraph 1, of the Convention does not refer to the principle of common but differentiated responsibilities and respective capabilities as such, it contains some elements common to this principle. Thus, the scope of the measures under this provision, in particular those measures to reduce anthropogenic GHG emissions causing marine pollution, may differ between developed States and developing States. At the same time, it is not only for developed States to take action, even if they should "continue taking the lead". All States must make mitigation efforts.

Obligation to harmonize policies

230. Article 194, paragraph 1, of the Convention imposes an obligation upon States to endeavour to harmonize their policies in taking necessary measures to prevent, reduce and control marine pollution. The word “endeavour” indicates that States must make every effort to harmonize their policy but are not required to achieve such harmonization. Given the nature of marine pollution, it is not difficult to see the need for, and the benefit of, harmonization of policies. Lack of harmonization may make the anti-pollution policy of each State less effective. This is particularly true for marine pollution arising from anthropogenic GHG emissions, in light of its diffused causes and global effects.

Duty not to transfer or transform, and use of technologies

231. Article 195 of the Convention requires States, in taking measures to prevent, reduce and control pollution of the marine environment, not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another. In this context, some participants raised the issue of marine geoengineering. Marine geoengineering would be contrary to article 195 if it has the consequence of transforming one type of pollution into another. It may further be subject to article 196 of the Convention which requires States, *inter alia*, to take all measures necessary to prevent, reduce and control marine pollution resulting from the use of technologies under their jurisdiction or control. The Tribunal is aware that marine geoengineering has been the subject of discussions and regulations in various fora, including the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters 1972 and its 1996 Protocol, and the CBD.

(b) Nature of the obligation

232. The Tribunal will now turn to the question of the nature of the obligation under article 194, paragraph 1, of the Convention. This obligation requires States to take all measures that are necessary to prevent, reduce and control pollution of the marine environment. As stated above, the prevention, reduction and control of marine

pollution is the objective or result States must seek to achieve by taking necessary measures.

233. In the view of the Tribunal, what is required of States under this provision is not to guarantee the prevention, reduction and control of marine pollution at all times but to make their best efforts to achieve such result. In the words of the Seabed Disputes Chamber in the *Area Advisory Opinion*, this is "an obligation of conduct", and not "an obligation of result". As such, it is an obligation "to deploy adequate means, to exercise best possible efforts, to do the utmost" to obtain the intended result (see *Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion, 1 February 2011, ITLOS Reports 2011*, p. 10, at p. 41, para. 110). It is thus the conduct of a State, not the result which would be entailed by the conduct, that will determine whether the State has complied with its obligation under article 194, paragraph 1, of the Convention.

234. Since article 194, paragraph 1, of the Convention provides for an obligation of conduct, it requires States to act with "due diligence" in taking necessary measures to prevent, reduce and control marine pollution. As the Seabed Disputes Chamber has stated, "[t]he notions of obligations 'of due diligence' and obligations 'of conduct' are connected" (see *Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion, 1 February 2011, ITLOS Reports 2011*, p. 10, at p. 41, para. 111).

235. The obligation of due diligence requires a State to put in place a national system, including legislation, administrative procedures and an enforcement mechanism necessary to regulate the activities in question, and to exercise adequate vigilance to make such a system function efficiently, with a view to achieving the intended objective. The Tribunal notes in this regard that the ICJ, in *Pulp Mills on the River Uruguay,* described an obligation to act with due diligence as follows:

> It is an obligation which entails not only the adoption of appropriate rules and measures, but also a certain level of vigilance in their enforcement and the exercise of administrative control applicable to public and private operators, such as the monitoring of activities undertaken by such operators.

(*Pulp Mills on the River Uruguay (Argentina* v. *Uruguay), Judgment, I.C.J. Reports 2010 (I)*, p. 14, at p. 79, para. 197)

236. This obligation of due diligence is particularly relevant in a situation in which the activities in question are mostly carried out by private persons or entities. The obligation to regulate marine pollution from anthropogenic GHG emissions is a primary example in this respect. In that situation, it would not be reasonable to hold a State, which has acted with due diligence, responsible simply because such pollution has occurred.

237. Most of the participants in these proceedings expressed the view that the obligation under article 194, paragraph 1, of the Convention is an obligation of conduct and not an obligation of result. They also stated that it is an obligation of due diligence. However, it was contended that while the obligation under article 194, paragraph 1, is an obligation for States to adopt a certain conduct, it does also mean that States Parties have a positive obligation of result, which is to adopt and implement all measures necessary to prevent, reduce and control marine pollution. It was further contended that the provisions of Part XII of the Convention, and in particular articles 192 and 194, entail but also go beyond due diligence obligations. It was also suggested that the obligation under article 194, paragraph 1, is divided into the obligation of result with respect to governmental activities, such as taking all necessary measures, and the obligation of due diligence with respect to activities of non-State actors. In response, it was argued that while the wording of article 194 assumes that necessary measures must be taken, this in itself does not lead to the conclusion that this is an obligation of result.

238. The Tribunal observes that the obligation under article 194, paragraph 1, of the Convention, and, in fact, obligations under some other provisions of Part XII, including article 194, paragraph 2, are formulated in such a way as to prescribe not only the required conduct of States but also the intended objective or result of such conduct. Whether this obligation is that of conduct or of result depends on whether States are required to achieve the intended objective or result, i.e., prevention, reduction and control of marine pollution. This, in turn, depends essentially upon the text of the relevant provision and the overall circumstances envisaged by it. As

stated above (see paras. 232 to 236), the Tribunal considers that what is required under article 194, paragraph 1, is not to achieve the prevention, reduction and control of marine pollution but to take all necessary measures to that end.

239. In the words of the Seabed Disputes Chamber in the *Area Advisory Opinion*, due diligence is a "variable concept" (*Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion, 1 February 2011, ITLOS Reports 2011*, p. 10, at p. 43, para. 117). It is difficult to describe due diligence in general terms, as the standard of due diligence varies depending on the particular circumstances to which an obligation of due diligence applies. There are several factors to be considered in this regard. They include scientific and technological information, relevant international rules and standards, the risk of harm and the urgency involved. The standard of due diligence may change over time, given that those factors constantly evolve. In general, as the Seabed Disputes Chamber stated, "[t]he standard of due diligence has to be more severe for the riskier activities" (*ibid*.). The notion of risk in this regard should be appreciated in terms of both the probability or foreseeability of the occurrence of harm and its severity or magnitude.

240. In the context of marine pollution from anthropogenic GHG emissions, many participants in the proceedings expressed the view that the standard of due diligence should be set high. Some participants contended that due diligence cannot be interpreted as a simple best effort standard; a due diligence standard for marine pollution caused by GHG emissions should be substantially higher than best efforts, which has traditionally characterized pure conduct obligations; and the level of diligence must be set at its most severe in the case of climate change.

241. Best available science informs that anthropogenic GHG emissions pose a high risk in terms of foreseeability and severity of harm to the marine environment. As noted above (see para. 62), the IPCC, in its 2023 Synthesis Report, concludes that "[r]isks and projected adverse impacts and related losses and damages from climate change escalate with every increment of global warming (*very high confidence*)" (2023 Synthesis Report, p. 14). There is also broad agreement within the scientific community that if global temperature increases exceed 1.5°C, severe consequences for the marine environment would ensue. In light of such information,

the Tribunal considers that the standard of due diligence States must exercise in relation to marine pollution from anthropogenic GHG emissions needs to be stringent. However, its implementation may vary according to States' capabilities and available resources. Such implementation requires a State with greater capabilities and sufficient resources to do more than a State not so well placed. Nonetheless, implementing the obligation of due diligence requires even the latter State to do whatever it can in accordance with its capabilities and available resources to prevent, reduce and control marine pollution from anthropogenic GHG emissions.

242. The obligation of due diligence is also closely linked with the precautionary approach. As the Seabed Disputes Chamber stated in the *Area Advisory Opinion*, the precautionary approach is "an integral part of the general obligation of due diligence" (see *Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion, 1 February 2011, ITLOS Reports 2011*, p. 10, at p. 46, para. 131). Therefore, States would not meet their obligation of due diligence under article 194, paragraph 1, of the Convention if they disregarded or did not adequately account for the risks involved in the activities under their jurisdiction or control. This is so, even if scientific evidence as to the probability and severity of harm to the marine environment of such activities were insufficient. Accordingly, States must apply the precautionary approach in their exercise of due diligence to prevent, reduce and control marine pollution from anthropogenic GHG emissions.

(c) Conclusion

243. To conclude, under article 194, paragraph 1, of the Convention, States Parties to the Convention have the specific obligations to take all necessary measures to prevent, reduce and control marine pollution from anthropogenic GHG emissions and to endeavour to harmonize their policies in this connection. Such measures should be determined objectively, taking into account, *inter alia*, the best available science and relevant international rules and standards contained in climate change treaties such as the UNFCCC and the Paris Agreement, in particular the global temperature goal of limiting the temperature increase to 1.5°C above pre-industrial levels and the timeline for emission pathways to achieve that goal. The scope and content of necessary measures may vary in accordance with the means available to

States Parties and their capabilities. The necessary measures include, in particular, those to reduce GHG emissions. The obligation to take all necessary measures to prevent, reduce and control marine pollution from anthropogenic GHG emissions is one of due diligence. The standard of due diligence under article 194, paragraph 1, of the Convention is stringent, given the high risks of serious and irreversible harm to the marine environment from such emissions. However, the implementation of the obligation of due diligence may vary according to States' capabilities and available resources.

2. Obligation under article 194, paragraph 2, of the Convention

244. The Tribunal will now proceed to consider the obligation under article 194, paragraph 2, of the Convention in relation to anthropogenic GHG emissions. This provision sets out the obligation of States in the situation of transboundary pollution. It imposes upon States a particular obligation applicable to the transboundary setting in addition to the obligation to prevent, reduce and control marine pollution under article 194, paragraph 1.

245. Article 194, paragraph 2, of the Convention requires States to take all measures necessary to ensure that the following two situations do not occur: first, activities under their jurisdiction or control do not cause damage by pollution to other States and their environment; and second, pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights.

246. The obligation stipulated in article 194, paragraph 2, of the Convention bears a close resemblance to the well-established principle of harm prevention. First developed through arbitral and judicial decisions, this principle was incorporated in Principle 21 of the Stockholm Declaration, which states that "States have … the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction." This principle was reaffirmed in Principle 2 of the Rio Declaration. The Tribunal notes in this regard that the ICJ stated in the *Legality of the Threat or Use of Nuclear Weapons*:

> The existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment.
> (*Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996 (I)*, p. 226, at p. 242, para. 29; see also *Award in the Arbitration regarding the Iron Rhine ("Ijzeren Rijn") Railway between the Kingdom of Belgium and the Kingdom of the Netherlands, decision of 24 May 2005, RIAA, Vol. XXVII*, p. 35, at pp.66-67, para. 59)

(a) Scope and content of the obligation

247. The phrase "activities under their jurisdiction or control" refers to activities carried out by both public and private actors. In addition, there should be a link of jurisdiction or control between such activities and a State. The concept of "jurisdiction or control" of a State in this context is a broad one, encompassing not only its territory but also areas in which the State can, in accordance with international law, exercise its competence or authority. Such areas include, for example, a State's exclusive economic zone and continental shelf. Activities carried out on board ships or aircraft which are registered in a State may also be considered activities under the jurisdiction of that State.

248. The Tribunal notes that while "damage" is mentioned in the first situation of transboundary pollution involving two or more States, there is no such reference in the second situation. Given that the notion of pollution involves both actual and potential deleterious effects on the marine environment, the obligation in the former situation should be understood as requiring the prevention of actual damage by pollution, whereas the obligation in the latter situation extends not only to damage that actually occurred but also to damage that is likely to occur. In this sense, article 194, paragraph 2, of the Convention imposes a more stringent obligation by requiring States to prevent the "spread" of pollution than the principle laid down in the Stockholm Declaration and the Rio Declaration which refers to "damage" to the environment of other States and of areas beyond the limits of national jurisdiction.

249. Article 194, paragraph 2, of the Convention, unlike paragraph 1, does not refer to the means to be employed by States in taking necessary measures or to

capabilities. The absence of such reference could be understood to imply that the scope and content of necessary measures to be taken by States under article 194, paragraph 2, are not differentiated in accordance with the availability of means and capabilities. The transboundary context of the obligation under paragraph 2 could lend some support to such understanding. However, in the view of the Tribunal, despite the lack of the above reference, the scope and content of necessary measures under article 194, paragraph 2, may differ among States in accordance with the availability of means and capabilities. As will be seen below, this obligation is an obligation of due diligence, and its implementation may vary in relation to several factors, including the capabilities of each State.

250. In the context of anthropogenic GHG emissions causing marine pollution, article 194, paragraph 2, of the Convention requires States to take all necessary measures to ensure that GHG emissions under their jurisdiction or control do not cause damage to other States and their environment, and that pollution arising from such emissions under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights. Many participants in the proceedings took the view that article 194, paragraph 2, is relevant with respect to marine pollution caused by anthropogenic GHG emissions. It was submitted in this regard that, in order to fulfil the obligation under article 194, paragraph 2, States must be at least as diligent as necessary to limit average global temperature rise to no more than 1.5°C. The Tribunal has stated above that the temperature goal of 1.5°C is one of the relevant factors to consider in determining necessary measures under article 194, paragraph 1, but that it is not the only such factor. In the Tribunal's view, this finding applies equally to the obligation under article 194, paragraph 2.

251. On the other hand, it was contended that GHG emissions are not activities of the kind to which article 194, paragraph 2, of the Convention is directed. According to this view, given that GHG emissions from the territory of one State will contribute to the volume of emissions in the atmosphere for decades to come, this provision cannot sensibly be interpreted as requiring States to ensure that such emissions do not spread to the territory of another State or on to the high seas. It was further contended that even if article 194, paragraph 2, covers GHG emissions, the measures necessary to ensure that such emissions do not cause damage to the

environment of other States, and that pollution does not spread beyond national jurisdiction, go no further than the measures necessary to prevent, reduce or control pollution pursuant to article 194, paragraph 1.

252. The Tribunal has concluded above that anthropogenic GHG emissions into the atmosphere fall under the definition of pollution of the marine environment within the meaning of article 1, paragraph 1, subparagraph 4, of the Convention. It follows that the obligations under article 194 thus apply to marine pollution from such emissions. In the Tribunal's view, there appears to be no convincing reason to exclude the application of article 194, paragraph 2, to such pollution. It is acknowledged that, given the diffused and cumulative causes and global effects of climate change, it would be difficult to specify how anthropogenic GHG emissions from activities under the jurisdiction or control of one State cause damage to other States. However, this difficulty has more to do with establishing the causation between such emissions of one State and damage caused to other States and their environment. This should be distinguished from the applicability of an obligation under article 194, paragraph 2, to marine pollution from anthropogenic GHG emissions.

253. The Tribunal is also not convinced by the argument that the obligation under article 194, paragraph 2, of the Convention can be satisfied by meeting the obligation under paragraph 1. Such a view would have the consequence of depriving the obligation under paragraph 2 of any effect with respect to marine pollution from anthropogenic GHG emissions. The Tribunal considers that article 194, paragraph 2, imposes upon States a particular obligation in the context of transboundary pollution.

(b) Nature of the obligation

254. The obligation under article 194, paragraph 2, of the Convention requires States to take all measures necessary to ensure that activities under their jurisdiction do not cause damage by pollution to other States and their environment and that pollution arising from their activities does not spread beyond the limits of their national jurisdiction. The Tribunal considers that this obligation is an obligation of due diligence for the same reason stated in the context of the obligation under

article 194, paragraph 1. The Tribunal recalls that the Seabed Disputes Chamber in the *Area Advisory Opinion* referred to article 194, paragraph 2, as an example of such obligation (see *Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion, 1 February 2011, ITLOS Reports 2011*, p. 10, at p. 42, para. 113).

255. It was argued that the obligation under article 194, paragraph 2, of the Convention is an explicit and broad obligation of States to adopt all measures necessary to ensure that certain events will not occur, whereas the obligation the Seabed Disputes Chamber considered in the *Area Advisory Opinion* was the responsibility to ensure compliance as set out in article 139 of the Convention. According to this argument, the obligation under article 194, paragraph 2, therefore, goes beyond acting merely with due diligence and encompasses an obligation of result. The Tribunal has already expressed its view on this argument in relation to the obligation under article 194, paragraph 1, of the Convention. That finding is equally valid for the obligation under article 194, paragraph 2.

256. As stated above, the standard of due diligence is variable, depending upon relevant factors, including risks of harm involved in activities. With respect to transboundary pollution affecting the environment of other States, the standard of due diligence can be even more stringent.

257. In this regard, the Tribunal wishes to emphasize that an obligation of due diligence should not be understood as an obligation which depends largely on the discretion of a State or necessarily requires a lesser degree of effort to achieve the intended result. The content of an obligation of due diligence should be determined objectively under the circumstances, taking into account relevant factors. In many instances, an obligation of due diligence can be highly demanding. Therefore, it would not be correct to assume that the obligation under article 194, paragraph 2, of the Convention, as an obligation of due diligence, would be less conducive to the prevention, reduction and control of marine pollution from anthropogenic GHG emissions.

(c) Conclusion

258. To conclude, article 194, paragraph 2, of the Convention imposes upon States Parties a particular obligation applicable to the transboundary setting in addition to the obligation to prevent, reduce and control marine pollution from anthropogenic GHG emissions. Under this provision, States Parties have the specific obligation to take all measures necessary to ensure that anthropogenic GHG emissions under their jurisdiction or control do not cause damage to other States and their environment, and that pollution from such emissions under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights. It is an obligation of due diligence. The standard of due diligence under article 194, paragraph 2, can be even more stringent than that under article 194, paragraph 1, because of the nature of transboundary pollution.

E. Obligations applicable to specific sources of pollution

259. Having addressed the obligations of States common to the prevention, reduction and control of pollution from any source, the Tribunal will now proceed to examining obligations relating to pollution from specific sources. The relevant provisions in this regard are found in sections 5 and 6 of Part XII of the Convention.

