

Harnessing mobile technology to improve small-scale fisheries management

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Thanks to the region's mobile networks, we're using smartphones to collect fisheries data, enabling communities to monitor their own resources and to create new opportunities for communication ”

THIERRY NOHASIARIVÉLO
MOBILE DATA COLLECTION COORDINATOR

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The data deficiency challenge

The world is experiencing a marine fisheries crisis. Fisheries and aquaculture support the livelihoods of at least 10 percent of the world's population, yet over 90 percent of fish stocks are either fully fished or overfished.

At least 500 million people depend on fishing for food and livelihoods, and this dependency is particularly high in the developing world, which is home to 97% of the world's fishers, working mostly in the 'small-scale' traditional and artisanal sectors.

Reversing this trend in collapsed fisheries requires improved management, which in turn depends on accurate data on the status of stocks. Sound data are fundamental to effective marine conservation and efforts to rebuild fisheries, yet the vast majority of small-scale fisheries are unmonitored – out of sight and out of mind. Throughout much of the developing world, governments, communities and fisheries organisations lack the means to assess stocks, particularly in the so-called small-scale fisheries sector.





The initiative

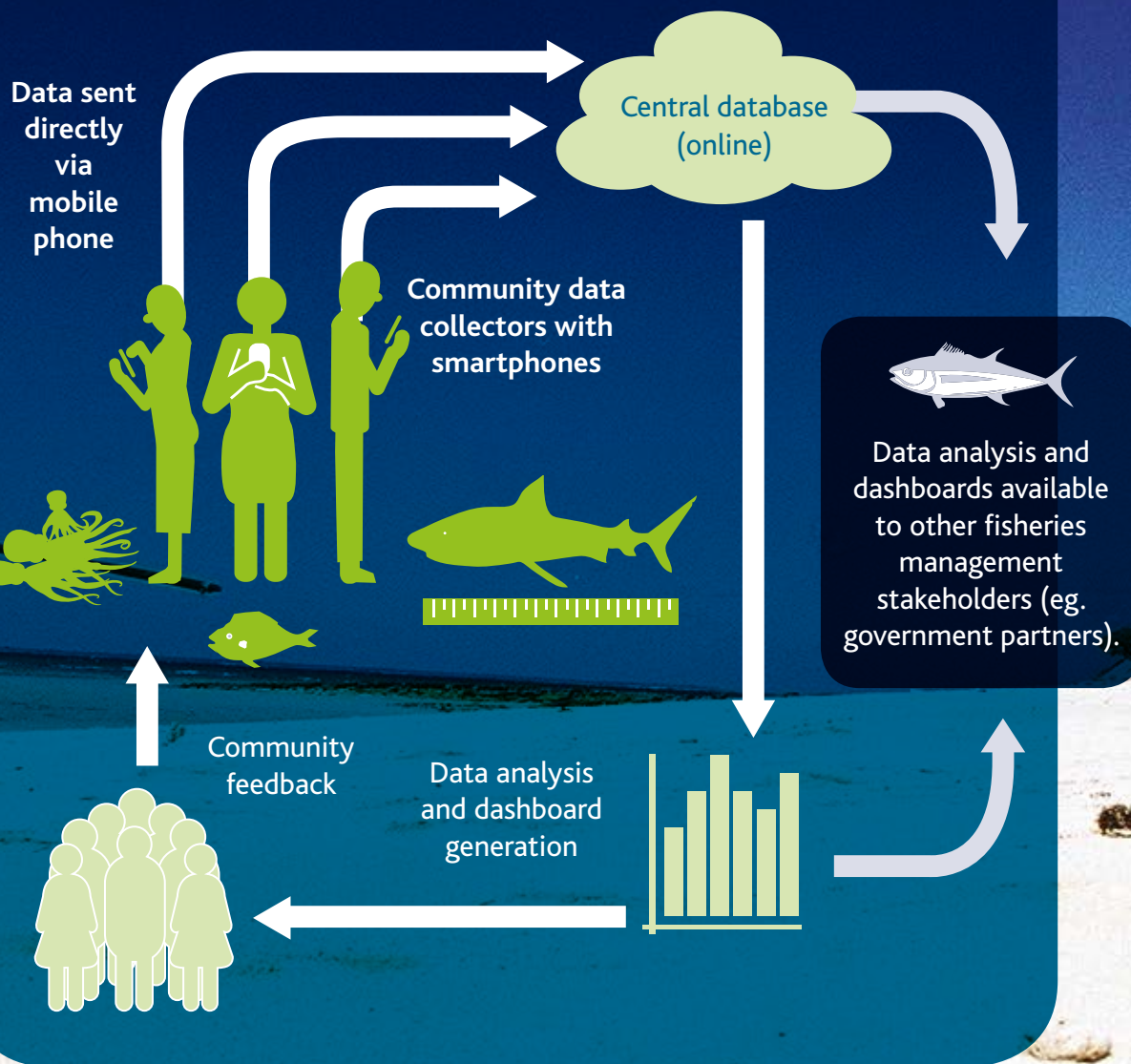
Blue Ventures is using mobile technology to address the challenge of data-deficiency in small-scale fisheries, capitalising on the rapid expansion of mobile technology and connectivity in low-income nations.

