

**Catch the Catch Data:**

**A call to enhance fisheries data generation and acquisition to support sustainable fisheries**

*Fishackathon 2014*

**Background and Philippines Country Profile**

The Philippines is an archipelagic nation composed of 7,597 islands with a coastline that measures 36,289 km and a total territorial water area of 2,200,000 km<sup>2</sup>. In 2009, the country ranked 6th among the top fish producers in the world, with its total fisheries production amounting to 5.08 million metric tons of fishery products<sup>1</sup>. In general, the Philippine fisheries sector is characterized by a high degree of resource dependence and provides direct livelihoods for an estimated 2 million people<sup>2</sup>. Statistics show that the municipal fisheries sector, i.e. small-scale fisheries operating within municipal waters (15 km from the shoreline), directly employs an overwhelming 85% of the total number of fishing operators in the country<sup>3</sup>. Sustainable management of these fisheries, therefore, is crucial not only to marine biodiversity but to economic development and sustainability as well.

Many studies have presented strong evidence that exploitation of fisheries has resulted in changes in marine ecosystem structure and functioning<sup>4,5</sup> that ultimately affect the sustainability of fisheries with significant economic and social consequences. A major challenge to fisheries scientists and managers is to identify policy options for management in areas with limited fisheries data.

In the context of the Philippines, *commercial* fisheries landings are more easily monitored and recorded by efficient forms of catch data reporting (e.g. logbooks, fisheries observer program) in compliance with regional and international commitments. However, the *small-scale* fishing sector – which is primarily subsistence and artisanal in nature – remains largely undocumented. Where data may be available from

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<sup>1</sup> Bureau of Fisheries and Aquatic Resources. Philippine Fisheries Profile, 2010. ([http://www.bfar.da.gov.ph/pages/AboutUs/maintabs/publications/pdf%20files/2010%20Fisheries%20Profile%20\(Final\).pdf](http://www.bfar.da.gov.ph/pages/AboutUs/maintabs/publications/pdf%20files/2010%20Fisheries%20Profile%20(Final).pdf))

<sup>2</sup> Green, S.J., A.T. White, J.O. Flores, M.E. Carreon III and A.E. Sia. 2003. Philippine Fisheries in Crisis: A framework for management. Coastal Resource Management Project of the Department of Environment and Natural Resources, Cebu City, Philippines, 77p.

<sup>3</sup> Bureau of Fisheries and Aquatic Resources. Philippine Fisheries Profile, 2010. ([http://www.bfar.da.gov.ph/pages/AboutUs/maintabs/publications/pdf%20files/2010%20Fisheries%20Profile%20\(Final\).pdf](http://www.bfar.da.gov.ph/pages/AboutUs/maintabs/publications/pdf%20files/2010%20Fisheries%20Profile%20(Final).pdf))

<sup>4</sup> Jackson, J.B.C., Kirby, M.X., Berger, W.H., Bjorndal, K.A., Botsford, L.W., Bourque, B.J., Brackbury, R.H., Cooke, R., Erlandson, J., Estes, J.A., Hughes, T.P., Kidwell, S., Lange, C.B., Lenihan, H.S., Pandolfi, J.M., Peterson, C.H., Steneck, R.S., Tegner, M.J. and Warner, R.R. (2001) Historical overfishing and the recent collapse of coastal ecosystems. *Science* 293, 629–638

<sup>5</sup> Pauly, D., Christensen, V., Dalsgaard, J., Froese, R. and Torres Jr., F. (1998) Fishing down marine food webs. *Science* 279, 860–863.

independent sources, these are often difficult to consolidate due to differences in methodologies for data acquisition, differences in the geographic scale and data resolution, questions on the statistical validity, and uncertainties in data accuracy. All these inefficiencies contribute to large information gaps that make the formulation of adequate and appropriate management policies a difficult challenge for fisheries management in the Philippines.

The national government agency that is primarily responsible for the management of the country's fisheries resources formally initiated the National Stock Assessment Program (NSAP) in 1997 to conduct a standardized scheme for the collection of fisheries information to enable fisheries resource assessments that are fundamental in fisheries management. Local government units (LGUs) are given the jurisdiction and management responsibilities over the utilization of municipal waters and the resources therein. Unfortunately, LGUs generally have limited capabilities and resources to conduct regular and continuous collection of even basic fisheries data in their respective localities.

