

Harnessing mobile technology to improve small-scale fisheries management

“ Thanks to expanding mobile networks, we're extending the reach, reducing the cost and engaging more communities in fisheries assessment, building the local knowledge needed for conservation. ”

TINAH MARTIN,
SUSTAINABLE FISHERIES PROGRAMME ASSISTANT

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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. Good 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 small-scale sector.





The initiative

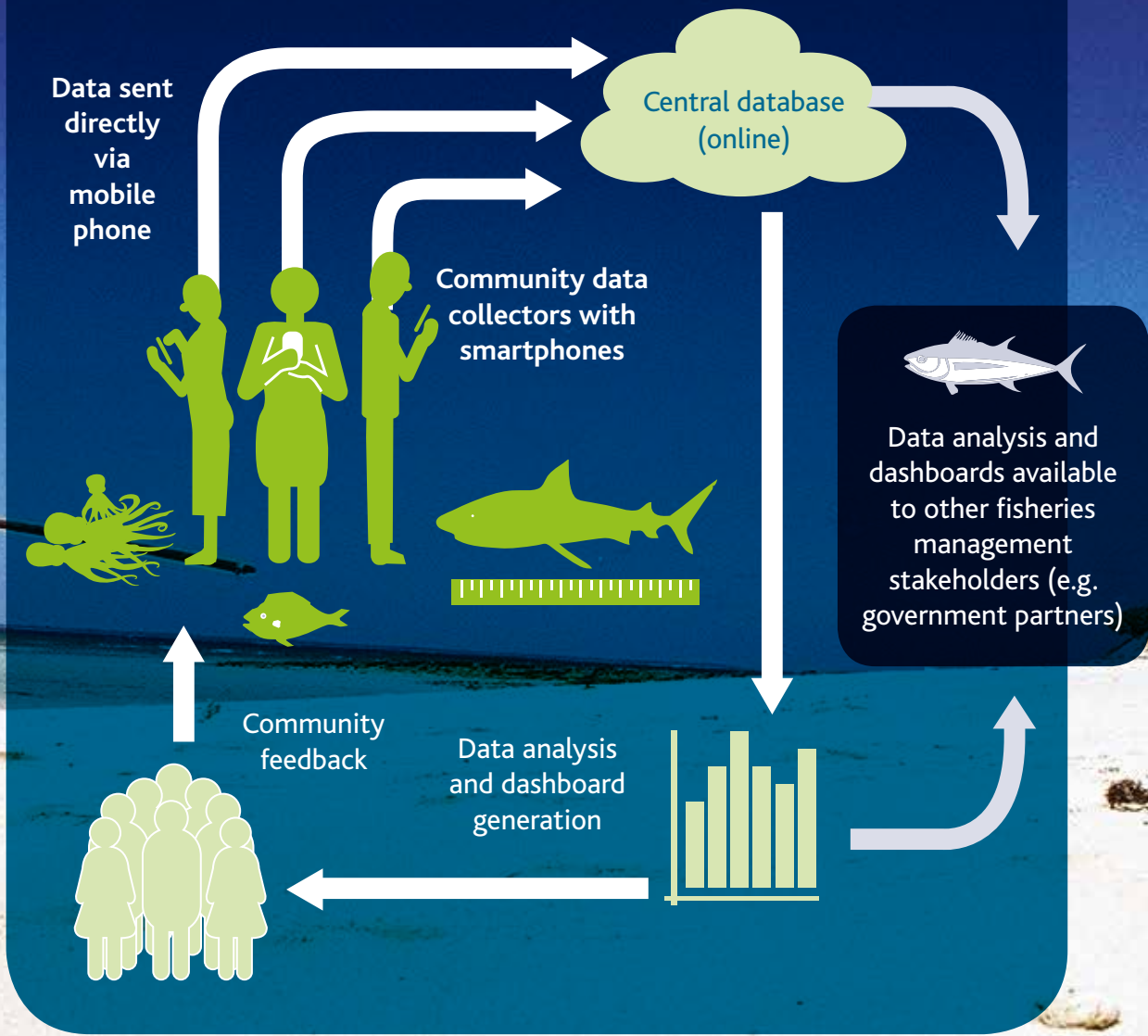
Blue Ventures is using mobile technology to address the challenge of data-deficiency in small-scale fisheries, capitalising on the rapid expansion of mobile technology and connectivity in low-income nations.

Using open access software, freely available to all, our research teams have developed smartphone- and tablet-based fisheries monitoring forms, to capture landings information in remote villages along Madagascar's west coast.

