



Food and Agriculture
Organization of the
United Nations

Support to data collection programs: **SmartForms**

A mobile App platform to collect and review fishery and observer data

Anton Ellenbroek (FIAS)
Aureliano Gentile (FIAS)

Technical workshop on global harmonization of Tuna fisheries statistics
FAO Rome, Italy, 19-22 March 2018

SmartForms Vision

Fisheries organizations from large to small use Open and Free Fisheries Mobile Data Collection tools to deliver forms that are

- **Harmonized**; based on CWP and other FAO endorsed standards
- **Autonomous**; every organization securely collects fishery data
- **Replicable; builds on specialized data elements**
- **Mobile-first**; for field, landing sites and on-deck data collection

As a cost-effective and dynamic platform for scientific observers and fishers, independent, but not isolated from FAO

SmartForms Mission

Deliver a platform that combines

- A **mobile App** to collect and review fishery data
- **Forms builder** for mobile App customization
- **Hub** for data management

As a do-IT-yourself platform for scientific observers and fishers

Why another platform?

There are already so many other platforms

- **OpenDataKit** DIY [ODK](#)
- **WorldBank** solutions.worldbank.org/
- **KOBO Toolbox** for kobotoolbox.org
- **ONADATA** <https://ona.io/home/>
- **Local solutions** centroestudiosmarinos/videos/
- **Form.io** <https://form.io/#/>
- **Magpi** <http://home.magpi.com/>

SmartForms is more than a App Forms technology: We aim for true integration of data for scientific observers and fishers:

- **Harmonized** FAO/iMarine provide Reference and Master Data Management; **Dynamic** species list; gear lists; biological parameters; Marine areas;
- **Autonomous**; Enable local collection, based on global services, secure data flows
- **Replicable and reusable components**; specialized fisheries data support, e.g.:
 - *data* such as LW-relations and fisheries validation rules (*no tuna < .1 kg on line*);
 - *services* like GeoFences (*no pinguins in Panama*); Result aggregation over time and space for confidentiality and security (e.g. RFMO aggregation rules from Tuna Atlas);
 - *form templates* clone fisheries specific forms
- **Mobile focus**; should work on a slippery deck

Where does it come from?

- SmartForms started in **iMarine** as an on-board data collection tool with funding from **JPN** (2015); Proof-of-concept (e.g. sharks and rays in the North Sea)
- **ABNJ Deep Seas Project** financed the development of the SmartForms App with contributions from **Bahamas IUU fishing** (FAO TCP project, 2016) and **FAO HQ**
- ABNJ Deep Seas Project case studies:
 - Observations on Sharks, fragile benthos in South Indian Ocean
 - Observations on VME Taxa in SEAFO Area
 - Port inspections forms
 - ...
- **Caribbean Billfish Project** – monitoring recreational fisheries

When and where

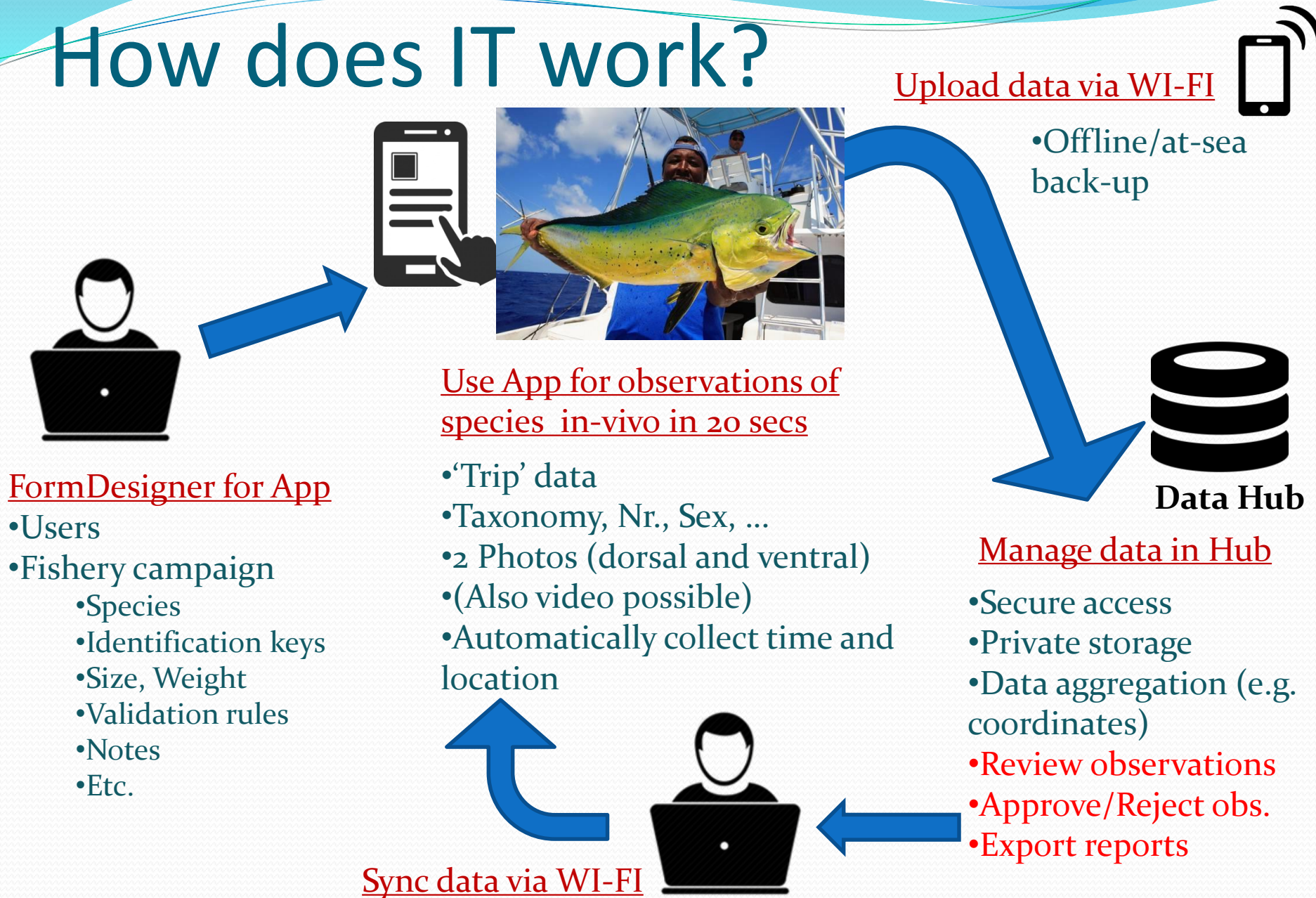
We are busy with the delivery plan:

