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The Historical Evolution of the Concept of Integrated Ocean Management: From Origins to Contemporary Practice

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1. Initial Formulation and Soft Law Instruments

Integrated Ocean Management (IOM) represents a comprehensive approach to ocean governance that seeks to balance ecological resilience, sustainable livelihoods, and economic growth. While there is no universally accepted definition, IOM is generally understood as an ecosystem-based, holistic, and knowledge-driven framework for managing marine resources. Its main purpose is to reconcile human activities with the health of marine ecosystems, ensuring long-term sustainability of oceans as both an environmental and socio-economic space.

The intellectual roots of IOM go back to the early 1960s, when rapid progress in oceanography underlined the interconnectedness of marine systems. UNESCO's establishment of the Intergovernmental Oceanographic Commission (IOC) in 1961 laid the foundation for international scientific cooperation on ocean issues. Later, complementary platforms, such as the United Nations Division for Ocean Affairs and the Law of the Sea (DOALOS, 1982) and the Global Ocean Observing System (GOOS, 1991), further expanded this cooperative agenda.

Despite this early scientific momentum, the political articulation of an "integrated" approach to oceans only gained visibility with the 1972 Stockholm Conference on the Human Environment. Principle 13 of the Stockholm Declaration explicitly urged states to adopt integrated planning approaches in development, linking economic activities with environmental protection. This marked the first international recognition of a need to manage oceans as complex, interconnected systems rather than on a purely sectoral or resource-by-resource basis.

The 1992 United Nations Conference on Environment and Development (Rio Summit) represented a critical milestone in the evolution of IOM. Agenda 21, particularly Chapter 17, introduced a vision of oceans and coastal areas as forming "an integrated whole" essential for sustainable development. It called for new management approaches that were integrated, precautionary, and anticipatory. This formalized the link between environmental sustainability and holistic management of marine ecosystems.

Agenda 21 became a touchstone for subsequent soft law instruments, embedding IOM principles in global policy discourse. It encouraged the integration of ecological, social, and economic dimensions into marine management, foreshadowing later emphasis on ecosystem-based management (EBM) and marine spatial planning.

The Food and Agriculture Organization's **Code of Conduct for Responsible Fisheries (1995)** further advanced this shift by embedding an ecosystem perspective into fisheries governance. Though voluntary, it represented one of the first sectoral applications of IOM principles.

Later, the **Rio+20 Declaration (2012)** reiterated the centrality of oceans for global sustainability, highlighting commitments to marine biodiversity and sustainable use. Paragraph 158 underscored oceans as integral components of Earth's ecosystems, linking them to intergenerational equity.

The **World Ocean Assessment I (2014)**, prepared under DOALOS, consolidated scientific understanding of ocean degradation and supported the need for integrated governance approaches. The subsequent adoption of the **2030 Agenda for Sustainable Development** and **SDG 14 (Life Below Water)** institutionalized ocean sustainability as a global policy priority, covering issues from overfishing to acidification.

The declaration of the **UN Decade of Ocean Science for Sustainable Development (2021–2030)** reaffirmed these commitments, creating a long-term scientific platform for ocean knowledge and its integration into governance. Most recently, the **Sustainable Ocean Plan (2024)** launched by the High-Level Panel for a Sustainable Ocean Economy further cemented IOM as a guiding principle for global policy coordination.

2. The content of the term IOM

The historical development of IOM reveals several regulatory elements:

- Extension of governance to both living and non-living resources.
- Emphasis on anticipatory and precautionary measures (as per Principle 15 of the Rio Declaration).
- The need for cooperation and coordination across scales, particularly involving small island developing states.
- Integration of multiple and competing uses of ocean space, requiring balanced decision-making among diverse stakeholders.

Over time, IOM evolved to include two major conceptual innovations:

- **Ecosystem-Based Management (EBM):** Recognizing oceans as ecosystems with interconnected natural and human components.
- **Integrated Coastal Zone Management (ICZM):** Bridging land–sea interactions to ensure sustainable governance of coasts and adjacent marine spaces.

The most recent phase of IOM development integrates climate change, biodiversity loss, and marine pollution into its mandate, reflecting the urgency of the climate crisis and accelerating ocean degradation.

3. The Law of the Sea Convention and IOM

The **United Nations Convention on the Law of the Sea (UNCLOS, 1982)** is widely seen as the "Constitution for the Oceans." It provides a comprehensive legal framework for the peaceful use of the seas and the sustainable management of marine resources. While UNCLOS does not explicitly reference IOM—having been negotiated before its emergence—the Convention embodies principles that can be dynamically interpreted in line with IOM.