260. Section 5 of Part XII of the Convention addresses the obligations to adopt national laws and regulations and establish international rules and standards to prevent, reduce and control marine pollution from six different sources: pollution from land-based sources (article 207), pollution from seabed activities subject to national jurisdiction (article 208), pollution from activities in the Area (article 209), pollution by dumping (article 201), pollution from vessels (article 211), and pollution from or through the atmosphere (article 212). In particular, this section addresses the relationship between national legislation and international rules and standards, and how States should refer to international rules and standards in adopting their national laws and regulations. Depending on the specific sources of pollution, different formulations of reference to international rules and standards are introduced in section 5.

261. Section 6 of Part XII of the Convention addresses the obligation to enforce national laws and regulations and implement international rules and standards. This section follows the source-specific approach of the previous section. The provisions of section 6, as an enforcement sequel to national legislation and international rules and standards adopted in accordance with section 5, need to be read together with the corresponding provisions of that section.

262. The initial issue the Tribunal should consider is how to characterize pollution of the marine environment from anthropogenic GHG emissions in terms of specific sources of pollution. This is necessary because the scope and content of the obligations of States under section 5 of Part XII vary depending on the specific source of pollution. Most participants in the proceedings took the view that marine pollution from anthropogenic GHG emissions can be considered either pollution from land-based sources or pollution from or through the atmosphere. They also expressed the view that marine pollution from such emissions from vessels can be considered either pollution from vessels or pollution from or through the atmosphere. The Tribunal notes in this regard that Question (a) asks it to identify the specific obligations of States Parties to prevent, reduce and control marine pollution in relation to deleterious effects caused by “anthropogenic GHG emissions into the atmosphere”.

263. According to the information submitted to the Tribunal, most anthropogenic GHG emissions into the atmosphere causing marine pollution originate from land-based sources. In addition, such emissions originate from vessels or aircraft. There are also some GHG emissions from other sources, including from certain seabed activities such as venting and flaring.

264. While there are multiple sources of GHG emissions into the atmosphere, the Tribunal considers that the types of pollution most relevant to the present proceedings are confined to marine pollution caused by anthropogenic GHG emissions into the atmosphere from land-based sources, vessels and aircraft. The relevant provisions under the Convention addressing such pollution are found in articles 207 (pollution from land-based sources), 211 (pollution from vessels) and 212 (pollution from or through the atmosphere). The corresponding provisions for

enforcement are articles 213 (enforcement with respect to pollution from land-based sources), 217 (enforcement by flag States) and 222 (enforcement with respect to pollution from or through the atmosphere).

1. Obligations to adopt national legislation and establish international rules and standards

265. At the outset, the Tribunal wishes to reiterate that articles 207, 211 and 212 of the Convention complement and elaborate the obligations common to all sources of pollution set out in article 194. The interpretation of these articles, therefore, should be consistent with that of article 194. The Tribunal notes that the findings it made in interpreting and applying article 194 in relation to marine pollution from anthropogenic GHG emissions are equally applicable with respect to articles 207, 211 and 212.

(a) Obligations under article 207 of the Convention

266. The Tribunal will now consider the obligations under article 207 of the Convention, which reads:

> *Pollution from land-based sources*
>
> 1. States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources, including rivers, estuaries, pipelines and outfall structures, taking into account internationally agreed rules, standards and recommended practices and procedures.
>
> 2. States shall take other measures as may be necessary to prevent, reduce and control such pollution.
>
> 3. States shall endeavour to harmonize their policies in this connection at the appropriate regional level.
>
> 4. States, acting especially through competent international organizations or diplomatic conference, shall endeavour to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment from land-based sources, taking into account characteristic regional features, the economic capacity of developing States and their need for economic development. Such rules, standards and recommended practices and procedures shall be re-examined from time to time as necessary.

> 5. Laws, regulations, measures, rules, standards and recommended practices and procedures referred to in paragraphs 1, 2 and 4 shall include those designed to minimize, to the fullest extent possible, the release of toxic, harmful or noxious substances, especially those which are persistent, into the marine environment.

267. Article 207 of the Convention imposes upon States three main obligations: first, the obligation to adopt national legislation; second, the obligation to take other necessary measures; and third, the obligation to endeavour to establish international rules, standards and practices and procedures. Those obligations are mostly concerned with establishing the legal framework, both national and international, necessary to prevent, reduce and control marine pollution from land-based sources.

268. In addition to the above three obligations, article 207 of the Convention provides for obligations to endeavour to harmonize policies and to take certain specific measures. Article 207, paragraph 3, requires States to endeavour to harmonize their policies at the appropriate regional level. This obligation is consistent with the obligation to endeavour to harmonize policies under article 194, paragraph 1. Article 207, paragraph 5, which requires States to take measures to minimize the release of toxic, harmful or noxious substances, reiterates what is prescribed in article 194, paragraph 3, subparagraph (a).

269. Article 207, paragraph 1, of the Convention requires States to adopt laws and regulations to prevent, reduce and control marine pollution from land-based sources. Such laws and regulations are a formal means to give effect to necessary measures States must take under article 194 of the Convention. For marine pollution from anthropogenic GHG emissions, central to those laws and regulations is the reduction of such emissions.

270. In adopting laws and regulations, States are required to take into account “internationally agreed rules, standards and recommended practices and procedures”. There is no definition of this phrase in the Convention. Those rules, standards and practices and procedures encompass a broad range of norms, both binding and non-binding in nature. In the context of climate change, they include those contained in climate change treaties such as the UNFCCC and the Paris

Agreement. Accordingly, States Parties to the Convention have an obligation to take into account those norms in adopting their laws and regulations to prevent, reduce and control marine pollution from GHG emissions.

271. The phrase “taking into account” should be understood to mean that States are not required to adopt such rules, standards and practices and procedures in their national laws and regulations. However, States must, in good faith, give due consideration to them. In any case, States must comply with internationally agreed rules and standards, which are binding upon them.

272. Article 207, paragraph 2, of the Convention requires States to take other measures as may be necessary to prevent, reduce and control such pollution. Those measures can be wide-ranging, from the establishment of administrative procedures for the regulation of pollution to the monitoring of risks and effects of marine pollution and assessment of the potential effects of planned activities on the marine environment. In the context of marine pollution from anthropogenic GHG emissions, the Tribunal’s findings with respect to the obligation to take necessary measures under article 194 equally apply to the obligation under this paragraph.

273. Article 207, paragraph 4, of the Convention imposes upon States an obligation to endeavour to establish global and regional rules, standards and recommended practices and procedures to regulate pollution from land-based sources. Thus, States are required to make every effort in good faith to establish such rules, standards and practices and procedures, but are not required to succeed in establishing them. In this respect, States should act through competent international organizations or diplomatic conference. The efforts of States must be on a continuing basis. In the context of marine pollution from anthropogenic GHG emissions, this obligation means that States, which are parties to relevant international agreements such as the UNFCCC and the Paris Agreement, are required to participate in the process under those agreements with a view to “strengthen[ing] the global response to the threat of climate change”, as stated in Article 2, paragraph 1, of the Paris Agreement.

(b) Obligations under article 212 of the Convention

274. The Tribunal will now consider the obligations under article 212 of the Convention, which reads:

> *Pollution from or through the atmosphere*
>
> 1. States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from or through the atmosphere, applicable to the air space under their sovereignty and to vessels flying their flag or vessels or aircraft of their registry, taking into account internationally agreed rules, standards and recommended practices and procedures and the safety of air navigation.
>
> 2. States shall take other measures as may be necessary to prevent, reduce and control such pollution.
>
> 3. States, acting especially through competent international organizations or diplomatic conference, shall endeavour to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control such pollution.

275. Article 212 of the Convention imposes upon States three obligations: first, the obligation to adopt national legislation to prevent, reduce and control marine pollution from or through the atmosphere; second, the obligation to take other necessary measures; and third, the obligation to endeavour to establish international rules, standards and practices and procedures.

276. There is no substantial difference between the obligations under article 212 of the Convention and those under article 207 in terms of their scope. While article 212 does not explicitly provide for the obligations to endeavour to harmonize policies and to take measures to minimize the release of toxic, harmful or noxious substances into the marine environment, as article 207 does, such obligations apply with respect to pollution from or through the atmosphere under article 212. The obligation to endeavour to harmonize policies is an obligation common to all sources of pollution, including pollution from or through the atmosphere, under article 194, paragraph 1. The obligation to minimize the release of toxic, harmful or noxious substances applies to pollution from or through the atmosphere under article 194, paragraph 3, subparagraph (a).

277. The content of the obligations under article 212 of the Convention is similar to that of the obligations under article 207. Thus, the findings the Tribunal made above with respect to the obligations under article 207 apply *mutatis mutandis* to those under article 212. In this regard, "internationally agreed rules and standards and recommended practices and procedures" relevant to pollution from or through the atmosphere include not only those contained in climate change treaties but also those in instruments such as Volume IV of Annex 16 to the Chicago Convention establishing a carbon offsetting and reduction scheme for international aviation. The Tribunal also notes that the IMO adopted amendments to Annex VI to MARPOL in 2011 and 2021 with a view to reducing GHG emissions from ships. As stated above, the IMO also recently adopted the 2023 IMO GHG Strategy to enhance its contribution to global efforts in this regard (see para. 80 above).

(c) Obligations under article 211 of the Convention

278. The Tribunal will now consider the obligations relating to marine pollution from vessels. Those obligations are found in article 211 of the Convention. In the context of marine pollution from anthropogenic GHG emissions, the most relevant provision is article 211, paragraph 2. The Tribunal will confine itself to that provision, which reads:

> States shall adopt laws and regulations for the prevention, reduction and control of pollution of the marine environment from vessels flying their flag or of their registry. Such laws and regulations shall at least have the same effect as that of generally accepted international rules and standards established through the competent international organization or general diplomatic conference.

279. Article 211, paragraph 2, of the Convention imposes upon States the obligation to adopt laws and regulations to prevent, reduce and control marine pollution from vessels flying their flag or of their registry. Thus, the obligation under this provision is incumbent on the flag State. Such laws and regulations must at least have the same effect as that of generally accepted international rules and standards. This provision, therefore, provides for the minimum threshold national legislation must meet. States may adopt more stringent laws and regulations than generally accepted international rules and standards. This requirement stands in contrast with

the requirement to “take into account” internationally agreed rules and standards under articles 207 and 212.

280. The term “generally accepted international rules and standards” is not defined in the Convention. Such rules and standards may refer to those contained in international legal instruments that are accepted by a sufficiently large number of States. They must be established through the competent international organization or general diplomatic conference. The term “the competent international organization” in this context is understood to refer to the IMO. The reference to “the competent international organization or general diplomatic conference” is distinct from the reference to “competent international organizations or diplomatic conference” made in articles 207 and 212 of the Convention. Thus, only those rules and standards that satisfy the above requirements would qualify as “generally accepted international rules and standards”. In the context of marine pollution from GHG emissions from vessels, the Tribunal notes in this regard that the IMO adopted amendments to Annex VI to MARPOL in 2011 and 2021 with a view to reducing GHG emissions from ships.

2. Obligation of enforcement

281. The Tribunal now turns to the obligation of enforcement under articles 213, 217 and 222 of the Convention. The scope and content of the obligations with respect to land-based pollution under article 213 and with respect to pollution from or through the atmosphere under article 222 are similar. For the purpose of the present Advisory Opinion, the Tribunal will, therefore, address those obligations together. It will then deal with the obligation of enforcement with respect to pollution from vessels under article 217.

(a) Obligations under articles 213 and 222 of the Convention

282. Article 213 of the Convention reads:

> *Enforcement with respect to pollution from land-based sources*
>
> States shall enforce their laws and regulations adopted in accordance with article 207 and shall adopt laws and regulations and take other measures necessary to implement applicable international rules and standards established through competent international organizations or diplomatic conference to prevent, reduce and control pollution of the marine environment from land-based sources.

Article 222 of the Convention reads:

> *Enforcement with respect to pollution from or through the atmosphere*
>
> States shall enforce, within the air space under their sovereignty or with regard to vessels flying their flag or vessels or aircraft of their registry, their laws and regulations adopted in accordance with article 212, paragraph 1, and with other provisions of this Convention and shall adopt laws and regulations and take other measures necessary to implement applicable international rules and standards established through competent international organizations or diplomatic conference to prevent, reduce and control pollution of the marine environment from or through the atmosphere, in conformity with all relevant international rules and standards concerning the safety of air navigation.

283. The above two articles address, respectively, the enforcement of national legislation and the implementation of applicable international rules and standards with respect to pollution from land-based sources and pollution from or through the atmosphere. States have two obligations in this regard: first, the obligation to enforce their laws and regulations; and second, the obligation to adopt laws and regulations and take other measures necessary to implement applicable international rules and standards.

284. The first obligation requires States to enforce their laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources or from or through the atmosphere. The word “enforce” is a broad term, encompassing the variety of ways and means to ensure compliance with laws and regulations within the framework of the national legal system. Such ways and means

may include, for example, monitoring and inspection, administrative guidance, investigation and prosecution for breaches of laws, and judicial or quasi-judicial proceedings. The Tribunal notes in this regard that article 235, paragraph 2, of the Convention provides for the obligation of States to "ensure that recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction." Section 7 of Part XII of the Convention provides for various safeguards relating to the institution of proceedings and the exercise of powers of enforcement.

285. The second obligation requires States to adopt laws and regulations and take other measures necessary to implement applicable international rules and standards. The term "applicable international rules and standards" should be understood to refer to those rules and standards which are binding upon the State concerned either as treaty or customary international law. Accordingly, they are to be distinguished from "internationally agreed rules, standards and recommended practices and procedures", which States must "[take] into account" in adopting national laws and regulations under articles 207 or 212 of the Convention. Such rules, standards and practices and procedures do not have to be binding upon the States. Applicable international rules and standards must be established through competent international organizations or diplomatic conference. Such rules and standards must be implemented in accordance with the legal system of each State.

286. In the context of marine pollution from anthropogenic GHG emissions, articles 213 and 222 of the Convention should be interpreted as imposing an obligation to adopt laws and regulations and to take measures necessary to implement, among others, rules and standards set out in climate change treaties and other relevant instruments. If a State Party to the Convention, which is bound by those rules and standards, fails to take such measures, its international responsibility would be engaged for breach of the obligations under article 213 or 222 of the Convention.

(b) Obligations under article 217 of the Convention

287. Article 217 of the Convention provides for enforcement by States with respect to marine pollution from vessels flying their flag or of their registry. The Convention, in particular articles 218 and 220, also provides for enforcement by port States and coastal States. However, in the context of marine pollution from anthropogenic GHG emissions, the most relevant provision is article 217, paragraph 1, and the Tribunal will confine itself to this provision for the purpose of the present proceedings. Article 217, paragraph 1, reads:

> States shall ensure compliance by vessels flying their flag or of their registry with applicable international rules and standards, established through the competent international organization or general diplomatic conference, and with their laws and regulations adopted in accordance with this Convention for the prevention, reduction and control of pollution of the marine environment from vessels and shall accordingly adopt laws and regulations and take other measures necessary for their implementation. Flag States shall provide for the effective enforcement of such rules, standards, laws and regulations, irrespective of where a violation occurs.

288. Article 217, paragraph 1, of the Convention imposes upon States the obligation to ensure that vessels flying their flag or of their registry comply with applicable international rules and standards and their laws and regulations. To this end, it requires States to adopt laws and regulations and take other measures necessary to implement such international rules and standards as well as their national laws and regulations.

289. “[A]pplicable international rules and standards” refer to those rules and standards that are binding upon the States concerned. Such rules and standards must be established through the competent international organization or general diplomatic conference. The findings made by the Tribunal in this regard in relation to article 211 of the Convention equally apply to the present paragraph. The national “laws and regulations” to be implemented must be adopted in accordance with the Convention, in particular article 211, paragraph 2.

290. The means of implementation include laws and regulations, and other necessary measures. Such measures may be wide-ranging and include administrative and judicial measures.

291. In the context of marine pollution from anthropogenic GHG emissions from vessels, applicable international rules and standards may be found, *inter alia*, in Annex VI to MARPOL, as amended in 2011 and 2021.

F. Other obligations

292. The Tribunal will now proceed to examine other obligations relevant to its response to Question (a). Such obligations may be found in Part XII of the Convention, section 2 on global and regional cooperation, section 3 on technical assistance, and section 4 on monitoring and environmental assessment.

293. At the outset, the Tribunal points out that its findings in this regard apply not only in response to Question (a) but also in response to Question (b).

1. Global and regional cooperation

294. The Tribunal first wishes to turn to the specific obligations of cooperation under Part XII, section 2, of the Convention.

295. The Tribunal notes that almost all of the participants in the present proceedings shared the view that countering the effects of anthropogenic GHG emissions on the marine environment necessarily requires international cooperation. In this context, reference was made to the existence of a duty to cooperate under general international law, which informs Part XII of the Convention, and it was argued that this duty is central to the examination of the Request. It was also contended that pollution of the marine environment from such emissions calls for a regulatory response which must be supported by international coordination informed by internationally agreed standards. In this regard, references were made to cooperation efforts conducted under the auspices of the UNFCCC and the Paris Agreement. Almost all of the participants expressed the view that article 197 of the

Convention sets out the key obligation of cooperation and that this obligation is further elaborated upon in articles 198, 199, 200 and 201 of the Convention.

296. The Tribunal recalls its finding in the *MOX Plant Case* that "the duty to cooperate is a fundamental principle in the prevention of pollution of the marine environment under Part XII of the Convention and general international law" (*MOX Plant (Ireland* v. *United Kingdom)*, *Provisional Measures, Order of 3 December 2001, ITLOS Reports 2001*, p. 95, at p. 110, para. 82; see also *Land Reclamation by Singapore in and around the Straits of Johor (Malaysia* v. *Singapore), Provisional Measures, Order of 8 October 2003, ITLOS Reports 2003*, p. 10, at p. 25, para. 92; *Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission*, *Advisory Opinion, 2 April 2005, ITLOS Reports 2015*, p. 4, at p. 43, para. 140; *Pulp Mills on the River Uruguay (Argentina* v. *Uruguay), Judgment*, *I.C.J. Reports 2010,* p. 14, at p. 49, para. 77).

