

## **Applications of electronic reporting to improve science and management in the Caribbean.**

## **Aplicaciones de informes electrónicos para mejorar la ciencia y la gestión en el Caribe.**

## **Applications des rapports électroniques pour améliorer la science et la gestion dans les Caraïbes.**

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### **EXTENDED ABSTRACT**

Every fishery is different, but all fisheries face common challenges around effective, science-based fishery management. Effective fisheries management depends upon the collection of accurate and timely fishery dependent data. Paper-based data collection systems often result in paper “silos” and inefficient input into management processes. As our oceans face every greater challenges, data collection must become more efficient, nimble and robust to allow managers to adapt harvest controls to ever-changing conditions. Digitization of data allows data management systems to make this evolution and enables the adoption of digital technologies that can facilitate wider fishery and community benefits.

Although pen and paper is a necessity in some situations, we need to move away from it whenever possible. Transcription errors, huge amounts of human labor needed to organize and transcribe paper to database format, and the time it takes to furnish managers with actionable information are all motivating factors for moving away from paper based systems.

There are also a number of reasons why we should be moving towards electronic reporting. As well as increasing the efficiency of data collection and management we can open the door to: better scientific capacity, faster stock assessments and faster decisions, easier community involvement, more effective monitoring and enforcement, better fishing and a bigger bottom line for fishers and communities. Electronic reporting is already happening in the Caribbean. Now we need to make it the norm.

#### **Better scientific capacity**

Environmental Defense Fund (EDF) have been working in Indonesia for the last few years implementing a smartphone app called FisheriesApp, by Vericatch Solutions. Fisheries data is collected on smartphones and sent directly via cellular network to the cloud. That’s where managers can access it and apply analytical tools. This analytics module provides scientists and managers with summaries, calculated reference points and visualizations, all at the click of a button. ER enables this level of scientific capacity with minimal additional cost- a game changer for managing at scale.

#### **Faster stock assessments**

ER more real time decisions and reactivity to changing conditions thanks to a shorter time from data collection to analysis. Faster stock assessments enable faster decisions, often in response to changing conditions, all key to adaptive management is key to improving climate resilience and ER is critical for facilitating it.

#### **Easier community involvement**

Electronic reporting enables easier community involvement in both data collection and management. For example, PescaData developed by COBI is an app that helps about 500 fishers and fishing organizations in Mexico offer their products and services in the marketplace; share knowledge and seek solutions to common problems; and record catch, fishing effort, expenses, product prices, and more. Empowering communities in the management process is so much easier when data and tools are available on the cloud.

#### **Better fishing**

ER enables better and more reactive fishing. For example, bycatch and target species hotspot maps such as Ecocast (there are a number of others) can really improve fishermen’s bottom lines. But they only work if you can get data quickly-through ER.

#### **Bigger bottom line**

ER can lead to a Bigger bottom line. For example, the Belize Fisheries Department initiated an ER and traceability effort to improve fisheries management, ensure food security and improve fishermen’s bottom lines across the region. The BFD and its traceability partner ThisFish deployed a program called Tally that allows fishermen and buyers to enter catch information. Data generated from this tool provides information directly to the Fisheries Department for real-time analysis and management of the fishery. For industry providing electronic traceability helps ensure sustainably caught fish are entering premium markets, driving higher prices from seafood buyers, and generating economic security for fishing communities.

Another example is Plenumsoft Marine’s (based in Mexico) traceability app NADIR: a platform to manage operational activities, comply with international recommendations and access high-value markets. It allows users to graphically check

the traceability of fishery products in each phase of the marketing chain: capture, landing, collection, processing, export, and import.

EDF's Oceans technology solutions team is focused on catalyzing the spread of ER across the Caribbean region as well as South America. We are trying to use new technologies to give fishermen, managers, scientists, and those in the supply chain the power to establish incentives that support sustainability and to provide access to reliable, real-time, and actionable information for their benefit.

**KEYWORDS:** electronic reporting, smartphone apps, data management. .