UNCLOS's preamble notes that "the problems of ocean space are closely interrelated and need to be considered as a whole," implicitly supporting an integrated approach. Part XII of the Convention introduces binding duties to protect and preserve the marine environment, and multiple articles establish obligations of cooperation, information sharing, and equitable access, all of which align with IOM principles.

At the same time, UNCLOS retains a largely sectoral structure, dividing responsibilities by zones and activities. In the Exclusive Economic Zone (EEZ), for example, sovereign rights over resource exploitation are balanced against conservation, with "due regard" for other states. Articles 61–65 emphasize cooperation in managing living resources, migratory species, and marine mammals, underscoring shared responsibilities.

The principle of the **common heritage of humankind** in relation to the deep seabed ("the Area") introduces distributive justice considerations that resonate with IOM's holistic vision. Yet overall, UNCLOS remains more a framework than an operational model of IOM.

Legal scholarship is divided on whether UNCLOS needs amendment to reflect IOM more explicitly. Some argue it is outdated, while others stress that its flexible principles allow for interpretation in line with IOM.

This interpretative approach has been reinforced by the jurisprudence of the **International Tribunal for the Law of the Sea (ITLOS)**. Advisory Opinions in 2011, 2015, and 2024 progressively strengthened obligations of cooperation and due diligence. The 2024 Advisory Opinion, in particular, recognized greenhouse gas emissions as a form of marine pollution, requiring states to integrate climate considerations into marine policies under Article 197 UNCLOS. This represents a significant alignment between UNCLOS and IOM principles.

The **2023 Agreement on the Conservation and Sustainable Use of Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ)** marks a major legal development. Article 7 explicitly incorporates IOM as a guiding principle, formalizing its recognition in a binding treaty. This milestone elevates IOM from soft law into the treaty-based framework of global ocean governance, underscoring the shift towards holistic, ecosystem-based approaches.

4. The Transition to Operational Practice – National Implementation

4.1 Introduction

The practical implementation of IOM has been uneven across states. Canada and Norway stand out as pioneers, each developing integrated management frameworks adapted to their geographical, ecological, and socio-economic contexts. Both countries have long coastlines, resource-dependent economies, and Arctic identities, making them reliant on healthy marine ecosystems.

4.2 Norway

Norway's integrated management system emerged from the 2001–2002 "Clean and Rich Oceans" report and has since been institutionalized through recurring management plans. The first Integrated Management Plan (IMP) was adopted in 2006 for the Barents Sea–Lofoten area, and later extended to other marine regions. A unified plan now covers all Norwegian seas, with updates every four years, most recently in 2024.

Key features include:

- An **ecosystem-based management principle**, integrating scientific knowledge and cross-sectoral coordination.
- Designation of **particularly valuable and vulnerable areas (SVOs)**, now numbering 19.
- Mapping and monitoring to link industry activities with environmental consequences.

These plans act as strategic policy tools rather than binding legal frameworks. They set overarching priorities and facilitate coordination but leave sectoral authorities responsible for implementation. This reliance on non-binding instruments, combined with a strong sectoral legal framework, creates fragmentation and risks subordinating environmental concerns to economic priorities. Scholars argue this weakens Norway's ability to fully realize IOM.

4.3 Canada

Canada operationalized IOM through the **Oceans Act (1996, amended 2019)**, which dedicates a specific section to integrated management. Articles 28–39 enshrine principles of sustainable development, precaution, and integration. Unlike Norway, Canada has codified IOM into binding legislation.

The Act emphasizes:

- Coordination of activities across estuaries, coastal waters, and marine areas.
- The **precautionary approach** as a central decision-making principle.
- Institutionalized **stakeholder engagement**, particularly with Indigenous communities, ensuring inclusive governance.

Canada's approach thus represents a stronger legal commitment to IOM, embedding it directly in statutory law and practice.

5. Conclusion

The historical evolution of IOM reflects the convergence of science, law, and policy in ocean governance. From early recognition of integrated planning at Stockholm (1972), through Agenda 21 (1992), and the development of soft law instruments, to the embedding of IOM principles in UNCLOS interpretation and the BBNJ Agreement, the concept has steadily matured.

National experiences in Norway and Canada illustrate the possibilities and limitations of IOM in practice. While Canada's legislative framework demonstrates strong commitment, Norway's reliance on non-binding instruments highlights the risks of sectoral fragmentation. Both, however, show serious efforts to incorporate ecosystem-based management, precautionary principles, and stakeholder engagement.

Ultimately, IOM is not merely about balancing economic, social, and environmental dimensions. It also demands genuine cooperation among all stakeholders—states,

communities, industries, and civil society—and the adoption of anticipatory measures to ensure ocean sustainability in the face of accelerating climate change and biodiversity loss. The growing incorporation of IOM into binding instruments such as the BBNJ Agreement signals that the international community is moving towards institutionalizing this holistic framework as the cornerstone of global ocean governance.

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