297. In the Tribunal's view, the duty to cooperate is reflected in and permeates the entirety of Part XII of the Convention. This duty is given concrete form in a wide range of specific obligations of States Parties, which are central to countering marine pollution from anthropogenic GHG emissions at the global level. In this respect, the Tribunal notes the finding of the IPCC that

> [c]limate change has the characteristics of a collective action problem at the global scale, because most GHGs accumulate over time and mix globally, and emissions by any agent (e.g., individual, community, company, country) affect other agents. Effective mitigation will not be achieved if individual agents advance their own interests independently. Collective responses, including international cooperation, are therefore required to effectively mitigate GHG emissions and address other climate change issues.
> (2014 Synthesis Report, Summary for Policymakers, p. 17)

298. Most multilateral climate change treaties, including the UNFCCC and the Paris Agreement, contemplate and variously give substance to the duty to cooperate on the assumption, as indicated in the preamble of the UNFCCC, that "the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response".

299. In relation to marine pollution from anthropogenic GHG emissions, the Tribunal notes that the duty to cooperate is an integral part of the general obligations under articles 194 and 192 of the Convention given that the global effects of these emissions necessarily require States' collective action (see paras. 201 and 202 above). Furthermore, specific obligations to cooperate are provided for in Part XII, section 2, in particular in articles 197, 200 and 201. The Tribunal considers that these specific obligations complement the general obligations established in articles 194 and 192 by setting out the means for complying with the latter obligations.

(a) Obligation to cooperate under article 197 of the Convention

300. The core obligation of cooperation is enshrined in article 197 of the Convention, which reads as follows:

> *Cooperation on a global or regional basis*
>
> States shall cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features.

301. According to article 197 of the Convention, cooperation is expressly aimed at developing a common regulatory framework "for the protection and preservation of the marine environment". Article 197 must be read in conjunction with article 194, paragraph 1, which refers to "all measures" that States shall take, individually or *jointly* as appropriate, in order "to prevent, reduce and control pollution of the marine environment from any source". It follows that cooperation in the formulation and elaboration of international rules, standards and recommended practices and procedures under article 197 is among the joint measures contemplated in article 194, paragraph 1.

302. The obligation to cooperate under article 197 is aimed at the formulation and elaboration of rules, standards and practices and procedures for the protection and preservation of the marine environment, and is characterized by a large degree of

flexibility. Such rules, standards and practices and procedures may be binding or non-binding. States are free to choose whether to cooperate through competent international organizations or otherwise. The possibility of having recourse to various forms of cooperation is particularly useful in the prevention, reduction and control of marine pollution from anthropogenic GHG emissions.

303. The Tribunal observes that most of the participants in the proceedings emphasized the importance of global cooperation through international organizations. In addition, some of the participants referred to regional cooperation insofar as marine pollution from anthropogenic GHG emissions has a particular impact on certain regions.

304. The Tribunal considers that the expression “competent international organizations” used in article 197 of the Convention refers, in the context of the present case, to all international organizations with competence to address, directly or indirectly, the protection and preservation of the marine environment from anthropogenic GHG emissions.

305. Article 197 of the Convention provides for the possibility of having recourse to regional cooperation agreements and plans as a means to combat marine pollution “as appropriate” and “taking into account characteristic regional features”. Given the impacts of pollution from anthropogenic GHG emissions, cooperation on a global scale is typically the most appropriate means to that end. Nevertheless, some effects of marine pollution from such emissions may be particularly harmful for the marine environment of certain geographical areas because of their special characteristics. In such situations, the obligation to cooperate on a global scale may be supported by regional cooperation under article 197 and article 123 on cooperation of States bordering enclosed or semi-enclosed seas.

306. The Tribunal will now turn to the nature of the obligation under article 197 of the Convention. It notes that most of the participants in the present proceedings were of the view that the obligation of cooperation enshrined in article 197 is an obligation of conduct, and that compliance therewith should be assessed by reference to the efforts that States make to coordinate their actions. It was also

generally contended that such obligation is of an ongoing nature, that cooperation must be meaningful, and that States must participate in good faith in cooperative efforts.

307. In the view of the Tribunal, this provision does not oblige States to achieve a normative outcome but to participate meaningfully in the formulation and elaboration of rules, standards and recommended practices and procedures for the protection and preservation of the marine environment.

308. The Tribunal wishes to recall that, in the *SRFC Advisory Opinion*, it stated that

> the obligation to "seek to agree …" under article 63, paragraph 1, and the obligation to cooperate under article 64, paragraph 1, of the Convention are "due diligence" obligations which require the States concerned to consult with one another in good faith, pursuant to article 300 of the Convention. The consultations should be meaningful in the sense that substantial effort should be made by all States concerned, with a view to adopting effective measures necessary to coordinate and ensure the conservation and development of shared stocks.
> (*Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission, Advisory Opinion of 2 April 2015, ITLOS Reports 2015*, p. 4, at pp. 59-60, para. 210; see also *Pulp Mills on the River Uruguay (Argentina* v. *Uruguay), Judgment*, *I.C.J. Reports 2010,* p. 14, at p. 49, para. 77)

The same reasoning applies to the obligation to cooperate under article 197 of the Convention.

309. Thus, the Tribunal considers that the obligation to cooperate under article 197 of the Convention, either on a global or regional basis, is an obligation of conduct which requires States to act with "due diligence". States are required to fulfil this obligation in good faith.

310. In the Tribunal's view, compliance with the obligation of cooperation is to be assessed by reference to the efforts made by States to formulate and elaborate international rules, standards and recommended practices and procedures. The results achieved by States through cooperation may, however, be relevant in assessing States' compliance with the obligation to cooperate.

311. The obligation of cooperation set out in article 197 of the Convention is of a continuing nature. It requires States to make an ongoing effort to formulate and elaborate rules, standards and recommended practices and procedures. The adoption of a particular treaty, such as the UNFCCC or the Paris Agreement, does not discharge a State from its obligation to cooperate, as the obligation requires an ongoing effort on the part of States in the development of new or revised regulatory instruments, in particular in light of the evolution of scientific knowledge.

(b) Obligation to cooperate under articles 200 and 201 of the Convention

312. The Tribunal notes that article 197 does not exhaust the obligation to cooperate under section 2 of Part XII of the Convention. States are also required to cooperate to promote studies, undertake research programmes, and encourage the exchange of information and data (article 200), and to establish appropriate scientific criteria for regulations (article 201).

313. Article 200 of the Convention reads:

> *Studies, research programmes and exchange of information and data*
>
> States shall cooperate, directly or through competent international organizations, for the purpose of promoting studies, undertaking programmes of scientific research and encouraging the exchange of information and data acquired about pollution of the marine environment. They shall endeavour to participate actively in regional and global programmes to acquire knowledge for the assessment of the nature and extent of pollution, exposure to it, and its pathways, risks and remedies.

Article 201 of the Convention reads:

> *Scientific criteria for regulations*
>
> In the light of the information and data acquired pursuant to article 200, States shall cooperate, directly or through competent international organizations, in establishing appropriate scientific criteria for the formulation and elaboration of rules, standards and recommended practices and procedures for the prevention, reduction and control of pollution of the marine environment.

The obligations under articles 200 and 201 provide the basis for the formulation and elaboration of international rules, standards and recommended practices and

procedures pursuant to article 197. The development of an effective common regulatory framework presupposes the existence of adequate information on the state of the marine environment based on updated scientific criteria and methods.

314. The Tribunal is of the view that articles 200 and 201 of the Convention apply in the context of marine pollution from anthropogenic GHG emissions.

315. Article 200 of the Convention is aimed at ensuring that pollution of the marine environment is properly acknowledged. In particular, this article is important for the development of an adequate common regulatory framework to protect and preserve the marine environment, as provided for under article 197. States are required to cooperate, directly or through competent international organizations, either globally or regionally, *inter alia*, in encouraging the exchange of information and data, primarily on the causes and effects of pollution. Cooperation also involves the search for possible and effective remedies in response to threats to the marine environment.

316. Article 201 of the Convention serves to link article 197 with article 200. Cooperation between States in the formulation and elaboration of rules, standards and recommended practices and procedures must be based on appropriate scientific criteria, developed through coordinated studies, research programmes and exchange of information and data. In particular, cooperation in the formulation and elaboration of a common regulatory framework would be ineffective if it did not rest on a solid scientific basis.

317. The Tribunal recalls that a close relationship between regulatory measures for the protection and preservation of the marine environment, on the one hand, and scientific findings and criteria, on the other, was previously highlighted by the Seabed Disputes Chamber in its *Area Advisory Opinion*. The Chamber held that measures adopted to prevent pollution of the marine environment may need to change over time to become stricter “in light ... of new scientific or technological knowledge” (*Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion, 1 February 2011, ITLOS Reports 2011*, p. 10, at p. 43, para. 117).

318. In the context of anthropogenic GHG emissions, the obligation under article 201 of the Convention requires States to participate in those fora for cooperation aimed at establishing appropriate scientific criteria for the formulation of rules and standards for the prevention, reduction and control of marine pollution from such emissions. An example of such cooperation is the Subsidiary Body for Scientific and Technological Advice (SBSTA) under the UNFCCC, which, *inter alia,* assists the COP and the Meeting of the Parties to the Paris Agreement by providing information and advice on scientific and technological matters.

319. The obligation under article 201 of the Convention requires States to make, in good faith, continuous efforts. Such efforts may be made directly or through competent international organizations, at the global or regional level. Cooperation can be pursued through various international organizations, including those without a specific law of the sea mandate, if the extent and nature of the effects of anthropogenic GHG emissions so require.

320. The participation of States in relevant international organizations and fora in undertaking scientific research programmes, encouraging the exchange of information and data as well as developing scientific criteria for regulating marine pollution from anthropogenic GHG emissions is particularly important in light of the global scale of such emissions.

(c) Conclusion

321. To conclude, the Tribunal finds that articles 197, 200 and 201, read together with articles 194 and 192 of the Convention, impose specific obligations on States Parties to cooperate, directly or through competent international organizations, continuously, meaningfully and in good faith in order to prevent, reduce and control marine pollution from anthropogenic GHG emissions. In this regard, first, States Parties are required to cooperate in formulating and elaborating rules, standards and recommended practices and procedures, consistent with the Convention and based on available scientific knowledge, to counter marine pollution from such emissions. Second, States Parties are required to cooperate to promote studies, undertake scientific research, and encourage the exchange of information and data on marine

pollution from anthropogenic GHG emissions, its pathways, risks and remedies, including mitigation and adaptation measures. Third, States Parties are required to establish appropriate scientific criteria on the basis of which rules, standards and recommended practices and procedures are to be formulated and elaborated to counter marine pollution from such emissions.

2. Technical assistance

322. The Tribunal now turns to the specific obligations contained in Part XII, section 3, of the Convention, namely, article 202 on scientific and technical assistance to developing States and article 203 on preferential treatment for developing States.

323. Article 202 reads:

> *Scientific and technical assistance to developing States*
>
> States shall, directly or through competent international organizations:
>
> (a) promote programmes of scientific, educational, technical and other assistance to developing States for the protection and preservation of the marine environment and the prevention, reduction and control of marine pollution. Such assistance shall include, *inter alia*:
>
> (i) training of their scientific and technical personnel;
> (ii) facilitating their participation in relevant international programmes;
> (iii) supplying them with necessary equipment and facilities;
> (iv) enhancing their capacity to manufacture such equipment;
> (v) advice on and developing facilities for research, monitoring, educational and other programmes;
>
> (b) provide appropriate assistance, especially to developing States, for the minimization of the effects of major incidents which may cause serious pollution of the marine environment;
>
> (c) provide appropriate assistance, especially to developing States, concerning the preparation of environmental assessments.

324. Article 203 of the Convention reads:

> *Preferential treatment for developing States*
>
> Developing States shall, for the purposes of prevention, reduction and control of pollution of the marine environment or minimization of its effects, be granted preference by international organizations in:
>
> (a) the allocation of appropriate funds and technical assistance; and
>
> (b) the utilization of their specialized services.

325. The Tribunal notes that most of the participants in the present proceedings were of the view that assistance to developing States is indispensable in combating pollution of the marine environment from anthropogenic GHG emissions. Such assistance seeks to alleviate the difficulties of developing States in addressing this issue and to enhance their capacity to do so. However, divergent views were expressed on the relationship between the obligation of assistance in the Convention and the principle of common but differentiated responsibilities and respective capabilities contemplated in the UNFCCC. It was contended that obligations of assistance under the Convention are a means of implementing the principle of common but differentiated responsibilities and respective capabilities in the context of the law of the sea. It was also argued that this principle, although not expressly mentioned in the Convention, must be considered, as the Convention and the climate change treaty regime are mutually supportive. It was further maintained that this principle should not be used as a pretext to escape the responsibility that weighs on all States, both individually and collectively, to counter marine pollution from anthropogenic GHG emissions. Other participants took the view that articles 202 and 203 should be interpreted only in the context of the Convention.

326. The Tribunal notes that articles 202 and 203 of the Convention do not refer to the principle of common but differentiated responsibilities and respective capabilities. However, the obligation of assistance to developing States under these articles has some elements underlying this principle in that States with lesser capabilities need assistance from States that are better placed in order to meet their environmental responsibilities.

327. In the view of the Tribunal, scientific, technical, educational and other assistance to developing States that are particularly vulnerable to the adverse effects of climate change is a means of addressing an inequitable situation. Although they contribute less to anthropogenic GHG emissions, such States suffer more severely from their effects on the marine environment. In this regard, the Tribunal notes the relevance of the UNFCCC and the Paris Agreement, which expressly recognize and take into account the specific needs and special circumstances of developing countries, "especially those that are particularly vulnerable to the adverse effects of climate change."

328. The Tribunal notes the fifth preambular paragraph of the Convention which states that the achievement of its goals "will contribute to the realization of a just and equitable international economic order which takes into account … the special interests and needs of developing countries". In the same vein, the General Assembly, in its annual resolution on oceans and the law of the sea, has recognized that

> the realization of the benefits of the Convention could be enhanced by international cooperation, technical assistance and advanced scientific knowledge, as well as by funding and capacity-building, and reiterating the essential need for cooperation, in accordance with States' capabilities, including through capacity-building and transfer and development of marine technology, inter alia, in relation to … the protection and preservation of the marine environment.
> (General Assembly Resolution 78/69, 5 December 2023, p. 4)

329. The Tribunal observes that articles 202 and 203 of the Convention identify a wide range of assistance mechanisms to permit developing States to appropriately address marine pollution from anthropogenic GHG emissions. These mechanisms coexist with those indicated by the UNFCCC (e.g., in Article 4, para. 3; Article 5, para. (b); Article 6, para. (a)(iv)) and the Paris Agreement (e.g., in Articles 9, 10 and 11) for supporting capacity-building, technical development and transfer, and the financial capabilities of developing States.

330. The main recipients of the assistance under article 202 of the Convention are developing States. In the context of marine pollution from anthropogenic GHG emissions, they should be those developing and least developed States that are

most directly and severely affected by the effects of such emissions on the marine environment. The above assistance is confined to that aimed at the protection and preservation of the marine environment and the prevention, reduction and control of marine pollution.

331. The obligation of assistance under article 202 of the Convention includes three categories of measures, the content of which is outlined broadly, allowing for an element of discretion on the part of States.

332. The first category of assistance measures, envisaged in article 202, subparagraph (a), of the Convention, includes the promotion of programmes of scientific, educational, technical and other assistance to developing States. The provision identifies some of the measures for promoting assistance. The purpose of this provision is, in the short and medium term, to provide the adequate scientific and technological knowledge to developing States by facilitating and supporting their participation in relevant international research and capacity-building programmes; and, in the long term, to develop capacities for research, production and management of scientific knowledge and technologies in these States to enable them to set up their own programmes to counter marine pollution from anthropogenic GHG emissions.

333. The Tribunal notes that the wide range of assistance measures provided for in article 202, subparagraph (a), of the Convention is not exhaustive. This is deduced from the expression “include, *inter alia*”, contained in the provision. It may also be noted that there are other provisions of the Convention which deal with assistance to developing States in the fields of science, technology and education (e.g., in Part XIII, section 2, and in Part XIV).

334. The second category of assistance measures, envisaged in article 202, subparagraph (b), of the Convention, concerns the provision of appropriate assistance, especially to developing States, in order to minimize the effects of major incidents which may cause serious marine pollution. This category appears to be of lesser relevance in the context of addressing marine pollution from anthropogenic GHG emissions.

335. The third category of measures, envisaged in article 202, subparagraph (c), of the Convention, is to provide appropriate assistance, especially to developing States, concerning the preparation of environmental assessments. The modalities of assistance are left to the discretion of States.

336. The Tribunal is of the view that “other assistance” referred to in article 202, subparagraph (a), of the Convention may include financial assistance aimed at providing developing States with assistance to promote the programmes and undertake the activities indicated in article 202 of the Convention. It is evident that scientific, educational and technical assistance entails financial implications. As indicated in paragraph 330 above, the financial assistance to developing States is confined to the protection and preservation of the marine environment and the prevention, reduction and control of marine pollution.

337. Article 203 of the Convention shifts the focus from the duty of assistance incumbent on States to the right to preferential treatment enjoyed by developing States within international organizations with respect to the allocation of appropriate funds and technical assistance and the use of their specialized services to prevent, reduce, control and minimize the effects of marine pollution.

338. The Tribunal notes that article 203 of the Convention implies the obligation of States to take, through the international organizations of which they are members, the measures necessary to put into effect preferential treatment for developing States as envisaged in this provision. In the context of marine pollution from anthropogenic GHG emissions, preferential treatment for developing States, in particular those vulnerable to the adverse effects of climate change (see para. 69 above), shall be granted for the purposes of prevention, reduction and control of marine pollution from such emissions or minimization of its effects.

339. To conclude, the Tribunal is of the view that articles 202 and 203 of the Convention set out specific obligations to assist developing States, in particular vulnerable developing States, in their efforts to address marine pollution from anthropogenic GHG emissions. Article 202 provides for the obligation of appropriate

assistance, directly or through competent international organizations, in terms of capacity-building, scientific expertise, technology transfer and other matters. Article 203 reinforces the support to developing States, in particular those vulnerable to the adverse effects of climate change, by granting them preferential treatment in funding, technical assistance and pertinent specialized services from international organizations.

