FISHERIES DATA AND E-READINESS

Have the world's fisheries entered the digital age?
Are they ready to make the transition toward electronic technologies?
Which ones have already done so, are ready to do so, or have yet to take the steps needed to prepare for such fundamental changes?

While mobile phones, laptops, tablets, scanners, e-readers, and other portable devices are found nearly everywhere around the world, this electronics boom has not completely permeated global fisheries, even those engaged in international commerce. And it has not reached the governments and private entities that do or should collect the data required to manage them responsibly.

Today, best practice guides for fisheries are filled with references to all things electronic: electronic logbooks, e-catch documentation schemes, electronic monitoring via camera systems, blockchain, and many other examples; yet, how many fisheries are utilizing these technologies in their routine operations?

THE REPORT

World Wildlife Fund commissioned the groundbreaking report on utilization of electronics and e-readiness, "Status of Electronic Collection and Reporting of Key Information in Major Fisheries," which surveyed the use of electronic information systems by wild-capture fisheries in countries that export to the world's largest markets, the EU and the US, to gain a better understanding of the global baseline.

We found that nearly all countries that are major fish exporters are not ready to fully digitalize the processes by which they collect and report their fisheries data. But a wide range exists between those that have already invested in creating the necessary capacity, infrastructure, policies, and incentives, and those that have not. And many are somewhere in between, making progress, sometimes slowly and inconsistently.

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Analysts at fisheries monitoring centers like this one in Ecuador are able to remotely track a fishing vessel's movements and monitor its operations.

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Fishing operations can be monitored with cameras onboard vessels as part of electronic monitoring systems.

Although other sectors and industries have readily embraced comparable technologies, adoption of these systems has progressed at a slower rate due to a multitude of factors including:

- **lack of resources and high-level attention at national, regional, and global levels**
- **poor prioritization**
- **insufficient coordination among government departments**
- **incompatibility of existing systems**
- **diversity of fisheries and tendency to address issues on a fishery-by-fishery basis**
- **complexity of associated supply chains**

Four of the most important types of electronic information systems utilized by fisheries are examined in the report:

Electronic Tracking	Tracks vessel movement including location, course, and speed
Electronic Monitoring	Monitors fishing operations via cameras and/or sensors installed on vessels
Electronic Reporting	Records and stores catch data for digital reporting
Electronic Traceability	Traces product movement through the supply chain

These electronic fisheries information systems (EFIS) allow for the accurate recording and transmission of fisheries data.

THE BENEFITS

EFIS facilitate better fisheries management, improve targeted enforcement of domestic requirements, and increase compliance with fisheries import data requirements like those established by the European Union Catch Certificate Scheme and the United States Seafood Import Monitoring Program.

The advancement of EFIS also aids in addressing global issues such as illegal, unreported, and unregulated (IUU) fishing, food safety, forced labor, seafood fraud, and corruption, especially through coordinated traceability efforts.

Transparency and traceability of fish and other seafood products are essential for achieving sustainability and combating these threats to marine ecosystems and coastal communities. The success of many of the most innovative, promising, and heavily promoted efforts lies in the effective and efficient use of data–data that is accurate and verifiable, and can be easily generated, stored, accessed, and exchanged in real-time.

Paper forms and handwritten records still predominate in most of the data collection and reporting systems used by fisheries.

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THE SCORES

In the report, progress toward a comprehensive EFIS is quantified for 21 major exporting countries of fish and fish products to the European Union and the United States, Table 1. The major types of EFIS were individually assessed using a scale of 0 to 5, with a higher number indicating greater adoption and implementation of the corresponding technology. A similar evaluation of 15 regional fisheries management organizations was conducted and the results can be viewed at: <https://www.worldwildlife.org/publications/status-of-electronic-collection-and-reporting-of-key-information-in-major-fisheries>.

Current status of EFIS for export fisheries from the major countries from which the EU and US import fish and fish products.

Country	Electronic Tracking	Electronic Monitoring	Electronic Reporting	Electronic Traceability
Argentina	3	4	1	0
Australia	4	3	3	2
Canada	4	3	4	1
Chile	4	4	3	2
China	3	0	2	0
Ecuador	4	2	3	2
Iceland	5	3	4	3
India	3	0	1	1
Indonesia	3	2	3	2
Japan	3	0	1	2
Mexico	3	2	2	2
Morocco	3	0	3	2
New Zealand	5	4	4	5
Norway	5	2	5	3
Peru	4	2	3	2
Philippines	4	2	3	2
Russia	5	3	3	0
South Korea	4	2	3	0
Taiwan	3	0	3	2
Thailand	4	3	3	1
Vietnam	3	0	0	0

Key

0 = No electronics proposed or required (by government or an RFMO) for any export fisheries, and no evidence found
1 = Mostly paper-based, but electronic data collection permitted
2 = Under trial in some export fisheries but not widely used or planned for wide-scale use
3 = Operational in some export fisheries but not proposed for wider-scale use
4 = Operational in some export fisheries and proposed for wide-scale use
5 = Operational in most/all export fisheries

COUNTRY CASE STUDIES

Beyond separate scoring of the four systems, the report also provides a summary conclusion for each of the 21 countries, which includes a prediction regarding achievement of a comprehensive EFIS within a five to ten year window. Additionally, the key conditions that help facilitate the successful implementation of EFIS – comprehensive legislation, governance, market orientation, NGO support, political support, financial resources and expertise – are categorized as weak, moderate, or strong, for every country.

RECOMMENDATIONS

In all sectors there is increased reliance on data. The fisheries sector needs to enlarge its capacity to develop systems and use data in a modern and efficient way. Progress in utilizing electronic data systems is uneven across the world and will continue to hinder market opportunities for some and frustrate the fight against illegal fishing. Significant investment in building data capacity needs to grow and expand exponentially. This paper lays out useful investment considerations to develop capacity.

Integration and interoperability of data systems must occur at national levels as well as regionally and globally. Real-time, interoperable exchange of data and straightforward use across platforms needs to be planned for from the beginning of a system's design.

National governments must increase internal cooperation among departments and work together to improve coordination of data collection and sharing. Countries also need to be able to share data with each other in ways that maximize the value of the data. Data should be shared and made available for both routine and extraordinary investigative and monitoring activities, and for scientific management of shared, migratory, and shifting fish stocks, as well as other uses.

Vessel Monitoring Systems (VMS), also known as electronic tracking systems, have proliferated in the fishing sector and are continuing to expand. VMS has advanced as a result of extensive promotion which includes providing users and regulators with a clear explanation of benefits and leads to increased familiarity with and acceptance of this technology. Declining costs and ministerial-level exposure and commitment have also contributed to their expansion. Other, newer methods of electronic monitoring, reporting, and traceability should receive the same treatment to maximize and accelerate uptake. Governments, industry, and civil society can work together to achieve this.

The key data elements required for sustainable fisheries management and traceability are known. They should be standardized and adopted across the entire seafood industry as an achievable foundational step. Existing systems should revise their requirements and new systems should strive to adopt what has been identified as best practice.

Visit the following page to access the full report.

https://www.worldwildlife.org/publications/status-of-electronic-collection-and-reporting-of-key-information-in-major-fisheries

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