Using open access software, freely available to all, we have developed smartphone and tablet-based fisheries monitoring systems, to capture critical information on fisheries landings. First piloted monitoring shark fishery catches in remote communities on Madagascar's west coast, our work has since expanded to capture information across diverse fish and invertebrate fisheries in Madagascar and Mozambique.

Blue Ventures works closely with community members to design forms that are suitable for use by those with low levels of literacy, and limited previous experience with touchscreens and mobile devices.

By empowering communities for fisheries monitoring in this way, this approach can capture data across vast distances, at low cost, and in real time.

How are we using this technology?

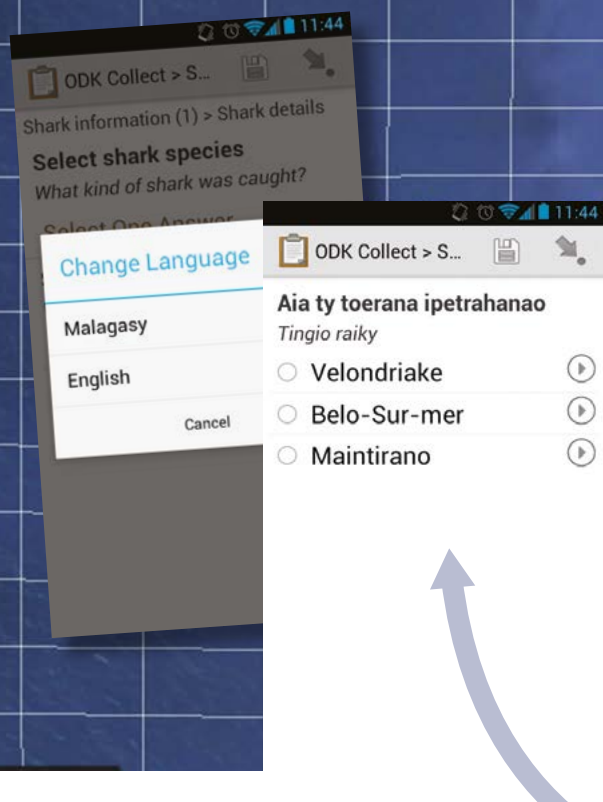


x20 increase in internet use on mobiles in next 5 years in Africa

40 community members trained to collect data via smartphones

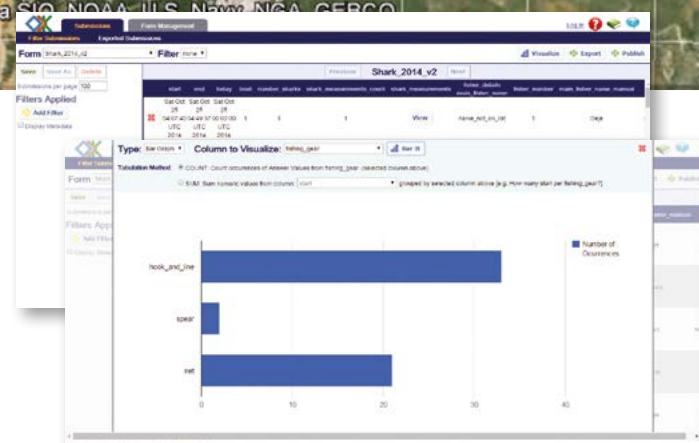
>1 billion people worldwide rely on fish as a source of protein

500 million people worldwide supported by small-scale fisheries



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geopoint_test:Altitude1	
geopoint_test:Accuracy1	



Monitoring fisheries year round, in real time

The new mobile tools enhance the accuracy, efficiency and resolution of data collection through the use of standardised, customisable forms, incorporating geographic metadata and enabling surveyors to validate records with photographs or videos where required. Catch information can be uploaded to a central cloud-based database in real time, dramatically increasing both the speed and reliability of data collection.

Where necessary, solar chargers enable community surveyors to gather data in the most remote 'off grid' environments, and the devices used can capture and store data in areas without mobile data coverage, before syncing automatically with the cloud as soon as a user accesses the nearest internet signal. For systems monitoring catches in permanently offgrid contexts with no mobile communications, such as offshore island communities, data can be manually retrieved wirelessly by a visiting technician.

Improving adaptive management

These tools dramatically increase the speed at which data become available to inform management decisions and provide the essential information on stock status needed to inform adaptive fisheries management.

Data can be viewed in near real-time, enabling direct, timely feedback to fisheries managers – whether community associations, research institutions or government fisheries authorities.

This feedback process provides a powerful and low cost means of engaging participants in fisheries monitoring and management at scale.