3. Monitoring and environmental assessment

340. The Tribunal will now turn to the specific obligations of States stipulated in Part XII, section 4, of the Convention. Article 204 addresses the monitoring of the risks or effects of pollution; article 205, the publication of reports; and article 206, the assessment of potential effects of activities.

341. Article 204 reads:

> *Monitoring the risks or effects of pollution*
>
> 1. States shall, consistent with the rights of other States, endeavour, as far as practicable, directly or through the competent international organizations, to observe, measure, evaluate and analyse, by recognized scientific methods, the risks or effects of pollution of the marine environment.
>
> 2. In particular, States shall keep under surveillance the effects of any activities which they permit or in which they engage in order to determine whether these activities are likely to pollute the marine environment.

342. Article 205 reads:

> *Publication of reports*
>
> States shall publish reports of the results obtained pursuant to article 204 or provide such reports at appropriate intervals to the competent international organizations, which should make them available to all States.

343. Article 206 reads:

> *Assessment of potential effects of activities*
>
> When States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or

> significant and harmful changes to the marine environment, they shall, as far as practicable, assess the potential effects of such activities on the marine environment and shall communicate reports of the results of such assessments in the manner provided in article 205.

344. The Tribunal notes that many participants in the present proceedings took the view that section 4 of Part XII of the Convention contains obligations which are highly relevant to the questions posed in the Request. It was contended that this section is concerned with obtaining and disseminating knowledge, and that it plays a critical role in ensuring the compliance of States with their obligations under article 192 and, in particular, article 194. It was further contended that monitoring and assessment conducted by a State pursuant to articles 204 and 206, and any reports made available to States pursuant to article 205, may be relevant in assessing what measures are necessary to prevent, reduce and control pollution of the marine environment from anthropogenic GHG emissions.

345. The Tribunal observes at the outset that the obligations envisaged in section 4 are procedural in nature. As held by the arbitral tribunal in the *Chagos Marine Protected Area Arbitration*, procedural obligations, such as the requirement to conduct an environmental impact assessment, "may, indeed, be of equal or even greater importance than the substantive standards existing in international law" (*Arbitration regarding the Chagos Marine Protected Area between Mauritius and the United Kingdom of Great Britain and Northern Ireland*, *Award of 18 March 2015, RIAA, Vol. XXXI*, p. 359, at p. 500, para. 322). Compliance with these procedural obligations is a relevant factor in meeting the general obligations under articles 194 and 192 of the Convention.

(a) Obligation under article 204 of the Convention

346. Under article 204 of the Convention, States shall endeavour to monitor the risks or effects of pollution of the marine environment (paragraph 1) and shall keep under surveillance the effects deriving from any activity in which they are involved, with a view to determining whether this activity is likely to pollute the marine environment (paragraph 2). Both obligations are continuing in nature, in that monitoring and surveillance must be ongoing. The extent of the monitoring obligation

is conditioned by the fact that States, consistent with the rights of other States, are obliged to make every effort, as far as practicable, taking into account their capabilities.

347. Article 204, paragraph 1, of the Convention aims to enhance knowledge of the harmful consequences of marine pollution as a whole. It provides for two phases of monitoring. First, the risks and effects of pollution of the marine environment are to be observed and measured. Second, the data collected are to be evaluated and analysed. In both phases, States are called upon to use “recognized scientific methods”. The standard of “recognized” scientific methods is exacting.

348. With respect to the means through which to fulfil the monitoring obligation, the provision gives discretion to the State concerned. States shall comply with this obligation by acting directly or through the competent international organizations, whether global or regional. In this respect, the Tribunal observes that the adverse effects caused to the marine environment by anthropogenic GHG emissions have been, for many years, the subject of monitoring by international scientific bodies and mechanisms.

349. Article 204, paragraph 2, of the Convention provides for the obligation to keep under surveillance the effects of activities that States have permitted, or in which they are engaged. This obligation is stricter than that under article 204, paragraph 1. The obligation applies irrespective of the place where the activities are conducted or the nationality of the individuals or entities carrying out the activities.

(b) Obligation under article 205 of the Convention

350. Under article 205 of the Convention, States are required to publish reports of the results of their monitoring activities or to provide such reports to the competent international organizations to make them available to all States.

351. The Tribunal notes that the obligation to publish such reports or to provide them to the competent international organizations complements the duty of monitoring set out in article 204 of the Convention. The obligation to circulate reports

is based on the assumption that one of the most effective means for the protection and preservation of the marine environment consists in sharing information and scientific results on risks to the marine environment. In the context of climate change, article 205 requires States to ensure transparency by disseminating the results of their monitoring activities with respect to the negative impacts caused to the marine environment by anthropogenic GHG emissions.

(c) Obligation under article 206 of the Convention

352. The obligation to conduct environmental impact assessments, contemplated in article 206 of the Convention, requires States to assess the potentially harmful effects of a planned activity prior to its execution and to disseminate the obtained results thereafter.

353. The Tribunal notes that most of the participants in the present proceedings were of the view that there is an obligation to conduct an environmental impact assessment under the Convention and customary international law. Most participants also shared the view that the due diligence standard is closely connected to this obligation. It was generally argued that the scope of article 206 of the Convention is wide and that the discretion of States in triggering the obligation therein is limited by various elements, including the precautionary approach. In this regard, it was contended that an environmental impact assessment may also concern the cumulative effects of a planned activity on the marine environment. Furthermore, it was argued that, although article 206 establishes the duty to carry out an environmental impact assessment, the means to assess the adverse effects of activities related to GHG emissions on the marine environment, and the implementation of such a duty, need further study. Finally, while the view was expressed that the form and content of impact assessments are a matter for domestic rather than international law, several participants referred to other international instruments for guidance on this issue.

354. The Tribunal is of the view that the obligation to conduct environmental impact assessments is crucial to ensure that activities do not harm the marine environment and is an essential part of a comprehensive environmental management system

(see *The South China Sea Arbitration between the Republic of the Philippines and the People's Republic of China, Award of 12 July 2016, RIAA, Vol. XXXIII*, p. 153, at p. 523, para. 948).

355. As the Seabed Disputes Chamber noted, this obligation also forms part of customary international law (*Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion, 1 February 2011, ITLOS Reports 2011*, p. 10, at pp. 50-51, paras. 145 and 147; see also *Pulp Mills on the River Uruguay (Argentina* v. *Uruguay), Judgment, I.C.J. Reports 2010*, p. 14, at p. 83, para. 204).

356. The obligation to conduct an environmental impact assessment pursuant to article 206 of the Convention encompasses the duty of vigilance and prevention. As noted by the ICJ, this duty would not be considered to have been fulfilled if an environmental impact assessment was not undertaken of activities at risk of affecting the environment (see *Pulp Mills on the River Uruguay (Argentina* v. *Uruguay), Judgment, I.C.J. Reports 2010*, p. 14, at p. 83, para. 204). Article 206 therefore constitutes a "particular application" of the obligation enunciated in article 194, paragraph 2 (*The South China Sea Arbitration*, *Award of 12 July 2016, RIAA, Vol. XXXIII*, p. 153, at p. 523, para. 948).

357. In the Tribunal's view, although article 206 of the Convention does not specify the scope and content of an environmental impact assessment, it indicates some of the components that are relevant in addressing the Request.

358. The obligation to conduct an environmental impact assessment concerns "planned activities". This broad term implies that such assessment is to be conducted prior to the implementation of a project (see *Pulp Mills on the River Uruguay (Argentina* v. *Uruguay), Judgment, I.C.J. Reports 2010*, p. 14, at pp. 83-84, para. 205; *Certain Activities Carried out by Nicaragua in the Border Area, (Costa Rica* v. *Nicaragua*), *Judgment, I.C.J. Reports 2015*, p. 665, at pp. 706-707, para. 104, p. 720, para. 153, and pp. 722-733, para. 161). The activities under assessment comprise both those planned by private entities and those planned by States.

359. Article 206 of the Convention establishes certain requirements to trigger the obligation to conduct an environmental impact assessment. These requirements are the “jurisdiction or control” of the State over the planned activities and the “reasonable grounds for believing” that these activities “may cause substantial pollution of or significant and harmful changes to the marine environment”.

360. As stated above, the concept of “jurisdiction or control” is a broad one. The duty under article 206 of the Convention applies to any planned activity under the jurisdiction or control of the State concerned (see para. 247 above). Land-based activities as well as those at sea are included.

361. Concerning the requirement of “reasonable grounds for believing”, the arbitral tribunal in the *South China Sea Arbitration* observed that the “terms ‘reasonable’ and ‘as far as practicable’ contain an element of discretion for the State concerned” (*The South China Sea Arbitration between the Republic of the Philippines and the People’s Republic of China, Award of 12 July 2016*, *RIAA, Vol. XXXIII*, p. 153, at p. 523, para. 948). However, the discretion of such a State is limited by the fact that it is required to determine whether an activity under its jurisdiction or control “may cause substantial pollution of or significant and harmful changes to the marine environment”. It is a matter of objective determination based on facts and scientific knowledge. Such pollution and changes need not be actual but can also be potential. Therefore, the Tribunal considers that the precautionary approach may restrict the margin of discretion on the part of the State concerned.

362. The expression “substantial pollution of or significant and harmful changes to the marine environment” is not further elaborated upon in article 206 of the Convention. In the Tribunal’s view, the use of the word “or” suggests that article 206 contemplates two alternative thresholds for subjecting a planned activity to an environmental impact assessment: one threshold for “substantial pollution” and another for “significant and harmful changes”. However, the issue of possible alternative thresholds to trigger the obligation to conduct an environmental impact assessment has little relevance in the case of anthropogenic GHG emissions in light of their impact on the marine environment.

363. Article 206 of the Convention does not specify the content of an environmental impact assessment or the procedure to be followed except for the reference to the communication of States' reports under article 205. Such content and procedure are to be determined by each State in its legislation. In this regard, it is worth recalling that the ICJ in *Pulp Mills on the River Uruguay* held that

> it is for each State to determine in its domestic legislation or in the authorization process for the project, the specific content of the environmental impact assessment required in each case, having regard to the nature and magnitude of the proposed development and its likely adverse impact on the environment as well as to the need to exercise due diligence in conducting such an assessment.
> (*Pulp Mills on the River Uruguay (Argentina* v. *Uruguay), Judgment, I.C.J. Reports 2010*, p. 14, at p. 83, para. 205)

364. In this context, a certain degree of flexibility is indicated by the expression "as far as practicable", which addresses, in particular, the different capabilities of States, especially developing States, in conducting environmental impact assessments.

365. Concerning the content of an environmental impact assessment, the Tribunal considers that the broad wording of article 206 of the Convention does not preclude such assessment from embracing not only the specific effects of the planned activities concerned but also the cumulative impacts of these and other activities on the environment. In the context of pollution of the marine environment from anthropogenic GHG emissions, planned activities may not be environmentally significant if taken in isolation, whereas they may produce significant effects if evaluated in interaction with other activities. Moreover, the broad wording of article 206 does not preclude the assessment from including the socio-economic impacts of the activities concerned.

366. The Tribunal notes that the BBNJ Agreement contains, *inter alia*, detailed provisions on environmental impact assessments relating to their thresholds and factors, the processes for conducting them and the reports of such assessments.

(d) Conclusion

367. In light of the foregoing, the Tribunal is of the view that articles 204, 205 and 206 of the Convention impose specific obligations on States Parties to monitor the risks or effects of pollution, to publish reports and to conduct environmental impact assessments as a means to address marine pollution from anthropogenic GHG emissions. Under article 204, paragraph 1, States Parties are required to endeavour to observe, measure, evaluate and analyse the risks or effects of pollution of the marine environment from anthropogenic GHG emissions. Under article 204, paragraph 2, States Parties have the specific obligation to keep under continuing surveillance the effects of activities they have permitted, or in which they are engaged, in order to determine whether such activities are likely to pollute the marine environment through anthropogenic GHG emissions. Article 205 requires States Parties to publish the results obtained from monitoring the risks or effects of pollution from anthropogenic GHG emissions or to communicate them to the competent international organizations for their dissemination. Article 206 sets out the obligation to conduct environmental impact assessments. Any planned activity, either public or private, which may cause substantial pollution to the marine environment or significant and harmful changes thereto through anthropogenic GHG emissions, including cumulative effects, shall be subjected to an environmental impact assessment. Such assessment shall be conducted by the State Party under whose jurisdiction or control the planned activity will be undertaken with a view to mitigating and adapting to the adverse effects of those emissions on the marine environment. The result of such assessment shall be reported in accordance with article 205 of the Convention.

VIII. Question (b)

368. The Tribunal will now turn to the second question posed by the Commission. The question reads:

> What are the specific obligations of State Parties to the United Nations Convention on the Law of the Sea (‘UNCLOS’), including under Part XII: …

> (b) to protect and preserve the marine environment in relation to climate change impacts, including ocean warming and sea level rise, and ocean acidification?

369. In its written submission, the Commission described Question (b) as "independent, but complementary to the first", encompassing the general obligation "to protect and preserve the marine environment in regulating the activities that cause climate change impacts, including ocean warming and sea level rise, and ocean acidification." In more precise terms, the Commission stated that "[t]his question concerns the meaning and scope of article 192". Other participants in the proceedings generally agreed with these observations.

370. The Tribunal has already drawn attention to the fact that Question (b) is broader in scope than Question (a) (see paras. 151 and 152 above). Question (b) is formulated in terms that invoke article 192 of the Convention, which provides that "States have the obligation to protect and preserve the marine environment." The obligation is comprehensive in nature and encompasses obligations contained in other provisions of the Convention, including article 194, which set out more specific obligations. The views of the Tribunal on Question (a) are fully applicable to Question (b).

371. The Tribunal notes that in addressing the definition of "pollution of the marine environment", it clarified the term "marine environment" (see paras. 166 to 171 above). This clarification applies to article 192 and other relevant provisions of the Convention that are considered below.

372. The Tribunal confines its observations herein to the specific obligations to protect and preserve the marine environment in relation to climate change impacts and ocean acidification that were not previously identified in its response to Question (a).

A. Clarification of terms and expressions

373. Certain terms employed in the Request are common to the first and second questions as formulated by the Commission. The Tribunal has already clarified some

terms in determining the precise meaning of Question (a), including the references made to “specific obligations”, “climate change” and “ocean acidification”.

374. As previously explained, the Tribunal accepts the definitions and usage of such terms as “climate change” and “ocean acidification” as they are defined in climate change treaties or widely used in authoritative scientific works such as the IPCC reports, which have already been explained in paragraphs 52, 60 and 68 above.

375. Question (b) concerns “climate change impacts”. The Tribunal observes that the word “impacts” is neutral. However, as formulated in the question submitted to the Tribunal, and in the arguments presented in the proceedings, the word is used in relation to circumstances in which drivers of climate change cause deleterious effects to the marine environment. The Tribunal is of the view that Question (b) concerns the negative impacts of climate change and ocean acidification on the marine environment.

376. As regards the term “specific obligations”, the Tribunal has already drawn attention to the fact that the term may denote concrete or particularized obligations in contrast to general obligations. It may also mean obligations specific to the protection and preservation of the marine environment in relation to climate change impacts and ocean acidification. In responding to Question (b), the Tribunal will bear in mind both aspects of the term “specific”.

B. Relevant provisions of the Convention

377. The Tribunal will now proceed to address the specific obligations of States Parties under the Convention to protect and preserve the marine environment in relation to climate change impacts and ocean acidification that go beyond the prevention, reduction and control of marine pollution as addressed in Question (a).

378. In this regard, the Tribunal will first identify the provisions of the Convention relevant to its response to Question (b). It will then interpret those provisions to the extent necessary to respond to the question, and examine how they should be

applied in protecting and preserving the marine environment in relation to climate change impacts and ocean acidification. Subsequently, the Tribunal will set out the specific obligations of States Parties under the Convention to protect and preserve the marine environment against climate change impacts and ocean acidification.

379. The provisions of the Convention which are relevant to answering Question (b) are found in Part XII, as well as other parts of the Convention. The Tribunal has already presented an overview of the system for the protection and preservation of the marine environment set out in Part XII (see paras. 182 to 191 above). The primary provision in this regard is article 192 of the Convention which provides for the general obligation.

380. The relationship between articles 192 and 193 of the Convention is also addressed in the overview of Part XII (see paras. 184 to 187 above). In the overview, it is noted that article 193 places a constraint upon States' exercise of their sovereign right to exploit their natural resources, which has to be exercised in accordance with their duty to protect and preserve the marine environment.

381. In addressing article 194 of the Convention on measures to regulate marine pollution in relation to the first question, the Tribunal observed that measures envisaged under paragraph 5 of that article cover more than those to regulate pollution, and for that reason, this paragraph refers to the measures taken in accordance with "this Part" rather than "this article". Paragraph 5 of article 194 is particularly relevant to the Tribunal's response to the second question concerning specific obligations to protect and preserve the marine environment.

382. The provisions of Part XII of the Convention that are not aimed exclusively at addressing marine pollution include article 196 on the use of technologies or introduction of alien or new species. Other provisions concerning the protection and preservation of the marine environment are found, in particular, in Part V, including articles 61, 63 and 64, and in Part VII, including articles 117, 118 and 119. These provisions are pertinent in addressing climate change impacts and ocean acidification.

383. The Tribunal's response to the first question addressed the provisions of Part XII of the Convention in section 2 on global and regional cooperation, section 3 on technical assistance, and section 4 on monitoring and environmental assessment. These provisions are also relevant to the Tribunal's consideration of the second question. The Tribunal will elaborate, as necessary, on the significance of these provisions in responding to the second question.

C. Obligations to protect and preserve the marine environment in relation to climate change impacts and ocean acidification

1. Obligation under article 192 of the Convention

(a) Scope of the obligation

384. A vast majority of participants argued that article 192 of the Convention must be interpreted so as to cover all contemporary threats to the marine environment, including those that have emerged following the adoption of the Convention. It was further contended that the mere fact that climate change and ocean acidification constitute a specific and considerable threat to the marine environment is already sufficient in and of itself to give rise to a specific obligation with regard to its protection and preservation in the context of article 192. Some participants, however, argued that Part XII of the Convention does not establish any specific obligations to protect and preserve the marine environment in relation to the impacts of climate change; rather, such obligations are found under specific international instruments, although the Convention may play a subsidiary role in protecting and preserving the marine environment from the adverse effects of climate change.