To reduce the uncertainties in fisheries resources management in the Philippines, there is therefore urgency to scale-up fisheries data acquisition and generation, foremost to estimate fish production to a high degree of accuracy. This entails: 1) expanding the spatial coverage of fisheries data collection; 2) increasing the number of capable fisheries data collectors; 3) enhancing the accuracy of fisheries data collected; and 4) engaging the local stakeholders (including but not limited to the local governments, local fishers organizations and councils, and local markets and industries) to participate in the collection of fisheries data that will have a direct utility to local fisheries management. In other words, the challenge is to “catch the catch data” from the capture fisheries sector – from the smallest to the largest producers – in order to promote more informed management for sustainable fisheries in the Philippines

### **Problem Statement for the Philippines**

To promote objective and informed governance for sustainable fisheries, the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (BFAR) and USAID's Ecosystems Improved for Sustainable Fisheries (ECOFISH) Project in the Philippines outlines the following problem statement to provide context for a potential technology solution to capturing fish catch data:

***Collection of adequate catch data in the numerous small-scale fisheries in the Philippines is not reliable given inefficient techniques and lack of technology. Large information gaps render the formulation of adequate and appropriate management policies a difficult challenge.***

A solution is needed to enable data collectors in the field to collect accurate data more quickly and efficiently. The following further illustrates the context surrounding the problem of accurate fish catch data collection, and offers potential solution points.

- ***Old technology informs current data collection.*** Government-hired data collectors in the field rely on inefficient and out-of-date approaches to collect fish catch information. Current data

collection is done with a weighing scale, a meter-long ruler, a field guide for species identification, and paper data sheets which are filled out by hand.

- **Inefficient collection is slow and sometimes inaccurate.** Catch data are fundamental to be able to assess the status of fisheries, but taking measurements and recording them can take a lot of time. One or two data collectors is assigned to five landing centers at which they monitor catch data 21 days per month, per site. Current data collection practices make it difficult for data collectors to accurately log all required information. In some locations the catch data is logged only 1-2 times per week.
- **Data collectors need to record basic information from a highly diverse fish catch.** Small-scale fisherfolk are hauling in nets with many different types of fish species, all of which must be documented. Crucial information must be monitored and recorded in order to provide accurate metrics on fish catches. Illustrative information to be collected includes catch time, vessel type, gear type, catch type, catch volume, catch length, and geographical area of fishing ground. A full list of the indicators list listed in Annex A – Sample Data Spreadsheet.
- **Numerous landing sites exacerbate the need for more efficient data collection.** Currently data collection surveys reach only 2% of identified landing sites in the country. It is difficult to reach all catch landing sites as they include stretches of beach, areas near the market, and other “unofficial” catch landing sites in addition to landing centers and fish landing sites. The goal is to increase comprehensive catch data collection to 20% of all landing sites in the country.
- **Data collection is done on the shore, not on the ocean.** In order to identify the location of a catch, data collectors ask fisherfolk to point to their fishing location on a map, but there is no way to verify location accuracy.

## Acronyms

DA-BFAR	Department of Agriculture – Bureau of Fisheries and Aquatic Resources
ECOFISH	Ecosystems Improved for Sustainable Fisheries
EEZ	Exclusive Economic Zone
LGU	Local Government Unit
NSAP	National Stock Assessment Program

## Annex

### A – Example Data Spreadsheet

Ref No .	Body of Water, Fishing Ground	Sampl ing Date	Sampl ing Time	Municip ality	Landi ng Site	Gear local name	Gear Engl ish name	Time set	Date set	Time hauled	Date hauled	No . hauls	No. of fishers	Vessel type	Engine	Hp	Length of boat (m)	Height of boat (m)	Width of boat (m)	Weight of catch (kg)	Weight of sample (kg)	Notes
L06 - G01-0086	Lanuzza Bay	8/29/06	7:10	Cantilan	CL	Pukot palagod	Bottom-set gillnet	4:30	8/29/06	5:00	8/29/06	1	2	M	Briggs	16	5.49	0.64	0.51	3.00		