

Supporting Harmonization of Small-Scale Fisheries Data Systems in the Western Indian Ocean

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Key Messages

- Small-scale fisheries underpin food security, livelihoods, and coastal economies across the Western Indian Ocean (WIO). Yet despite widespread data collection, fragmented and incompatible systems prevent countries from managing shared resources effectively. **Without urgent data harmonization, regional stock assessments, ecosystem-based management, and evidence-based policy will remain out of reach.**
- There is **strong political and institutional support and growing momentum** for harmonization, including agreement on standardized indicators, open data principles with safeguards, and participatory monitoring.
- A phased, practical roadmap can deliver national and regional data integration if accompanied by **clear institutional instruments, sustainable financing, and capacity building.**
- Regional platforms such as the South West Indian Ocean Fisheries Commission (**SWIOFC**) and the Consortium for the Conservation of Coastal and Marine Ecosystems in the Western Indian Ocean (**WIO C**) are critical institutional anchors for **scaling harmonization and embedding it in policy processes**, while supporting the ecosystem approach to small-scale fisheries in the WIO.

Background & Context

- Small scale fisheries (SSF) are central to livelihoods, food security, and coastal economies in the WIO. The subsector supports the livelihoods of approximately 25 million people across the region. Over 1 million people are directly and indirectly employed in fisheries, the majority within SSF.
- Most WIO countries collect small-scale fisheries information. However, **fragmented fisheries data systems are undermining regional fisheries governance, ecosystem-based management, and sustainable blue economy planning** in the WIO.
- **Data harmonization is therefore critical.** It involves integrating diverse types and sources of SSF data in compatible and comparable formats, enabling for collective, science-based decision making at national and regional levels.
- This publication presents the outputs of the **special session on « Fisheries data harmonization in the WIO: Building a regional data ecosystem for resilient small-scale fisheries »** organized by WorldFish and IRD at the **13th scientific conference of the Western Indian Ocean Marine Science Association (WIOMSA)**, Mombasa, in 2025. The session aimed at « Strengthening Regional Science–Policy Linkages for COP 12 of the Nairobi Convention » by (1) discussing solutions for harmonizing SSF data across the WIO, and (2) developing a strategic roadmap for national and regional data integration. A total of 60 participants from Kenya, Tanzania, Mozambique, Comoros, Madagascar, South Africa, and France and representing 27 national agencies and non-governmental organizations attended the session.

What is Blocking Progress?

- **The challenge is not a lack of data, but a failure of coordination and governance.**
Significant data already exists, but without shared standards and clear governance, it cannot effectively inform policy or regional decision-making.
- **Existing systems operate in isolation and are not interoperable.**
Many fisheries data systems were developed independently under different national mandates, donor projects, and institutional priorities. Different tools and methods are used across countries and institutions, resulting in fragmented indicators, incompatible platforms, and uneven capacities.
- **There is no clear institutional leadership to drive alignment and accountability.**
Harmonization challenges in the WIO are not primarily technical. Weak coordination mechanisms, unclear institutional mandates, limited long-term financing, and concerns over data ownership and sovereignty have further slowed regional integration efforts. As a result, progress requires not only technical standardization, but also stronger governance arrangements, sustained financing, and political commitment across national and regional levels.

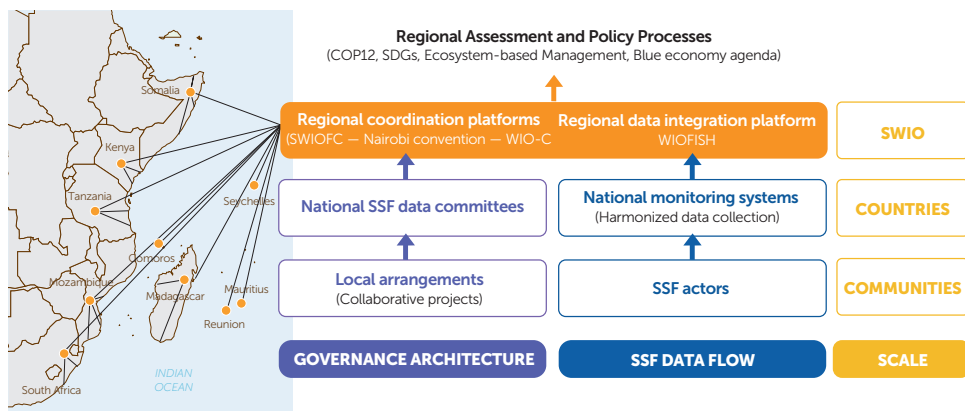
A WorldFish survey conducted across ten WIO countries and territories between June and October 2025 revealed strong support for fisheries data harmonization and open-access principles with appropriate safeguards. While stakeholders strongly supported standardized regional frameworks (88%) and formal data-sharing agreements (77%), only 48% of existing systems collect socio-economic data despite its importance for livelihoods and equity. Limited feedback and tangible benefits to fishing communities continue to undermine trust and participation, highlighting the need for interoperable national systems linked to regional governance platforms.