385. The Tribunal is of the view that the obligation contained in article 192 of the Convention has a broad scope, encompassing any type of harm or threat to the marine environment. The obligation under this provision has two distinct elements. The first element is the obligation to protect the marine environment. It is linked to the duty to prevent, or at least mitigate, environmental harm (see para. 246 above). The second element is the obligation to preserve the marine environment, which

entails maintaining ecosystem health and the natural balance of the marine environment.

386. Where the marine environment has been degraded, the Tribunal is of the view that the term “preservation” may include restoring marine habitats and ecosystems. The term “restoration” is not used in article 192 of the Convention but flows from the obligation to preserve the marine environment where the process of reversing degraded ecosystems is necessary in order to regain ecological balance.

387. The two distinct elements of article 192 of the Convention have been expressed in the following terms:

> This “general obligation” extends both to “protection” of the marine environment from future damage and “preservation” in the sense of maintaining or improving its present condition. Article 192 thus entails the positive obligation to take active measures to protect and preserve the marine environment, and by logical implication, entails the negative obligation not to degrade the marine environment.
> (*The South China Sea Arbitration between the Republic of the Philippines and the People’s Republic of China, Award of 12 July 2016*, *RIAA, Vol. XXXIII*, p. 153, at p. 519, para. 941)

388. Article 192 of the Convention does not specify the relevant harms and threats to which it applies. The open-ended nature of the obligation means that it can be invoked to combat any form of degradation of the marine environment, including climate change impacts, such as ocean warming and sea level rise, and ocean acidification. Article 192 does not specify how the marine environment must be protected and preserved against present and future harms. Other provisions of the Convention and external rules inform the content of article 192 and shape the types of measures that may be implemented to protect and preserve the marine environment. In this regard, the Tribunal has addressed the relevance of international instruments on climate change, including the UNFCCC and the Paris Agreement, to the questions before it (see paras. 67 to 82 above). Other agreements, such as the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (hereinafter “the Fish Stocks Agreement” or “FSA”), which was adopted

on 4 August 1995 and entered into force on 11 December 2001, and the CBD, may also provide relevant guidance, as indicated further below.

(b) Measures

389. Some participants argued that, in the context of climate change and ocean acidification, the specific obligations under article 192 of the Convention fall into three categories: to mitigate climate change; to implement resilience and adaptation measures; and to protect marine ecosystems that sequester carbon dioxide, thereby preventing further harm to the marine environment. In this regard, many participants noted the relevance of the UNFCCC and the Paris Agreement, and the subsequent relevant decisions taken by the governing bodies of these treaties, in interpreting the provisions of Part XII of the Convention.

390. The Tribunal has drawn attention to the role of the ocean in storing heat trapped in the atmosphere caused by increasing concentrations of GHGs and storage of excess carbon dioxide (see paras. 54 and 55 above). The ocean is the world's largest sink. Coastal "blue carbon" ecosystems, such as mangroves, tidal marshes, and seagrass meadows, are also important sinks and can contribute to ecosystem-based adaptation (see para. 56 above). The obligation to protect and preserve the marine environment is therefore of dual significance in that it promotes the conservation and resilience of living marine resources, while also mitigating anthropogenic GHG emissions by enhancing carbon sequestration through measures to restore the marine environment (see also Article 4, paragraph 1(d), of the UNFCCC and Article 5, paragraph 1, of the Paris Agreement).

391. The obligation to take mitigation measures to reduce anthropogenic GHG emissions has been addressed in the response to Question (a). Article 192 of the Convention also requires States to implement measures to protect and preserve the marine environment in relation to climate change impacts and ocean acidification that include resilience and adaptation actions as described in the climate change treaties.

392. The Convention does not use the term “adaptation measures”. As defined by the IPCC, adaptation is “the process of adjustment to actual or expected *climate* and its effects, in order to moderate harm or exploit beneficial opportunities. In *natural systems*, … human intervention may facilitate adjustment to expected *climate* and its effects” (WGII 2022 Report, Annex II, p. 2898). The ultimate objective of the UNFCCC, as stated in its Article 2, includes the “stabilization of greenhouse gas concentrations in the atmosphere … within a timeframe sufficient to allow ecosystems to adapt naturally to climate change”. Other provisions of the UNFCCC address measures to facilitate adequate adaptation to climate change. This is further developed in the Paris Agreement.

393. Article 2 of the Paris Agreement, in enhancing the implementation of the UNFCCC, including its objective, aims to strengthen the global response to the threat of climate change by, *inter alia*, “[i]ncreasing the ability to adapt to the adverse impacts of climate change and foster climate resilience”. The Paris Agreement establishes the global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change in paragraph 1 of Article 7. Paragraphs 5 and 6 of Article 7 of the Paris Agreement address elements of adaptation strategies and read as follows:

> 5. Parties acknowledge that adaptation action should follow a country-driven, gender-responsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems, and should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems, with a view to integrating adaptation into relevant socioeconomic and environmental policies and actions, where appropriate.
>
> 6. Parties recognize the importance of support for and international cooperation on adaptation efforts and the importance of taking into account the needs of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change.

394. The Tribunal is of the view that these provisions are compatible with the obligations of the Convention and exemplify how science and other relevant considerations are taken into account by States in implementing adaptation measures. The Tribunal notes that measures of adaptation and resilience-building frequently require significant resources. In this respect, the Tribunal has already

addressed the obligations under Part XII of the Convention on the provision of technical assistance to developing States (see paras. 322 to 339 above).

(c) Nature of the obligation

395. A vast majority of participants in the proceedings stated that article 192 of the Convention reflects an obligation to act with due diligence. Some noted that the principle of prevention is an integral part of the duty of due diligence, which is an obligation of conduct rather than of result. Other participants indicated that they deliberately avoided the binary characterization of obligations of conduct and of result because, in the context of the Convention and international law generally, these labels are largely unhelpful, as many obligations straddle both categories.

396. The Tribunal considers that the obligation to take measures necessary to protect and preserve the marine environment requires States to ensure that non-State actors under their jurisdiction or control comply with such measures. The obligation of the State, in this instance, is one of due diligence.

397. The Tribunal has already addressed the character of a due diligence obligation in responding to Question (a). The content of the due diligence obligation depends on the nature of the specific treaty obligation so qualified and may vary over time. The standard of this obligation is determined by, among other factors, an assessment of the risk and level of harm combined.

398. The impacts of climate change and ocean acidification on the marine environment are described in the IPCC reports as severe. The WGII 2022 Report states that “global sea level rise, as well as warming, ocean acidification and deoxygenation at depth, are irreversible for centuries or longer (*very high confidence*)” (WGII 2022 Report, p. 453). The 2023 Synthesis Report further states that “[t]he likelihood and impacts of abrupt and/or irreversible changes in the climate system, including changes triggered when tipping points are reached, increase with further global warming (*high confidence*)” (2023 Synthesis Report, p. 18). In its Judgment in *Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, the ICJ observed that “in the field of environmental protection, vigilance and prevention are required on

account of the often irreversible character of damage to the environment and of the limitations inherent in the very mechanism of reparation of this type of damage" (*Gabčíkovo-Nagymaros Project (Hungary/Slovakia), Judgment, I.C.J. Reports 1997*, p. 7, at p. 78, para. 140). In such circumstances, the standard of the due diligence obligation is stringent.

399. The Tribunal holds the view that, given the risks posed to the marine environment, States, in fulfilment of their obligations under article 192 of the Convention, are required to take measures as far-reaching and efficacious as possible to prevent or reduce the deleterious effects of climate change and ocean acidification on the marine environment. The standard of due diligence under article 192 is, as stated above, stringent given the high risks of serious and irreversible harm to the marine environment by climate change impacts and ocean acidification.

(d) Conclusion

400. To conclude, article 192 of the Convention imposes a general obligation on States Parties to protect and preserve the marine environment. It applies to all maritime areas and can be invoked to combat any form of degradation of the marine environment, including climate change impacts, such as ocean warming and sea level rise, and ocean acidification. Where the marine environment has been degraded, this may require restoring marine habitats and ecosystems. This obligation is one of due diligence. The standard of due diligence is stringent, given the high risks of serious and irreversible harm to the marine environment from climate change impacts and ocean acidification.

2. Obligation under article 194, paragraph 5, of the Convention

401. Many participants in the proceedings noted that article 194, paragraph 5, of the Convention gives a specific form to the general obligation enshrined in article 192 in the context of fragile ecosystems, which are particularly threatened by global warming and ocean acidification. Some participants drew attention to the fact that article 194, paragraph 5, refers to Part XII and invokes the phrase "protect and

preserve" contained in article 192. Some also suggested that article 194, paragraph 5, is reinforced by the call in the preamble of the Paris Agreement to protect the ecological integrity of the ocean.

402. The Tribunal observes that the obligation under article 192 of the Convention includes the specific obligation to take measures "necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life", as expressly provided for in article 194, paragraph 5. This paragraph does not provide specific criteria for determining what measures are "necessary". As stated above (see para. 203), the word "necessary" is to be interpreted in accordance with its ordinary meaning and should be understood broadly. The measures necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life are those which make it possible to achieve that objective.

403. The obligation stated in article 194, paragraph 5, of the Convention requires States to take both measures necessary to protect "rare or fragile ecosystems" and those necessary to protect the "habitat of depleted, threatened or endangered species and other forms of marine life." The Tribunal observes that the Convention does not define either expression. In clarifying the term "marine environment" in relation to article 1, paragraph 1, subparagraph 4, of the Convention, the Tribunal addressed the definition of the term "ecosystem" (see para. 169 above). The Tribunal notes that characteristics of an ecosystem, such as the uniqueness or rarity, and vulnerability, fragility, sensitivity, or slow recovery, may change over time. Consequently, the process of identifying "rare or fragile ecosystems" requires a case-by-case review. Article 234 of the Convention, concerning ice-covered areas, provides an example of fragile ecosystems where special measures may be required to protect and preserve the marine environment.

404. With regard to the phrase "the habitat of depleted, threatened or endangered species and other forms of marine life", the Tribunal notes that Article 2 of the CBD provides a generally accepted definition of the term "[h]abitat" as "the place or type of site where an organism or population naturally occurs." It is not necessary for such

place or site to form part of a rare or fragile ecosystem. The concern is with the conservation of depleted, threatened or endangered species and other forms of marine life and the preservation of their natural environment. The Convention does not identify a list of “depleted, threatened or endangered species”. The Tribunal notes that the Convention on International Trade in Endangered Species of Wild Fauna and Flora (hereinafter “CITES”), which was adopted on 3 March 1973 and entered into force on 1 July 1975, classifies species threatened with extinction and those likely to become endangered in the absence of trade regulations. CITES is an agreement to which there is near-universal adherence. The Tribunal considers that the classification of species in the appendices to CITES provides guidance in interpreting the term “depleted, threatened or endangered species” in article 194, paragraph 5 (see *The South China Sea Arbitration between the Republic of the Philippines and the People’s Republic of China, Award of 12 July 2016*, *RIAA, Vol. XXXIII*, p. 153, at p. 526, para. 956).

405. The Tribunal notes that the obligation imposed by article 194, paragraph 5, of the Convention may call for specific measures, such as the enactment and enforcement of laws and regulations or the undertaking of monitoring and assessment (see paras. 340 to 367 above). These measures are context-specific and call for objectively reasonable approaches to be taken on the basis of the best available science. Their implementation depends on the relevant domestic legal system and allows for the exercise of discretion. However, States do not have absolute discretion with respect to the action that is required. As stated by the Seabed Disputes Chamber in the *Area Advisory Opinion*, a “State must take into account, objectively, the relevant options in a manner that is reasonable, relevant and conducive to the benefit of mankind as a whole. It must act in good faith, especially when its action is likely to affect prejudicially the interests of mankind as a whole” (*Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion, 1 February 2011, ITLOS Reports 2011*, p. 10, at p. 71, para. 230). Although the Seabed Disputes Chamber addressed the specific obligations of sponsoring States under article 4, paragraph 4, of Annex III to the Convention, the Tribunal finds that the views it expressed are also applicable to measures taken to protect and preserve the marine environment in relation to the impacts of climate change and ocean acidification.

406. To conclude, article 194, paragraph 5, of the Convention, read together with article 192, imposes specific obligations on States Parties to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life from climate change impacts and ocean acidification.

3. Obligations under other provisions of the Convention

407. The Tribunal will now identify specific obligations under article 192, read with other provisions of the Convention, that require States to take conservation measures, including adaptation and resilience-building, to protect and preserve the marine environment in response to climate change impacts and ocean acidification.

408. Some participants in the proceedings argued that article 192 provides an umbrella obligation that encapsulates several more specific obligations found in different parts of the Convention as well as in the Fish Stocks Agreement. In addition to the Convention, the Fish Stocks Agreement was cited as providing a relevant framework for cooperation on the protection and preservation of the marine environment in relation to climate change impacts and ocean acidification.

409. The Tribunal notes that climate change and ocean acidification affect virtually all forms of marine life, including fish and corals that build structures providing the habitat for large numbers of species. As the Tribunal stated in the *Southern Bluefin Tuna* cases, “the conservation of the living resources of the sea is an element in the protection and preservation of the marine environment” (*Southern Bluefin Tuna (New Zealand* v. *Japan; Australia* v. *Japan), Provisional Measures, Order of 27 August 1999, ITLOS Reports 1999*, p. 280, at p. 295, para. 70). The Tribunal observes that the conservation of living resources and marine life, which falls within the general obligation to protect and preserve the marine environment, requires measures that may vary over time depending on the activities involved and the threats to the marine environment.

410. The impacts of climate change and ocean acidification include shifts in fish distribution and decreases in fisheries that affect the “income, livelihoods, and food security of marine resource-dependent communities”, as well as impacts on marine ecosystems which will put “key cultural dimensions of lives and livelihoods at risk” (see para. 66 above). For conservation measures to be effective, such impacts must be taken into account.

411. The specific obligations of the Convention on the conservation of living resources of the sea are stipulated, *inter alia*, in Parts V and VII, in particular article 61, on the conservation of living resources in the exclusive economic zone, and articles 117 and 119, on the conservation of living resources of the high seas.

(a) Obligations under articles 61, 117 and 119 of the Convention

412. Article 61 of the Convention provides for the obligations concerning the conservation of the living resources in the exclusive economic zone and general principles on what such conservation requires. Article 61, paragraphs 2, 3, and 4, reads as follows:

> 2. The coastal State, taking into account the best scientific evidence available to it, shall ensure through proper conservation and management measures that the maintenance of the living resources in the exclusive economic zone is not endangered by over-exploitation. As appropriate, the coastal State and competent international organizations, whether subregional, regional or global, shall cooperate to this end.
>
> 3. Such measures shall also be designed to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors, including the economic needs of coastal fishing communities and the special requirements of developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional or global.
>
> 4. In taking such measures the coastal State shall take into consideration the effects on species associated with or dependent upon harvested species with a view to maintaining or restoring populations of such associated or dependent species above levels at which their reproduction may become seriously threatened.

413. Article 61 of the Convention identifies both the purpose of conservation and management measures and the factors to be taken into account in taking such measures. States retain discretion in determining the particular measures to achieve the stated objectives. As stated by the ICJ, in commenting on articles 61 and 62 of the Convention, in the *Fisheries Jurisdiction Case (Spain* v. *Canada*),

> [a]ccording to international law, in order for a measure to be characterized as a "conservation and management measure", it is sufficient that its purpose is to conserve and manage living resources and that, to this end, it satisfies various technical requirements.
> (*Fisheries Jurisdiction (Spain* v. *Canada), Jurisdiction of the Court, Judgment, I.C.J. Reports 1998*, p. 432, at p. 461, para. 70)

414. The purpose of conservation and management measures under article 61 of the Convention is to ensure that the maintenance of the living resources in the exclusive economic zone is not endangered by overexploitation. To that end, such measures must be informed by the best available science, including internationally coordinated scientific assessments of the magnitude, timing, and potential environmental and socio-economic impacts of climate change and ocean acidification, and realistic response strategies. States are required, in designing such measures, to take into account relevant environmental and economic factors, including the impact of climate change and ocean acidification on marine ecosystems, environmental stressors, stock migration, and the implications for vulnerable communities and specially affected developing States. Consideration should be given to fishing patterns and the effects on associated and dependent species, and the different rates at which different parts of the food web are responding to climate change and ocean acidification, leading to population-level changes, with a view to ensuring their populations are maintained or restored at levels above which their reproduction may become seriously threatened.

415. The general obligation expressed in article 192 of the Convention, to protect and preserve the marine environment, encompasses obligations stated in article 117. According to article 117, all States have the duty to take, or to cooperate with other States in taking, such measures for their respective nationals as may be necessary for the conservation of the living resources of the high seas. This

obligation is not limited to flag States but applies to all States with respect to their nationals engaged in activities on the high seas.

416. Article 119 of the Convention provides for the obligation to conserve the living resources in the high seas. This obligation substantially replicates that of article 61 of the Convention, as the conservation duty of all States in the high seas and of the coastal State in the exclusive economic zone is fundamentally the same. Paragraph 1 of article 119 reads:

> In determining the allowable catch and establishing other conservation measures for the living resources in the high seas, States shall:
>
> > (a) take measures which are designed, on the best scientific evidence available to the States concerned, to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional or global;
> >
> > (b) take into consideration the effects on species associated with or dependent upon harvested species with a view to maintaining or restoring populations of such associated or dependent species above levels at which their reproduction may become seriously threatened.

417. Articles 61 and 119 of the Convention establish a consistent framework that promotes the compatibility of measures established for the high seas and those adopted for areas under national jurisdiction in order to ensure the conservation of stocks in their entirety. In the *SRFC Advisory Opinion*, the Tribunal observed that "fisheries conservation and management measures, to be effective, should concern the whole stock unit over its entire area of distribution or migration routes" (*Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission, Advisory Opinion of 2 April 2015, ITLOS Reports 2015*, p. 4, at p. 60, para. 214). To that end, the Tribunal emphasized that "States may, directly or through relevant subregional or regional organizations, seek the cooperation of non-Member States sharing the same stocks along their migrating routes with a view to ensuring conservation and sustainable management of these stocks in the whole of their geographical distribution or migrating area" (*ibid.*, at p. 61, para. 215). The views

expressed in the *SRFC Advisory Opinion* are relevant to the conservation and management measures relating to climate-driven shifts in the distribution of stocks.