Growing use: from the traditional shark fishery in Madagascar to ecotourist feedback in Timor-Leste

Blue Ventures' pilot project, to monitor Madagascar's traditional shark fishery using mobile phones, focussed primarily on refining the tools and methods for training community members to use this technology along some of the remotest stretches of the country's coastline. This has necessitated developing strategies and methods that work around the country's lack of communications infrastructure – a major logistical barrier for fisheries assessment, and one that is shared with many tropical coastal developing states.

This pilot demonstrated that through mobile technology fishermen and women can be empowered to collect robust data to support fisheries management and conservation, highlighting the enormous potential for this low-cost approach to be expanded in scale, and adapted to broader-scale multi-species fisheries across different ecosystems and habitats.

We now support a [growing number of programmes](#) and initiatives employing this data collection tool, ranging from community-based monitoring of marine turtle nesting sites in the Mozambique Channel, to gathering feedback from ecotourists in Timor-Leste, monitoring crab

and sea cucumber fisheries, and registering attendance at community health clinics.

Blue Ventures' technicians continue to work closely with community members, providing training workshops and tailored guidelines to build local proficiency in harnessing the power and potential of smartphone data collection.

Long-term fisheries management

We support diverse communities, partner organisations and government agencies interested in expanding the scope of this work to tackle and overcome challenges associated with fisheries management in remote environments.

We believe that this technology will allow fisheries management to operate at a scale far beyond what has previously been possible through the use of fisheries technicians or researchers.





We rebuild tropical fisheries with coastal communities

Blue Ventures works with coastal communities to develop transformative approaches for catalysing and sustaining locally led marine conservation.

We work in places where the ocean is vital to local cultures and economies, and are committed to protecting marine biodiversity in ways that benefit coastal people. Our conservation models are designed to demonstrate that effective management improves food security and makes economic sense.

Over the past decade, our innovations have guided national fisheries policy and been replicated by communities, NGOs, businesses, donors and government agencies along thousands of kilometres of coastline. So far our work has impacted the lives of more than 150,000 coastal people.

Working holistically

Blue Ventures recognises that improving fisheries management alone is not enough to overcome the numerous and interrelated drivers of marine environmental degradation.

Our programmes in Madagascar encompass locally led marine conservation, sustainable fisheries management, community-based aquaculture and ecotourism businesses, educational scholarships and reproductive health services.

This integrated approach addresses the interconnected challenges of poor health, unmet family planning needs, environmental degradation and food insecurity in a holistic way. It enables communities to manage their resources sustainably, both now and for the future.



Communities first

Above all, we listen to community needs, responding in a sensitive and pragmatic way for lasting benefits.



Passion & belief

Our mission is urgent and critical, we believe that our models work, and we are determined to get the job done.



Valued people & effective teams

We work in diverse and inclusive teams where all members have a voice and influence. We are effective because our work is integrated across teams and projects.



Innovation & courage

We are resourceful and creative. We are prepared to take risks and challenge broken paradigms.



Openness & humility

We are an open source social enterprise. We work in a transparent and collaborative way to pass on what we learn to others who share our vision and passion.



Grounded in evidence

We have high standards and are not afraid to be self-critical. If we see that something doesn't work, we change tack until we're on the right course.

blue ventures

beyond conservation

We are grateful to our partners at the Save our Seas Foundation for supporting our efforts to develop mobile fisheries monitoring in Madagascar and to our partners and funders in the OurSeaOurLife Project (funded by the European Union, Darwin Initiative and Fondation Ensemble) for support in Mozambique.



For further information
or to discuss partnership
opportunities please contact:

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Winner, Buckminster
Fuller Challenge, 2011
For work to protect
marine resources and
improve the livelihoods of
poor coastal communities
in Madagascar.



Observer Ethical Awards,
runner-up 2010.
Blue Ventures was commended
for creating the Indian Ocean's
first replicable blueprint for
community-centred marine and
coastal conservation planning.



Responsible Tourism
Awards 2006: highly
commended for
"Best Volunteering
Organisation"



Responsible Tourism
Awards 2008: highly
commended for
"Best Volunteering
Organisation"



Responsible Tourism
Awards 2010: Winner
for "Best
volunteering
organisation"



Responsible Tourism
Awards 2012: Winner
for "Best in a
marine
environment"



Responsible
Tourism Awards
2010: Winner
for "Best
volunteering
organisation"



Ashoka &
National
Geographic
Geotourism
Challenge 2008:
finalist



Changemakers
& National
Geographic
Geotourism
Challenge 2010:
finalist



United Nations
SEED Award
2005: winner,
"Madagascar's
first experimental
community-run
MPA"



Enterprise
Young Brits 2005
& 2006: highly
commended,
"Social and
Environment"



United Nations
Development
Programme Equator
Prize 2006: the Village
of Andavadoaka,
winner (in partnership)



Skal Ecotourism
Awards 2006:
Winner, "General
Countryside"