Towards a Regional Governance Framework

- **Advancing data harmonization will require clearer national and regional governance arrangements.** Key institutional questions remain unresolved, including leadership and hosting responsibilities, legal mandates for regional data sharing, long-term financing arrangements, data ownership and access rights, and mechanisms for accountability and dispute resolution. **Addressing these cross-scale governance dimensions will be essential for building a trusted, sustainable, and operational regional SSF data system in the WIO.**
- **Experiences from other regions** (e.g., in the Pacific and Caribbean) show that fisheries data harmonization is achievable when supported by shared standards and strong institutional coordination. **FAO has further supported interoperability** through standardized fisheries classifications and integrated digital fisheries information systems, demonstrating the value of coordinated governance, sustained financing, and common data standards.

A cross-scale roadmap for data integration in small-scale fisheries in the Western Indian Ocean

Connecting Science, Policy, and People



Connecting the regional scale with national implementation is required to move forward solutions for a harmonized, digital, and policy relevant regional SSF data ecosystem in the WIO. NGO- and research-generated SSF data should feed into national systems and, ultimately the Working Groups on Data and Statistics (WGDS) and Fisheries SocioEconomics (WGFSE) of the SWIOFC. Establishing national data governance committees within each country would help make this cross-scale collaboration effective, while the partnership between the Nairobi Convention and SWIOFC would be key in interfacing national policy and political processes with regional players such as WIO-C and WIOMSA.

Putting Fishers and Communities at the Centre

- **Effective fisheries data systems must also support the livelihoods, rights, and participation of small-scale fishing communities.** Across the WIO, socio-economic, gender, and equity dimensions remain insufficiently integrated into many SSF data systems, limiting understanding of how fisheries governance affects household welfare, inclusion, and resilience.
- Fishers and local communities often receive limited feedback or direct benefits from data collection processes, weakening trust, participation, and long-term legitimacy. **Strengthening harmonization efforts will therefore require more participatory and rights-based approaches**, including community-based monitoring, co-management systems, gender-responsive data collection, and accessible feedback mechanisms that ensure fisheries data supports both national and regional governance and local decision-making.

RECOMMENDATIONS

Policy and legal recommendations

1. Strengthen national data governance arrangements

- Clarify roles across government, research institutions, and NGOs by establishing guidelines and functions for the key players in SSF data, embedded in national processes and harmonized in regional mechanisms
- Establish or strengthen national coordination mechanisms for SSF data
- Promote clear data ownership, access, and safeguard principles including data sharing mechanisms at national and regional level

2. Invest in capacity and sustainable financing

- Strengthen technical and institutional capacity for data collection and management
- Build strategic partnerships to contribute to long-term financing
- Maintain and upgrade digital infrastructure and data systems

3. Strengthen community engagement and feedback

- Expand community-based monitoring approaches
- Improve feedback to fishers through accessible data products
- Enhance trust and participation in data systems

Scientific and technical recommendations

4. Agree on a minimum regional data framework

- Develop a core set of harmonized indicators (e.g. Catch Per Unit Effort (CPUE), species composition, catch levels, basic socio-economic variables)
- Align with existing international standards (e.g. FAO classifications)
- Allow flexibility for countries to build beyond a common baseline to include ecosystem monitoring indicators for ocean health

5. Improve interoperability between existing data systems

- Prioritize connecting existing tools rather than introducing new ones
- Promote use of shared data structures, APIs, and standardized outputs
- Support development of national and regional data pipelines (e.g. WIOFISH)

6. Leverage existing regional partnerships and platforms for coordination

- Use platforms such as SWIOFC and WIO-C to support alignment
- Facilitate knowledge exchange, pilot initiatives, and gradual scaling
- Strengthen linkages between national systems and regional processes such as of the Nairobi Convention, SWIOFC, WIO-C and scientific associations (WIOMSA, Forum of Academic and Research Institutions (FARI))

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Partnerships