418. To conclude, articles 61 and 119 of the Convention impose specific obligations on States Parties to take measures necessary to conserve living marine resources threatened by climate change impacts and ocean acidification. Under article 61, States Parties must ensure that the maintenance of the living resources in the exclusive economic zone is not endangered by overexploitation. Conservation and management measures must be informed by the best available science. States Parties are required to take into account relevant environmental and economic factors, including the impact of climate change and ocean acidification. This entails the application of the precautionary approach and an ecosystem approach. The obligation imposed on States Parties under article 119 of the Convention substantially replicates that of article 61, as the conservation duty of all States in the high seas and of the coastal State in the exclusive economic zone is fundamentally the same.

(b) Obligations under articles 63, 64 and 118 of the Convention

419. The importance of the obligation on cooperation in addressing climate change impacts and ocean acidification has already been dealt with by the Tribunal above (see paras. 294 to 321). The obligation to cooperate in conserving living marine resources is found not only in articles 61, 117 and 119 but also in other provisions of the Convention, in particular, articles 63, 64 and 118.

420. Article 63 of the Convention reads:

> *Stocks occurring within the exclusive economic zones of two or more coastal States or both within the exclusive economic zone and in an area beyond and adjacent to it*
>
> 1. Where the same stock or stocks of associated species occur within the exclusive economic zones of two or more coastal States, these States shall seek, either directly or through appropriate subregional or regional organizations, to agree upon the measures necessary to coordinate and ensure the conservation and development of such stocks without prejudice to the other provisions of this Part.

> 2. Where the same stock or stocks of associated species occur both within the exclusive economic zone and in an area beyond and adjacent to the zone, the coastal State and the States fishing for such stocks in the adjacent area shall seek, either directly or through appropriate subregional or regional organizations, to agree upon the measures necessary for the conservation of these stocks in the adjacent area.

421. In the case of highly migratory species, article 64, paragraph 1, of the Convention provides:

> The coastal State and other States whose nationals fish in the region for the highly migratory species listed in Annex I shall cooperate directly or through appropriate international organizations with a view to ensuring conservation and promoting the objective of optimum utilization of such species throughout the region, both within and beyond the exclusive economic zone. In regions for which no appropriate international organization exists, the coastal State and other States whose nationals harvest these species in the region shall cooperate to establish such an organization and participate in its work.

422. As noted above, in the *SRFC Advisory Opinion*, the Tribunal clarified the obligations imposed on States by articles 63 and 64 of the Convention in the following terms:

> The Tribunal observes that the obligation to "seek to agree ..." under article 63, paragraph 1, and the obligation to cooperate under article 64, paragraph 1, of the Convention are "due diligence" obligations which require the States concerned to consult with one another in good faith, pursuant to article 300 of the Convention. The consultations should be meaningful in the sense that substantial effort should be made by all States concerned, with a view to adopting effective measures necessary to coordinate and ensure the conservation and development of shared stocks.
> (*Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015, ITLOS Reports 2015,* p. 4, at pp. 59-60, para. 210)

423. The Tribunal is of the view that the above clarifications provided in the *SRFC Advisory Opinion* are relevant in the context of climate change impacts and ocean acidification. The obligation to "seek to agree …" under article 63, paragraph 1, and the obligation to cooperate under article 64, paragraph 1, of the Convention require States, *inter alia*, to consult with one another in good faith with a view to adopting effective measures necessary to coordinate and ensure the conservation and development of shared stocks, taking into account the impacts of climate change and ocean acidification on living marine resources.

424. Article 118 of the Convention reads:

> *Cooperation of States in the conservation and management of living resources*
>
> States shall cooperate with each other in the conservation and management of living resources in the areas of the high seas. States whose nationals exploit identical living resources, or different living resources in the same area, shall enter into negotiations with a view to taking the measures necessary for the conservation of the living resources concerned. They shall, as appropriate, cooperate to establish subregional or regional fisheries organizations to this end.

According to this provision, States Parties have the specific obligation to cooperate in taking measures necessary for the conservation of living marine resources in the high seas that are threatened by climate change impacts and ocean acidification.

425. The Fish Stocks Agreement establishes an enhanced framework for the conservation and management of straddling and highly migratory fish stocks that is relevant to climate-driven shifts in the distribution of fish stocks. Article 5 of the Fish Stocks Agreement establishes general principles for the conservation and management of such stocks, including the precautionary approach (in accordance with article 6), an ecosystem approach and the protection of biodiversity. Article 7 of the Fish Stocks Agreement requires States, *inter alia*, to consult on necessary conservation measures, without prejudice to the sovereign rights of coastal States for the purpose of exploring and exploiting, conserving and managing the living marine resources within areas under national jurisdiction, and the right of all States for their nationals to engage in fishing on the high seas.

426. The Tribunal is of the view that articles 5 and 7 of the Fish Stocks Agreement may provide guidance in responding to distributional changes and range shifts of stocks due to climate change and ocean acidification, and inform the relevant provisions of Parts V and VII of the Convention.

427. According to the WGII 2022 Report, “[b]y altering physiological responses, projected changes in ocean warming … will modify growth, migration, distribution, competition, survival and reproduction (*very high confidence*)” of marine life (WGII

2022 Report, p. 400). The Report further states that the "[c]limate-driven movement of fish stocks is causing commercial, small-scale, artisanal and recreational fishing activities to shift poleward and diversify harvests (*high confidence*)" (WGII 2022 Report, pp. 381-382). The Tribunal observes that many uncertainties remain about the extent to which the impacts of climate change and ocean acidification may be manifested in particular regions. It notes that article 192 of the Convention requires States to anticipate risk, depending on the circumstances.

428. To conclude, articles 63, 64, and 118 of the Convention impose specific obligations on States Parties to cooperate, directly or through appropriate international organizations, in implementing conservation and management measures with regard to straddling and highly migratory species and other living resources of the high seas. This obligation requires States Parties, *inter alia*, to consult with one another in good faith with a view to adopting effective measures necessary to coordinate and ensure the conservation and development of shared stocks, taking into account the impacts of climate change and ocean acidification on living marine resources. Articles 5 and 7 of the Fish Stocks Agreement may provide guidance in responding to distributional changes and range shifts of stocks as a result of climate change and ocean acidification.

(c) Obligation under article 196 of the Convention

429. The possibility of significant and harmful changes to the marine environment, as a consequence of the introduction of alien species to a particular part of the marine environment due to climate change and ocean acidification, invokes article 196 of the Convention. Article 196, paragraph 1, reads:

> States shall take all measures necessary to prevent, reduce and control pollution of the marine environment resulting from the use of technologies under their jurisdiction or control, or the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes thereto.

430. Some participants in the present proceedings expressed the view that in responding to Question (b), the Tribunal might have to determine whether other impacts of climate change which would not fall within the definition of pollution could

give rise to specific obligations to protect the marine environment from a future threat. It was suggested that this scenario might occur, for example, were certain invasive species to move in response to ocean warming or changes in ocean currents. Article 196, paragraph 1, of the Convention was identified as relevant in this regard.

431. The Tribunal notes that this provision contains two distinct obligations: the first, concerning the use of technologies, was addressed in the context of Question (a) (see para. 231 above); and the second, concerning the introduction of alien or new species, flows from the general obligation to protect and preserve the marine environment under article 192 of the Convention.

432. The second obligation under article 196, paragraph 1, of the Convention addresses a concern distinct from that of pollution of the marine environment *stricto sensu*, as defined in article 1, paragraph 1, subparagraph 4, of the Convention. The Tribunal notes that this provision is designed to address the disturbance of the ecological balance of the marine environment as a result of human activities which are not pollution, such as the introduction of alien or new living organisms. This is manifested in the proviso stated in paragraph 2 of article 196, which reads: “This article does not affect the application of this Convention regarding the prevention, reduction and control of pollution of the marine environment.” The obligation to take necessary measures concerning the introduction of alien or new species to a particular part of the marine environment, as provided for in article 196, paragraph 1, was not intended to be controlled by the definition of “pollution of the marine environment” as stated in article 1, paragraph 1, subparagraph 4, of the Convention.

433. Article 196 of the Convention may be invoked only where the introduction of alien or new species “may cause significant and harmful changes” to the marine environment. The Tribunal notes that this threshold is also applied in article 206, on the assessment of potential effects of activities, although it is not defined in the Convention. In this regard, the Tribunal observes that the ILC commentary on article 2, paragraph (a), of the Draft articles on Prevention of Transboundary Harm from Hazardous Activities, defining the “Risk of causing significant transboundary harm”, states:

> The term “significant” is not without ambiguity and a determination has to be made in each specific case. It involves more factual considerations than legal determination. It is to be understood that *“significant” is something more than “detectable” but need not be at the level of “serious” or “substantial”.* The harm must lead to a real detrimental effect [and] … [s]uch detrimental effects must be susceptible of being measured by factual and objective standards.
> (Draft articles on Prevention of Transboundary Harm from Hazardous Activities, with commentaries 2001, *Yearbook of the International Law Commission*, 2001, vol. II, Part Two, p. 148, at p. 152, para. (4))

434. The Tribunal notes that in establishing a threshold, article 196 of the Convention uses the word “may”, which implies the precautionary approach. It is sufficient that the introduction of non-indigenous species to a particular part of the marine environment due to climate change impacts and ocean acidification may have a real detrimental effect for article 196 to be engaged.

435. According to the WGII 2022 Report,

> [n]on-indigenous marine species are major agents of ocean and coastal biodiversity change, and climate and non-climate drivers interact to support their movement and success (*high confidence*) … . At times, non-indigenous species act invasively and outcompete indigenous species, causing regional biodiversity shifts and altering ecosystem function, as seen in the Mediterranean region (*high confidence*) … . Warming-related range expansions of non-indigenous species have directly or indirectly decreased commercially important fishery species and nursery habitat.
> (WGII 2022 Report, p. 456)

436. The Tribunal finds that the second clause of article 196, paragraph 1, of the Convention requires States to take appropriate adaptive measures to prevent, reduce and control pollution from the introduction of non-indigenous species as a result of climate change impacts and ocean acidification which may cause significant and harmful changes to the marine environment. This does not affect the application of the Convention regarding the prevention, reduction and control of pollution of the marine environment.

4. Area-based management tools

437. Some participants in the proceedings argued that rapidly implementing area-based management tools, including marine protected areas (hereinafter “MPAs”),

both within and beyond national jurisdiction, is one of the most effective ways to implement article 192 of the Convention in relation to climate change impacts and ocean acidification.

438. There is support in the WGII 2022 Report for the use of area-based management tools, including MPAs, as a realistic response strategy to climate change. It states:

> MPAs and other marine spatial-planning tools have great potential to address climate-change mitigation and adaptation in ocean and coastal ecosystems, if they are designed and implemented in a coordinated way that takes into account ecosystem vulnerability and responses to projected climate conditions, considers existing and future ecosystem uses and non-climate drivers, and supports effective governance (*high confidence*).
> (WGII 2022 Report, p. 483)

439. The Tribunal observes that the term "marine protected area" is not found in the Convention. It notes that Article 2 of the CBD defines "[p]rotected area" as a "geographically defined area which is designated or regulated and managed to achieve specific conservation objectives." State practice in support of implementing MPAs in areas beyond national jurisdiction is based on regional treaties and collaborative arrangements, as evidenced, for example, in the practice of Contracting Parties to the Convention for the Protection of the Marine Environment of the North-East Atlantic (hereinafter "the OSPAR Convention"), which was adopted on 22 September 1992 and entered into force on 25 March 1998. The OSPAR Convention recognizes

> that it may be desirable to adopt, on the regional level, more stringent measures with respect to the prevention and elimination of pollution of the marine environment or with respect to the protection of the marine environment against the adverse effects of human activities than are provided for in international conventions or agreements with a global scope.
> (Preamble, eleventh paragraph)

440. The Tribunal notes that Part XII of the Convention does not preclude States from adopting more rigorous measures to protect and preserve the marine environment than provided for therein. However, such measures must be consistent with the Convention and other rules of international law. The Tribunal notes that the recently adopted BBNJ Agreement expresses the need for a global framework under

the Convention to better address the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction and provides for the use of area-based management tools, including MPAs.

IX. Operative clause

441. For these reasons,

THE TRIBUNAL,

(1) Unanimously

Decides **that it has jurisdiction to give the advisory opinion requested by the Commission.**

(2) Unanimously

Decides **to respond to the request for an advisory opinion submitted by the Commission**.

(3) Unanimously

Replies **to Question (a) as follows:**

(a) Anthropogenic GHG emissions into the atmosphere constitute pollution of the marine environment within the meaning of article 1, paragraph 1, subparagraph 4, of the Convention.

(b) Under article 194, paragraph 1, of the Convention, States Parties to the Convention have the specific obligations to take all necessary measures to prevent, reduce and control marine pollution from anthropogenic GHG emissions and to endeavour to harmonize their policies in this connection. Such measures should be determined objectively, taking into account, *inter alia*, the best available science and

relevant international rules and standards contained in climate change treaties such as the UNFCCC and the Paris Agreement, in particular the global temperature goal of limiting the temperature increase to 1.5°C above pre-industrial levels and the timeline for emission pathways to achieve that goal. The scope and content of necessary measures may vary in accordance with the means available to States Parties and their capabilities. The necessary measures include, in particular, those to reduce GHG emissions.

(c) The obligation under article 194, paragraph 1, of the Convention to take all necessary measures to prevent, reduce and control marine pollution from anthropogenic GHG emissions is one of due diligence. The standard of due diligence is stringent, given the high risks of serious and irreversible harm to the marine environment from such emissions. However, the implementation of the obligation of due diligence may vary according to States' capabilities and available resources.

(d) Under article 194, paragraph 2, of the Convention, States Parties have the specific obligation to take all measures necessary to ensure that anthropogenic GHG emissions under their jurisdiction or control do not cause damage by pollution to other States and their environment, and that pollution from such emissions under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights. This obligation applies to a transboundary setting and is a particular obligation in addition to the obligation under article 194, paragraph 1. It is also an obligation of due diligence. The standard of due diligence under article 194, paragraph 2, can be even more stringent than that under article 194, paragraph 1, because of the nature of transboundary pollution.

(e) In terms of specific sources of pollution, marine pollution from anthropogenic GHG emissions can be characterized as pollution from land-based sources, pollution from vessels, or pollution from or through the atmosphere.

(f) Under articles 207 and 212 of the Convention, States Parties have the specific obligation to adopt laws and regulations to prevent, reduce and control marine pollution from GHG emissions from land-based sources and from or through the atmosphere, respectively, taking into account internationally agreed rules,

standards and recommended practices and procedures contained, *inter alia*, in climate change treaties such as the UNFCCC and the Paris Agreement. To this effect, States Parties have the specific obligations to take other necessary measures and, acting especially through competent international organizations or diplomatic conference, to endeavour to establish global and regional rules, standards and recommended practices and procedures.

(g) Under article 211 of the Convention, States Parties have the specific obligation to adopt laws and regulations to prevent, reduce and control marine pollution from GHG emissions from vessels flying their flag or of their registry, which must at least have the same effect as that of generally accepted international rules and standards established through the competent international organization or general diplomatic conference.

(h) Under articles 213 and 222 of the Convention, States Parties have the specific obligation to enforce their national laws and regulations and to adopt laws and regulations and take other measures necessary to implement applicable international rules and standards established through competent international organizations or diplomatic conference to prevent, reduce and control pollution of the marine environment from anthropogenic GHG emissions from land-based sources and from or through the atmosphere, respectively.

(i) Under article 217 of the Convention, States Parties have the specific obligation to ensure compliance by vessels flying their flag or of their registry with applicable international rules and standards established through the competent international organization or general diplomatic conference and with their laws and regulations for the prevention, reduction and control of marine pollution from GHG emissions from vessels. To this end, they shall adopt laws and regulations and take other measures necessary for their implementation.

(j) Articles 197, 200 and 201, read together with articles 194 and 192 of the Convention, impose specific obligations on States Parties to cooperate, directly or through competent international organizations, continuously, meaningfully and in good faith, in order to prevent, reduce and control marine pollution from

anthropogenic GHG emissions. Under article 197, States Parties have the specific obligation to cooperate in formulating and elaborating rules, standards and recommended practices and procedures, consistent with the Convention and based on available scientific knowledge, to counter marine pollution from anthropogenic GHG emissions. Under article 200, States Parties have the specific obligations to cooperate to promote studies, undertake scientific research and encourage the exchange of information and data on marine pollution from anthropogenic GHG emissions, its pathways, risks and remedies, including mitigation and adaptation measures. Under article 201, States Parties have the specific obligation to establish appropriate scientific criteria on the basis of which rules, standards and recommended practices and procedures are to be formulated and elaborated to counter marine pollution from anthropogenic GHG emissions.

(k) Under article 202 of the Convention, States Parties have the specific obligation to assist developing States, in particular vulnerable developing States, in their efforts to address marine pollution from anthropogenic GHG emissions. This article provides for the obligation of appropriate assistance, directly or through competent international organizations, in terms of capacity-building, scientific expertise, technology transfer and other matters. Article 203 reinforces the support to developing States, in particular those vulnerable to the adverse effects of climate change, by granting them preferential treatment in funding, technical assistance and pertinent specialized services from international organizations.

(l) Articles 204, 205 and 206 of the Convention impose on States Parties specific obligations of monitoring, publishing the reports thereof and conducting environmental impact assessments as a means to address marine pollution from anthropogenic GHG emissions. Under article 204, paragraph 1, States Parties have the specific obligation to endeavour to observe, measure, evaluate and analyse the risks or effects of pollution of the marine environment from anthropogenic GHG emissions. Under article 204, paragraph 2, States Parties have the specific obligation to keep under continuing surveillance the effects of activities they have permitted, or in which they are engaged, in order to determine whether such activities are likely to pollute the marine environment through anthropogenic GHG emissions. Under article 205, States Parties have the specific obligation to publish

the results obtained from monitoring the risks or effects of pollution from such emissions or to communicate them to the competent international organizations for their dissemination. Under article 206, States Parties have the specific obligation to conduct environmental impact assessments. Any planned activity, either public or private, which may cause substantial pollution to the marine environment or significant and harmful changes thereto through anthropogenic GHG emissions, including cumulative effects, shall be subjected to an environmental impact assessment. Such assessment shall be conducted by the State Party under whose jurisdiction or control the planned activity will be undertaken with a view to mitigating and adapting to the adverse effects of such emissions on the marine environment. The result of such assessment shall be reported in accordance with article 205 of the Convention.