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

By empowering communities for fisheries monitoring in this way, this approach can capture data across vast distances, at low cost, and in real time. 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 automatically syncing with the cloud as soon as a user accesses the nearest signal.

How are we using this technology?

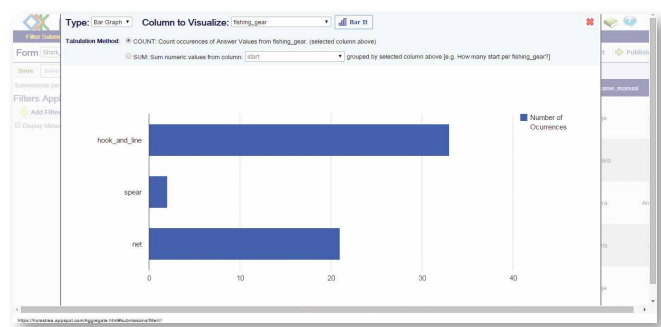
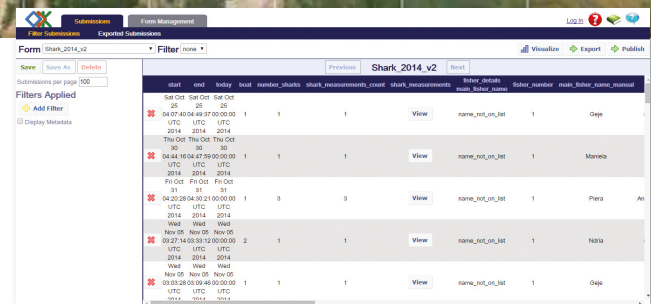
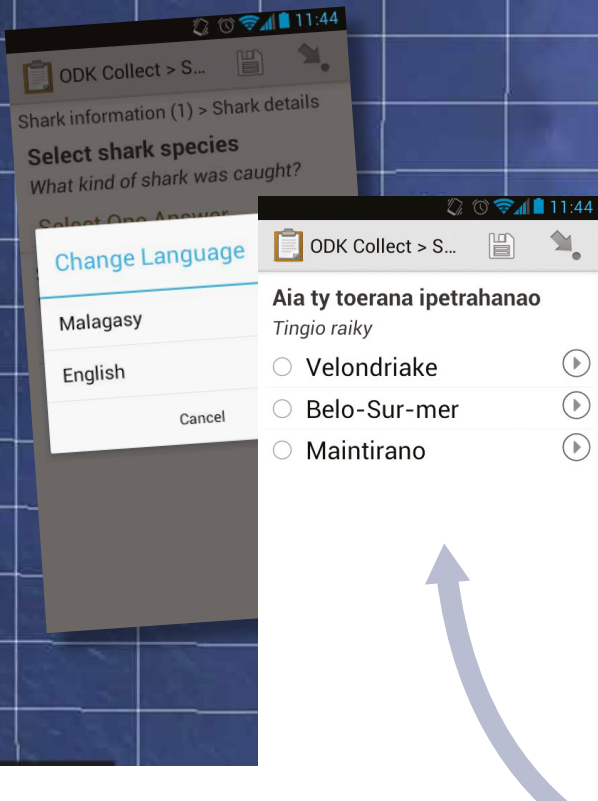


x20 increase in internet use on mobiles in next 5 years in Africa

15 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



Monitoring fisheries with real time data collection

The new mobile tools enhance the accuracy and efficiency 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 accuracy of data collection.

Improving adaptive management

These tools dramatically increase the speed at which data become available to inform management decisions.

Customised reports currently in development will display data 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 means of engaging community members in fisheries monitoring and management at scale.



The traditional shark fishery in Madagascar

Designing the technological platform and user interface for mobile data collection is only one part of the process: effective implementation and uptake of this technology presents its own unique challenges.

Blue Ventures' pilot project, to monitor Madagascar's traditional shark fishery via mobile phones, has focused primarily on refining the tools and methods for training community members along some of the remotest stretches of the country's coastline to use this technology. This has necessitated developing strategies and methods that work around the country's lack of basic infrastructure – a major challenge for all forms of data collection.

Blue Ventures' technicians work closely with community members, providing training workshops and tailored guidelines for smartphone data collection.

The pilot project has 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 approach to be adapted to broader-scale multi-species fisheries across different ecosystems and habitats. This technology is now being trialled to report octopus fisheries catches, marine turtle nesting, sea cucumber fishing and mangrove forest surveys.

Long-term fisheries management

We are working with government fisheries authorities, communities and fishing businesses interested in expanding the scope of this work to tackle and overcome many of the challenges associated with fisheries management in remote 'off-grid' 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

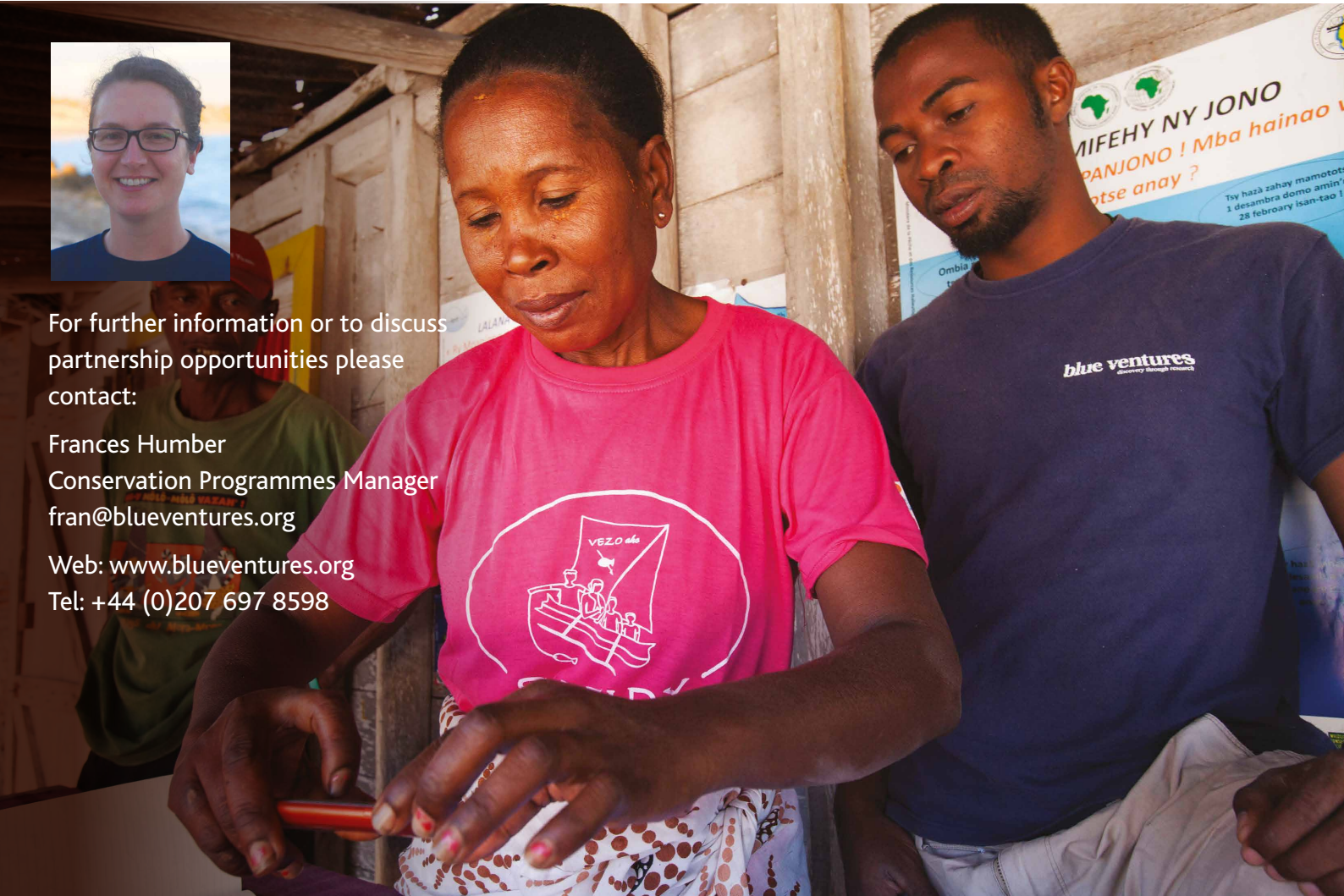
We are grateful to our partners at the Save our Seas Foundation for supporting our efforts to develop mobile fisheries monitoring in Madagascar



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.



Condé Nast Traveler Environmental Award, 2009
For two decades, Condé Nast Traveler has been honouring environmental visionaries around the world who have found innovative solutions to seemingly intractable problems.



Responsible Tourism Awards 2004: highly commended for "Best in a Marine Environment"



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



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Responsible Tourism Awards 2009: highly commended 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"