(4) Unanimously

***Replies* to Question (b) as follows:**

(a) The Tribunal's response to Question (a) is relevant to its response to Question (b). Subparagraphs (j), (k) and (l) of operative paragraph (3) are of particular relevance in this regard.

(b) The obligation under article 192 of the Convention to protect and preserve the marine environment has a broad scope, encompassing any type of harm or threat to the marine environment. Under this provision, States Parties have the specific obligation to protect and preserve the marine environment from climate change impacts and ocean acidification. Where the marine environment has been degraded, this obligation may call for measures to restore marine habitats and ecosystems. Article 192 of the Convention requires States Parties to anticipate risks relating to climate change impacts and ocean acidification, depending on the circumstances.

(c) This obligation is one of due diligence. The standard of due diligence is stringent, given the high risks of serious and irreversible harm to the marine environment from climate change impacts and ocean acidification.

(d) Under article 194, paragraph 5, of the Convention, States Parties have the specific obligation to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life from climate change impacts and ocean acidification.

(e) Under articles 61 and 119 of the Convention, States Parties have the specific obligations to take measures necessary to conserve the living marine resources threatened by climate change impacts and ocean acidification. In taking such measures, States Parties shall take into account, *inter alia*, the best available science and relevant environmental and economic factors. This obligation requires the application of the precautionary approach and an ecosystem approach.

(f) The obligation to seek to agree under article 63, paragraph 1, and the obligation to cooperate under article 64, paragraph 1, of the Convention, require States Parties, *inter alia*, to consult with one another in good faith with a view to adopting effective measures necessary to coordinate and ensure the conservation and development of shared stocks. The necessary measures on which consultations are required must take into account the impacts of climate change and ocean acidification on living marine resources. Under article 118 of the Convention, States Parties have the specific obligation to cooperate in taking measures necessary for the conservation of living marine resources in the high seas that are threatened by climate change impacts and ocean acidification.

(g) Under article 196 of the Convention, States Parties have the specific obligation to take appropriate measures to prevent, reduce and control pollution from the introduction of non-indigenous species due to the effects of climate change and ocean acidification which may cause significant and harmful changes to the marine environment. This obligation requires the application of the precautionary approach.

Done in English and French, both texts being equally authoritative, in the Free and Hanseatic City of Hamburg, this twenty-first day of May, two thousand and twenty-four, in three copies, one of which will be placed in the archives of the

Tribunal and the others transmitted to the Commission of Small Island States on Climate Change and International Law and to the United Nations.

(signed)
Albert J. HOFFMANN,
President

(signed)
Ximena HINRICHS OYARCE,
Registrar

Judge JESUS, availing himself of the right conferred on him by article 125, paragraph 2, of the Rules of the Tribunal, appends his declaration to the Advisory Opinion of the Tribunal.

(initialled) J.L.J.

Judge PAWLAK, availing himself of the right conferred on him by article 125, paragraph 2, of the Rules of the Tribunal, appends his declaration to the Advisory Opinion of the Tribunal.

(initialled) S.P.

Judge KULYK, availing himself of the right conferred on him by article 125, paragraph 2, of the Rules of the Tribunal, appends his declaration to the Advisory Opinion of the Tribunal.

(initialled) M.K.

Judge KITTICHAISAREE, availing himself of the right conferred on him by article 125, paragraph 2, of the Rules of the Tribunal, appends his declaration to the Advisory Opinion of the Tribunal.

(initialled) K.K.

Judge INFANTE CAFFI, availing herself of the right conferred on her by article 125, paragraph 2, of the Rules of the Tribunal, appends her declaration to the Advisory Opinion of the Tribunal.

(initialled) M.T.I.C.

Final report of the Study Group on sea-level rise in relation to international law

2025

Adopted by the International Law Commission at its seventy-sixth session, in 2025, and submitted to the General Assembly as a part of the Commission's report covering the work of that session (A/80/10, annex I). The report will appear in *Yearbook of the International Law Commission, 2025*, vol. II, Part Two.

Final report of the Study Group on sea-level rise in relation to international law

A. Introduction

1. In recent years, sea-level rise has become a subject of great importance for the international community. It is having an increasingly direct impact on many essential aspects of life for low-lying coastal States and small island developing States, and especially for their populations. Many other States are also likely to be indirectly affected, through, for example, the displacement of persons or lack of access to resources. Sea-level rise has become a global phenomenon that is creating global problems, with an impact on the international community as a whole.

2. According to scientific studies and reports,[1] climate change-related sea-level rise will accelerate in the future. As a result, the inundation of low-lying coastal areas and of islands will make these areas increasingly less habitable and, in some cases, even uninhabitable, resulting in their partial or full depopulation.

3. According to the 2030 Agenda for Sustainable Development, adopted by the General Assembly in 2015:

> Climate change is one of the greatest challenges of our time and its adverse impacts undermine the ability of all countries to achieve sustainable development. Increases in global temperature, sea-level rise, ocean acidification and other climate change impacts are seriously affecting coastal areas and low-lying coastal countries, including many least developed countries and small island developing States. The survival of many societies, and of the biological support systems of the planet, is at risk.[2]

4. The factual consequences of climate change-related sea-level rise prompt a number of important questions in three main areas of international law: (a) the law of the sea; (b) statehood; and (c) the protection of persons affected by sea-level rise. These three subtopics reflect the legal implications of sea-level rise for the constituent elements of the State, are interconnected and should be examined together.

5. Sea-level rise has been the subject of discussions in the main organs of the United Nations. The Security Council considered the agenda item entitled "Sea-level rise: implications for international peace and security" at its 9260th meeting, on 14 February 2023,[3] and the General Assembly held an informal plenary meeting on existential threats of sea-level rise amid the climate crisis on 3 November 2023.[4] On 16 January 2024, the

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[1] For example, Intergovernmental Panel on Climate Change, *Climate Change 2013: The Physical Science Basis – Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, Cambridge University Press, 2013); Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation and Vulnerability – Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, Cambridge University Press, 2022); and Intergovernmental Panel on Climate Change, *The Ocean and Cryosphere in a Changing Climate: Special Report of the Intergovernmental Panel on Climate Change* (Cambridge, Cambridge University Press, 2022).

[2] General Assembly resolution 70/1 of 25 September 2015, para. 14.

[3] See S/PV.9260 and S/PV.9260 (Resumption 1). See also S/2023/79.

[4] See https://www.un.org/pga/78/2023/10/20/letter-from-the-president-of-the-general-assembly-informal-plenary-meeting-on-sea-level-rise-3-nov-concept-note/.

General Assembly decided to convene a high-level plenary meeting on 25 September 2024 to address the existential threats posed by sea-level rise.[5]

6. The high-level plenary meeting was held in New York on 25 September 2024, on the overall theme of "Addressing the threats posed by sea-level rise".[6] During the high-level meeting, many delegations welcomed the work of the Commission on the topic, and the hope was expressed that the Commission's work could constitute a foundational pillar to resolving open legal questions in relation to sea-level rise and providing practical solutions.[7] The General Assembly acknowledged the ongoing work of the Study Group and encouraged States to share their views on the various aspects of the topic with the Commission.[8] A one-day high-level plenary meeting of the General Assembly is due to be held at its eighty-first session to continue discussions with the intention of adopting a declaration on the issue of sea-level rise.[9]

7. Sea-level rise in relation to climate change has been addressed in regional and bilateral declarations and initiatives,[10] and has been raised, *inter alia*, in advisory proceedings before the International Tribunal for the Law of the Sea,[11] the International Court of Justice[12] and the Inter-American Court of Human Rights.[13]

B. Mandate and work of the Study Group

8. At its seventieth session (2018), the Commission decided to recommend the inclusion of the topic "Sea-level rise in relation to international law" in its long-term programme of work.[14] The Federated States of Micronesia had submitted a written request to that effect, which was taken into consideration by the members of the Commission who proposed the topic.[15] Subsequently, in its resolution 73/265 of 22 December 2018, the General Assembly noted the inclusion of the topic in the long-term programme of work of the Commission.

9. At its seventy-first session (2019), the Commission decided to include the topic in its programme of work. The Commission also decided to establish an open-ended Study Group on the topic, to be co-chaired, on a rotating basis, by Mr. Bogdan Aurescu, Mr. Yacouba Cissé, Ms. Patrícia Galvão Teles, Ms. Nilüfer Oral and Mr. Juan José Ruda Santolaria.[16] The topic would include three subtopics: issues related to the law of the sea,

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[5] General Assembly decision 78/544 of 16 January 2024. Seventy-eighth session, 53rd plenary meeting, 16 January 2024; see https://press.un.org/en/2024/ga11258.doc.htm.

[6] General Assembly resolution 78/319 of 1 August 2024, para. 1. See also https://www.un.org/pga/78/high-level-meeting-on-sea-level-rise.

[7] Secretary-General's summary of the high-level meeting on addressing the threats posed by sea-level rise, para. 21.

[8] General Assembly resolution 78/319, preamble. See also the oral statements by Ireland and Antigua and Barbuda at the high-level meeting, available at https://webtv.un.org/en/asset/k1d/k1dftbxgfe.

[9] General Assembly decision 78/558 of 1 August 2024. See also the oral statement of the President of the General Assembly at the closing of the plenary segment of the high-level meeting, available at https://webtv.un.org/en/asset/k1x/k1xrvxcm7f.

[10] A/CN.4/783, paras. 339–351.

[11] *Ibid.*, paras. 352–361.

[12] *Ibid.*, paras. 362–380.

[13] *Ibid.*, paras. 381–384.

[14] *Official Records of the General Assembly, Seventy-third Session, Supplement No. 10* (A/73/10), para. 369.

[15] *Ibid.*, annex B, para. 7.

[16] *Official Records of the General Assembly, Seventy-fourth Session, Supplement No. 10* (A/74/10), para. 265.

issues related to statehood and issues related to the protection of persons affected by sea-level rise.

10. The mandate of the Study Group was to undertake a mapping exercise concerning the legal questions raised by sea-level rise and interrelated issues, in order to assist States in developing practicable solutions to respond effectively to the legal issues arising from sea-level rise.[17]

11. The protection of the environment, climate change *per se*, causation, responsibility and liability under international law were excluded from the topic, as provided in the syllabus for the topic prepared in 2018.[18] Moreover, the aim of the topic would not be to propose modifications to existing international law, such as the United Nations Convention on the Law of the Sea.[19]

12. During the period from 2020 to 2024, the Co-Chairs examined each of the three subtopics in a series of four papers: the first issues paper,[20] the second issues paper,[21] and an additional paper to each issues paper.[22] All of the papers were issued with selected bibliographies.[23] The papers presented a set of preliminary observations of the Co-Chairs, along with summaries of the debates of the Study Group, which were commented on by States in the Sixth Committee, as reflected in the annual reports of the Commission.

13. The open-ended Study Group convened in 2021, 2022, 2023, 2024 and 2025. Summaries of the work of the Study Group may be found respectively in: chapter IX of the 2021 annual report of the Commission, on the subtopic of issues related to the law of the sea;[24] chapter IX of the 2022 annual report of the Commission, on the subtopics of issues related to statehood and to the protection of persons affected by sea-level rise;[25] chapter VIII of the 2023 annual report of the Commission, on the subtopic of issues related to the law of the sea;[26] chapter X of the 2024 annual report of the Commission, on the subtopics of issues related to statehood and to the protection of persons affected by sea-level rise;[27] and chapter IV of the 2025 annual report of the Commission, referring to all subtopics.[28]

14. The first issues paper,[29] on the subtopic of issues related to the law of the sea, was considered by the Study Group at the seventy-second session of the Commission (2021). Issues covered included the following: (a) the possible legal effects of sea-level rise on the baselines and outer limits of the maritime spaces measured from the baselines, on maritime delimitations, and on the exercise of sovereign rights and jurisdiction of the

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17 A/73/10, annex B, para. 18.

18 *Ibid.*, para. 14.

19 *Ibid.* United Nations Convention on the Law of the Sea (Montego Bay, 10 December 1982), United Nations, *Treaty Series*, vol. 1833, No. 31363, p. 3.

20 A/CN.4/740 and Corr.1.

21 A/CN.4/752.

22 A/CN.4/761 and A/CN.4/774.

23 A/CN.4/740/Add.1, A/CN.4/752/Add.1, A/CN.4/761/Add.1 and A/CN.4/774/Add.1.

24 *Official Records of the General Assembly, Seventy-sixth Session, Supplement No. 10* (A/76/10), paras. 247–296.

25 *Official Records of the General Assembly, Seventy-seventh Session, Supplement No. 10* (A/77/10), paras. 153–237.

26 *Official Records of the General Assembly, Seventy-eighth Session, Supplement No. 10* (A/78/10), paras. 128–230.

27 *Official Records of the General Assembly, Seventy-ninth Session, Supplement No. 10* (A/79/10), paras. 331–417.

28 *Official Records of the General Assembly, Eightieth Session, Supplement No. 10* (A/80/10), paras. 37–76.

29 A/CN.4/740 and Corr.1 and Add.1.

coastal State and its nationals, as well as on the rights of third States and their nationals in maritime spaces in which boundaries or baselines had been established, including the possible legal effects of sea-level rise on islands insofar as their role in the construction of baselines and in maritime delimitations was concerned; and (b) the possible legal effects of sea-level rise on the status of islands, including rocks, and on the maritime entitlements of a coastal State with fringing islands, and the legal status of artificial islands, reclamation or island fortification activities as response/adaptive measures to sea-level rise. A presentation on the practice of African States regarding maritime delimitation was given to the Study Group during the session. The first issues paper presented a number of preliminary observations.

15. At the seventy-second session of the Commission, the Study Group held eight meetings, from 1 to 4 June and on 6, 7, 8 and 19 July 2021. At its 3550th meeting, on 27 July 2021, the Commission took note of the joint oral report of the Co-Chairs of the Study Group. During discussions on the first issues paper, members of the Study Group recognized the importance of the topic and the legitimacy of the concerns expressed by those States affected by sea-level rise, together with the need to approach the topic in full appreciation of its urgency. The discussions concluded with suggestions for additional study by the Co-Chairs.[30]

16. The additional paper to the first issues paper[31] was considered by the Study Group at the seventy-fourth session of the Commission (2023). On the basis of the exchanges of views during meetings of the Study Group in 2021, the following issues and principles were studied in the additional paper: the issue of "legal stability" in relation to sea-level rise, with a focus on baselines and maritime zones; the immutability and intangibility of boundaries; fundamental changes of circumstances (*rebus sic stantibus*); the effects of the potential situation whereby overlapping areas of the exclusive economic zones of opposite coastal States, delimited by bilateral agreement, no longer overlapped, and the issue of objective regimes; effects of the situation whereby an agreed land boundary terminus ended up being located out at sea; the judgment of the International Court of Justice in the *Maritime Delimitation in the Caribbean Sea and the Pacific Ocean (Costa Rica v. Nicaragua)* case;[32] the principle that "the land dominates the sea"; historic waters, title and rights; equity; permanent sovereignty over natural resources; possible loss or gain by third States; nautical charts and their relationship to baselines, maritime boundaries and the safety of navigation; and the relevance of other sources of law. The additional paper presented a number of preliminary observations.

17. At the seventy-fourth session of the Commission, the Study Group held 12 meetings, from 26 April to 4 May and from 3 to 5 July 2023. At its 3655th meeting, on 3 August 2023, the Commission considered and adopted the report of the Study Group on its work at that session. During its discussions, the Study Group engaged in an exchange of views on the principles examined in the additional paper, as reflected in the annual report of the Commission.[33]

18. The second issues paper,[34] on the subtopics of statehood and the protection of persons affected by sea-level rise, was considered by the Study Group at the seventy-third session of the Commission (2022). Issues covered on the subtopic of statehood included the criteria for the creation of a State, some representative examples of actions taken by

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[30] See A/76/10, chap. IX. See also *ibid.*, para. 20.

[31] A/CN.4/761 and Add.1.

[32] *Maritime Delimitation in the Caribbean Sea and in the Pacific Ocean (Costa Rica v. Nicaragua)* and *Land Boundary in the Northern Part of Isla Portillos (Costa Rica v. Nicaragua), Judgment, I.C.J. Reports 2018*, p. 139.

[33] See A/78/10, chap. VIII. See also *ibid.*, para. 18.

[34] A/CN.4/752 and Add.1.

States and other subjects of international law, concerns relating to the phenomenon of sea-level rise in relation to statehood and some measures that had been taken in that regard, and possible alternatives for the future in respect of statehood. With regard to the subtopic of the protection of persons affected by sea-level rise, the second issues paper contained a mapping exercise, covering the following: the existing legal frameworks potentially applicable to the protection of persons affected by sea-level rise, and State practice and the practice of relevant international organizations and bodies regarding the protection of persons affected by sea-level rise. Preliminary observations and guiding questions for the Study Group were presented on both subtopics.

19. At the seventy-third session of the Commission, the Study Group held nine meetings, from 20 to 31 May and on 6, 7 and 21 July 2022. At its 3612th meeting, on 5 August 2022, the Commission considered and adopted the report of the Study Group on its work at that session. The work of the Study Group during that session on the subtopics of issues related to statehood and to the protection of persons affected by sea-level rise is summarized in the annual report of the Commission.[35]

20. The additional paper to the second issues paper[36] was considered by the Study Group at the seventy-fifth session of the Commission (2024). Issues covered on the subtopic of statehood included the configuration of a State as a subject of international law and continued existence of the State, scenarios relating to statehood in the context of sea-level rise and the right of the State to provide for its preservation, and possible alternatives for addressing the phenomenon in relation to statehood. On the subtopic of the protection of persons affected by sea-level rise, the additional paper contained an analysis of the relevant legal issues and a set of 12 possible elements for legal protection of persons affected by sea-level rise. Preliminary observations were presented on both subtopics.

21. At the seventy-fifth session of the Commission, the Study Group held 10 meetings, from 30 April to 9 May and from 2 to 8 July 2024. The Study Group also had before it a memorandum prepared by the Secretariat identifying elements in the previous work of the Commission that could be relevant for its future work on the topic, in particular in relation to statehood and the protection of persons affected by sea-level rise.[37] At its 3694th and 3698th meetings, on 26 July and 30 July 2024 respectively, the Commission considered and subsequently adopted the report of the Study Group on its work at that session. The work of the Study Group during that session on the subtopic of issues related to statehood and to the protection of persons affected by sea-level rise is summarized in the annual report of the Commission.[38]

22. In accordance with the syllabus,[39] the Co-Chairs of the Study Group prepared a final consolidated report on sea-level rise in relation to international law, which was based on their previous work, the debates in the Study Group and statements made by States in the Sixth Committee and other forums. In addition, the Co-Chairs addressed the possible interlinkages between the three subtopics.[40] A draft final report of the Study Group was contained in an annex to the final consolidated report of the Co-Chairs.

23. At the seventy-sixth session of the Commission (2025), the Study Group held six meetings, from 28 April to 5 May 2025. The Study Group had before it the final consolidated report of the Co-Chairs. At its 3720th meeting, on 26 May 2025, the

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[35] See A/77/10, chap. IX. See also *ibid.*, para. 19.
[36] A/CN.4/774 and Add.1.
[37] A/CN.4/768.
[38] See A/79/10, chap. X. See also *ibid.*, paras. 40–45.
[39] A/73/10, annex B, paras. 19, 20 and 26.
[40] A/CN.4/774, para. 314.

Commission adopted the present final report of the Study Group on the topic "Sea-level rise in relation to international law" and concluded its consideration of the topic.[41]

C. Conclusions of the Study Group

24. The following conclusions are to be considered within the context of climate change-related sea-level rise, and are intended as a summary of the key findings of the work of the Study Group. The conclusions are based on the issues papers by the Co-Chairs and the additional papers thereto; the discussions in the Study Group, as summarized in the annual reports of the Commission; comments and observations by States; other relevant developments, such as regional declarations, regional and bilateral initiatives, and discussions in United Nations bodies, that constitute evidence of State practice on the topic of sea-level rise in relation to international law; and international judicial proceedings and decisions.

1. Law of the sea[42]

25. Climate change-related sea-level rise was not an issue of concern for the international community at the time of the negotiation and adoption of the United Nations Convention on the Law of the Sea. Consequently, no provisions were included in the Convention to address climate change-related sea-level rise in relation to baselines, the outer limits of maritime zones and the status of islands and of archipelagic waters.

26. Many States Parties have stressed that the United Nations Convention on the Law of the Sea is of fundamental importance, its integrity is to be preserved and any solution relating to climate change-related sea-level rise must be consistent with it.

27. The preservation of legal stability, certainty and predictability is directly linked to an interpretation of the United Nations Convention on the Law of the Sea and other rules of international law that allows for the preservation of baselines, the outer limits of maritime zones and associated entitlements notwithstanding changes to the coastline as a result of climate change-related sea-level rise. Bringing into question maritime boundaries agreed upon or otherwise duly established under international law owing to climate change-related sea-level rise would risk creating legal uncertainty and fresh disputes over maritime areas that had previously been settled.

28. An approach that required baselines and the outer limits of maritime zones to shift landward as a result of sea-level rise having led to the physical submergence of land territory could create an inequitable outcome whereby third States could gain rights in maritime zones, in particular in the exclusive economic zone, to the detriment of the coastal State.

29. There is no provision in the United Nations Convention on the Law of the Sea that imposes an obligation on States to update baselines, geographical coordinates or the outer limits of maritime zones once duly deposited with the Secretary-General in accordance with the Convention, and nor is there evidence of widespread State practice to that effect. Consequently, States are under no obligation to update baselines, geographical coordinates or the outer limits of maritime zones to account for changes as a result of climate change-related sea-level rise.

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[41] See A/80/10, chap. IV.

[42] For the relevant sections of the reports of the Co-Chairs, see A/CN.4/740 and Corr.1, paras. 56–218; A/CN.4/761, paras. 16–280; and A/CN.4/783, paras. 12–26. For summaries of the relevant parts of the debate in the Study Group, as given in the annual reports of the Commission, see A/76/10, chap. IX; A/78/10, chap. VIII; and A/80/10, chap. IV.

30. There is no provision in the United Nations Convention on the Law of the Sea or other rules of international law that imposes an obligation on States to update charts in relation to baselines, geographical coordinates or the outer limits of maritime zones, and nor is there evidence of widespread State practice to that effect. Consequently, States are under no obligation to update charts to account for changes as a result of climate change-related sea-level rise, without prejudice to issues relating to the safety of navigation.

31. There is no provision in the United Nations Convention on the Law of the Sea or other rules of international law that prevents States from preserving existing and lawfully established baselines, geographical coordinates and outer limits of maritime zones once duly deposited with the Secretary-General.

32. There is widespread support among States for the 2021 Pacific Islands Forum Declaration on Preserving Maritime Zones in the Face of Climate Change-related Sea-level Rise.[43] General State practice exists, as evidenced by statements expressing widespread and consistent support, with regard to the preservation of baselines and the outer limits of maritime zones notwithstanding sea-level rise, in the interests of maintaining legal stability, certainty and predictability.

33. The principle of fundamental change of circumstances (*rebus sic stantibus*), as codified in article 62, paragraph 1, of the Vienna Convention on the Law of Treaties,[44] does not apply to maritime delimitation agreements, as they are covered by the exclusion for treaties establishing boundaries under article 62, paragraph 2 (a).

34. The preservation of baselines and maritime entitlements notwithstanding sea-level rise is consistent with the principle of permanent sovereignty over natural resources.

2. Statehood[45]

35. With regard to States particularly affected by climate change-related sea-level rise, there is strong support among States for the continuity of statehood and sovereignty and the maintenance of international legal personality and membership of international organizations.[46]

36. The continuity of statehood has been affirmed in the 2023 Pacific Islands Forum Declaration on the Continuity of Statehood and the Protection of Persons in the Face of Climate Change-related Sea-level Rise[47] and the 2024 Declaration of the Heads of State and Government of the Alliance of Small Island States on Sea-level Rise and Statehood.[48]

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[43] Pacific Islands Forum Declaration on Preserving Maritime Zones in the Face of Climate Change-related Sea-level Rise, 6 August 2021. Available at https://forumsec.org/publications/declaration-preserving-maritime-zones-face-climate-change-related-sea-level-rise.

[44] Vienna Convention on the Law of Treaties (Vienna, 23 May 1969), United Nations, *Treaty Series*, vol. 1155, No. 18232, p. 331.

[45] For the relevant sections of the reports of the Co-Chairs, see A/CN.4/752, paras. 72–226 and 417–424; A/CN.4/774, paras. 69–123 and 294–301; and A/CN.4/783, paras. 27–46. For summaries of the relevant parts of the debate in the Study Group, as given in the annual reports of the Commission, see A/77/10, chap. IX, in particular paras. 193–213, 228–231 and 235; A/79/10, chap. X, in particular paras. 349–394; and A/80/10, chap. IV, in particular paras. 61–63.

[46] A/CN.4/783, paras. 148–299 and 335.

[47] Pacific Islands Forum Declaration on the Continuity of Statehood and the Protection of Persons in the Face of Climate Change-related Sea-level Rise, 9 November 2023. Available at https://forumsec.org/publications/reports-communique-52nd-pacific-islands-leaders-forum-2023.

[48] Declaration of the Heads of State and Government of the Alliance of Small Island States on Sea-level Rise and Statehood, 23 September 2024. Available at https://aosis-website.azurewebsites.net/aosis-leaders-declaration-on-sea-level-rise-and-statehood/.

These declarations have received widespread support from other States and regional organizations.[49]

37. State practice reveals a degree of flexibility in the interpretation and application of international law with regard to issues of statehood. Article 1 of the 1933 Convention on the Rights and Duties of States,[50] whose criteria are generally accepted for the purpose of identifying a State as a person or subject of international law, does not address the question of the continuity of statehood in the context of climate change-related sea-level rise.

38. The continuity of statehood in the context of climate change-related sea-level rise is based on the right of States to preserve their existence, the right of each State to preserve its territorial integrity and the right of peoples to self-determination. It is linked to legal stability, certainty and predictability, the sovereign equality of States, permanent sovereignty of States over their natural resources, the maintenance of international peace and security, equity and justice, and international cooperation. The continuity of statehood is essential to avoid situations of loss of nationality and statelessness.

39. In addressing situations regarding statehood in the context of climate change-related sea-level rise, the preservation of statehood correlates with the right of peoples, including Indigenous Peoples, to self-determination, as they cannot be deprived of the continuity of statehood without their consent. Respect for the right to self-determination requires consultation in good faith as to alternatives that may be applied to preserve their identities and international legal personality.

40. In order to preserve their rights, States particularly affected by climate change-related sea-level rise are entitled to take the measures available to them under international law, including adaptation measures, in response to different levels of submergence of land surface or challenges to habitability, while upholding their obligations under international law.

41. Regarding the enjoyment of the benefits of statehood and the related practical aspects, international cooperation is essential, in particular between States particularly affected by climate change-related sea-level rise and other members of the international community. Such cooperation should be based on respect for the sovereignty of the affected States and considerations of equity and fairness.

3. Protection of persons affected by sea-level rise[51]

42. Although the current international legal frameworks that are potentially applicable to the protection of persons affected by sea-level rise are fragmented and not specific to sea-level rise, such persons remain rights holders and States have a duty to respect, protect and fulfil their human rights obligations, including with regard to civil, political, economic, social and cultural rights.

43. In view of the absence of a dedicated legal framework, there is a need to develop legal and practical solutions to better protect persons affected by sea-level rise, including those who remain *in situ* and those who are internally or externally displaced by it.

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[49] A/CN.4/783, paras. 35–46, 58–61, 345, 372, 402, 409, 414, 416–418, 421 and 423.

[50] Convention on the Rights and Duties of States (Montevideo, 26 December 1933), League of Nations, *Treaty Series*, vol. CLXV, No. 3802, p. 19.

[51] For the relevant sections of the reports of the Co-Chairs, see A/CN.4/752, paras. 227–416 and 425–437; A/CN.4/774, paras. 124–293, 302–306; and A/CN.4/783, paras. 47–56. For summaries of the relevant parts of the debate in the Study Group, as given in the annual reports of the Commission, see A/77/10, chap. IX, in particular paras. 214–220, 232, 233 and 236; A/79/10, chap. X, in particular paras. 395–413; and A/80/10, chap. IV, in particular paras. 64–70.

44. On the basis of the current international legal frameworks, elements for legal protection of persons affected by sea-level rise include the protection of human dignity as a guiding principle for any action to be taken in the context of climate change-related sea-level rise.

45. Other elements for specific legal protection of persons affected by sea-level rise include the need for a combination of needs-based and rights-based approaches as the basis for protection, the need to delineate the human rights obligations of the different human rights duty bearers involved, namely the affected State and the host States, and the particular need to protect persons in vulnerable situations, who may be disproportionately affected.

46. There are various practical tools that may be used to address the protection of persons affected by sea-level rise, such as special climate mobility agreements, pathways and other alternative arrangements, humanitarian visas and similar administrative policies, and measures to prevent the loss of nationality and statelessness.

47. Affected persons and communities should be kept informed, be consulted and be encouraged to participate in decisions affecting them in the context of climate change-related sea-level rise.

48. As affirmed in the 2023 Pacific Islands Forum Declaration on the Continuity of Statehood and the Protection of Persons in the Face of Climate Change-related Sea-level Rise[52] and the 2024 Declaration of the Heads of State and Government of the Alliance of Small Island States on Sea-level Rise and Statehood,[53] international cooperation is required to protect persons and communities affected by sea-level rise, including to protect their culture, cultural heritage, identity and dignity and to meet their essential needs.

4. Cross-cutting issues and interlinkages between the subtopics[54]

49. The three subtopics – the law of the sea, statehood and protection of persons affected by sea-level rise – are interconnected. The continuity of statehood is directly linked to the preservation of maritime zones and entitlements and is integral to the preservation of existing rights, as the sovereignty of the State is the foundation for sovereign rights over natural resources. The preservation of maritime zones and entitlements is also directly linked to the economic well-being and livelihoods of the population, including present and future generations. At the same time, States have an important duty in ensuring the protection of their people, and continuity of statehood is necessary and fundamental to the provision of that protection, including to prevent situations of loss of nationality and statelessness. The ability of the State to continue to fulfil its human rights obligations is, therefore, also connected with the issue of continuity of statehood.

50. A common thread among the subtopics is the question as to how to preserve and protect existing rights in the face of the serious and unprecedented consequences of sea-level rise for States, especially small island States and low-lying coastal States.

51. Legal stability, certainty and predictability, as broadly recognized by many States, serve as cross-cutting principles for the preservation of maritime zones and their outer limits, together with their associated entitlements, as well as for the continuity of

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[52] 2023 Pacific Islands Forum Declaration (see footnote 47 above), para. 10.

[53] 2024 Declaration (see footnote 48 above), eighth preambular paragraph.

[54] For the relevant section of the report of the Co-Chairs, see A/CN.4/783, paras. 393–480. For the summary of the relevant part of the debate in the Study Group, see A/80/10, chap. IV, in particular paras. 71–76.

statehood, self-determination, permanent sovereignty over natural resources, the protection of affected populations, and the maintenance of international peace and security and avoidance of conflict.

52. The preservation of existing lawful rights in relation to sea-level rise is essential for the continuity of statehood, the preservation of maritime entitlements and the protection of persons affected by sea-level rise. It is closely related to the principle of equity. A practical legal response to climate change-related sea-level rise should be one that prevents the loss of existing lawful rights, whether territorial or maritime. Sea-level rise cannot be a reason for any State to lose the rights associated with statehood, such as maritime entitlements, self-determination and permanent sovereignty over natural resources. Moreover, the preservation of such rights is fundamental for the State to be able to continue to promote, respect and fulfil the human rights of affected persons.

53. Fundamental principles of international law, such as sovereign equality of States, respect for territorial integrity, the right of peoples to self-determination, permanent sovereignty over natural resources, and the promotion and protection of human rights are recognized as customary international law and should not be undermined by climate change-related sea-level rise. Any legal solutions to address the territorial and maritime consequences of climate change-related sea-level rise need to be based on considerations of legal stability, certainty and predictability, sovereign equality of States, equity and the right of peoples to self-determination.

54. Equity, as another cross-cutting principle, applies to sea-level rise as the States most affected, in particular small island developing States, have contributed the least to climate change-related sea-level rise but will suffer the impact disproportionately to other States. The preservation of maritime zones, continuity of statehood and protection of affected persons are therefore matters of equity and solidarity.

55. The duty to cooperate is a principle of international law. States have an obligation to work together, as appropriate, to address the adverse effects of climate change-induced sea-level rise, particularly on the States most affected. The duty to cooperate is rooted, *inter alia*, in the Charter of the United Nations,[55] the Universal Declaration of Human Rights,[56] the Declaration on the Principles of International Law concerning Friendly Relations and Cooperation among States in accordance with the Charter of the United Nations,[57] and the United Nations Convention on the Law of the Sea. It is also a foundational principle of international human rights law, the law of the sea, climate change law, environmental law and disaster law. Cooperation among States and other members of the international community is critical to address the impact of sea-level rise in relation to the preservation of maritime zones, statehood and the protection of affected persons.

56. The interpretation and application of existing international law should be based on an approach that meets the needs of States and populations affected in the face of the possible adverse consequences of climate change-related sea-level rise to ensure legal stability, certainty and predictability, equity and the preservation of existing rights.

5. Possible ways forward

57. In the light of the above conclusions of the Study Group, the following approaches, individually or combined, may be considered by States, international organizations and

[55] Article 1, paragraph 3, Article 55 and Article 56.

[56] Universal Declaration of Human Rights, General Assembly resolution 217 A (III) of 10 December 1948, preamble.

[57] General Assembly resolution 2625 (XXV) of 24 October 1970, annex, para. 1.

other relevant actors in developing practicable solutions to effectively address the international legal issues arising from climate change-induced sea-level rise.

(a) Interpretation of existing instruments and rules of international law

58. An approach may be adopted that allows for the interpretation and application of existing instruments and rules of international law to take into account the adverse impact of sea-level rise. For example:

(a) existing instruments and rules of international law may be applied in a manner that addresses the impact of sea-level rise so as to allow for a contemporary interpretation, and that takes into account the duty to cooperate, equity, solidarity, self-determination, permanent sovereignty over natural resources, the preservation of existing rights and the maintenance of legal stability, certainty and predictability as cross-cutting principles that apply to the legal consequences of sea-level rise;

(b) an interpretative statement or a subsequent agreement, as appropriate, may be adopted by the States Parties to the United Nations Convention on the Law of the Sea or by the General Assembly regarding the preservation of baselines and maritime zones under the Convention and other rules of international law;

(c) the elements for legal protection of persons affected by sea-level rise, as discussed in the Study Group, may be taken into account, as appropriate, in the interpretation and application of relevant instruments.

(b) Development of instruments and mechanisms specific to climate change-related sea-level rise

59. States, the General Assembly and other international organizations may, as appropriate, adopt binding or non-binding instruments and develop mechanisms that specifically address the legal issues arising from sea-level rise. For example:

(a) the General Assembly of the United Nations and the relevant organs of other international organizations may adopt resolutions or declarations in relation to the continuity of statehood, the preservation of sovereignty and the maintenance of membership of the United Nations and other international organizations;

(b) binding or non-binding instruments applicable to the protection of persons affected by sea-level rise may be adopted at the bilateral, regional or international level, and may include, as appropriate and *inter alia*, the elements for legal protection of persons affected by sea-level rise, as discussed in the Study Group;

(c) mechanisms may be developed within the United Nations or other international organizations and bodies, as appropriate, including at the regional level, to strengthen cooperation in addressing the adverse impact of climate change-related sea-level rise.