- Bahamas IUU fishing SmartForms app – June 2017 (Demo version)
- Data hub and forms designer: in progress – Spring 2018
- Users management: in progress – Spring 2018
- Beta version for GooglePlay: Spring 2018
- Test App for Recreational fisheries for tuna and billfishes – Spring 2018
- SmartForms apps in the pipeline: deep-sea sharks, boarding forms, Port Inspection, VME taxa, etc.
- Completion of the development with the current funds – Summer 2018

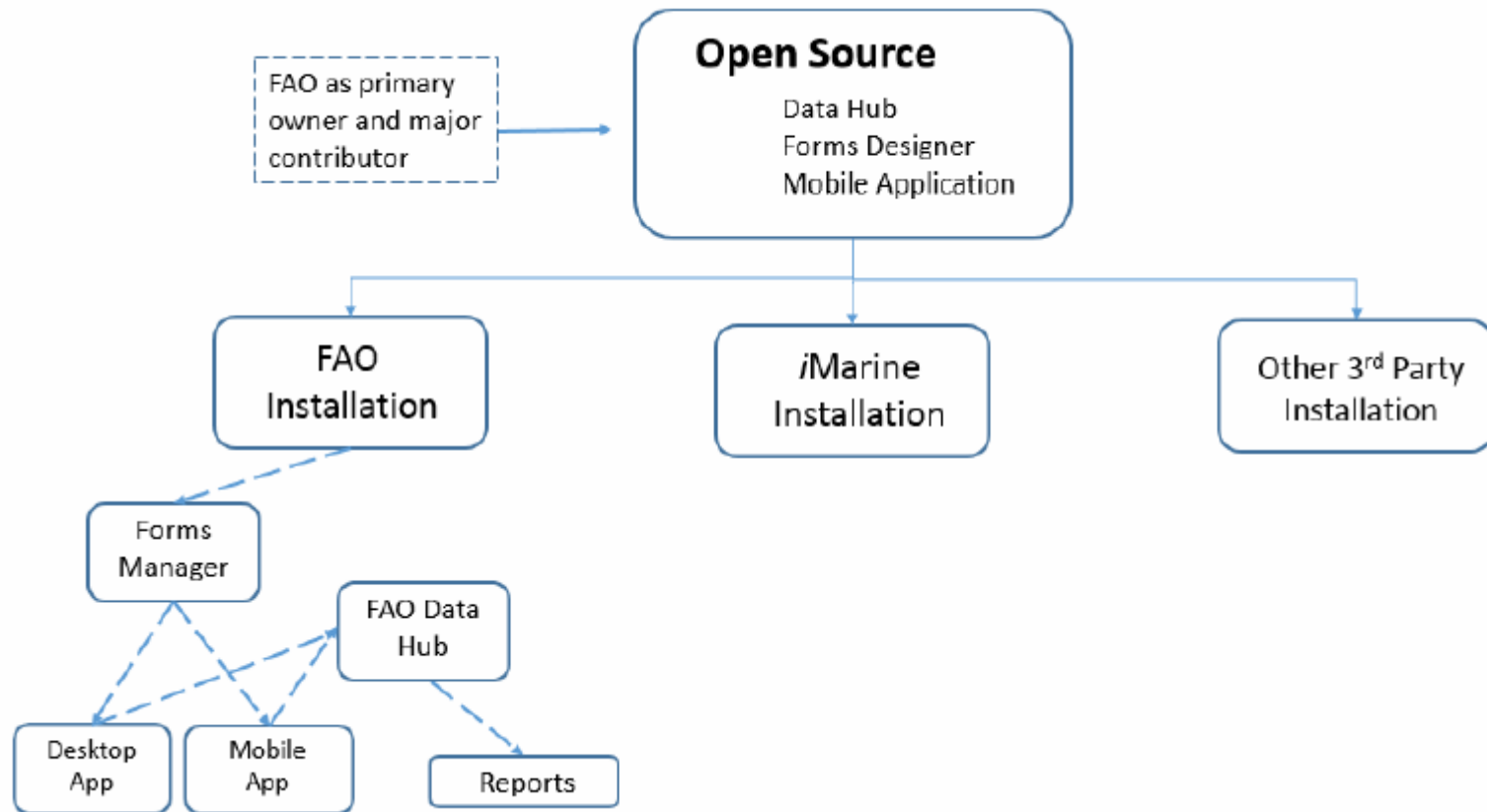
Download and access the latest version:

- <http://apps.data.fao.org/smartforms> (not yet for public dissemination)

How does IT work?



Open source implementation



The code will be released as Open Source.

- FAO will use it to develop and use apps through a FAO installation; you **collaborate**
- iMarine infrastructure data collection with a pre-installed platform; you **buy**
- You can install your own platform; you **own**

The App

Collect on-board observations

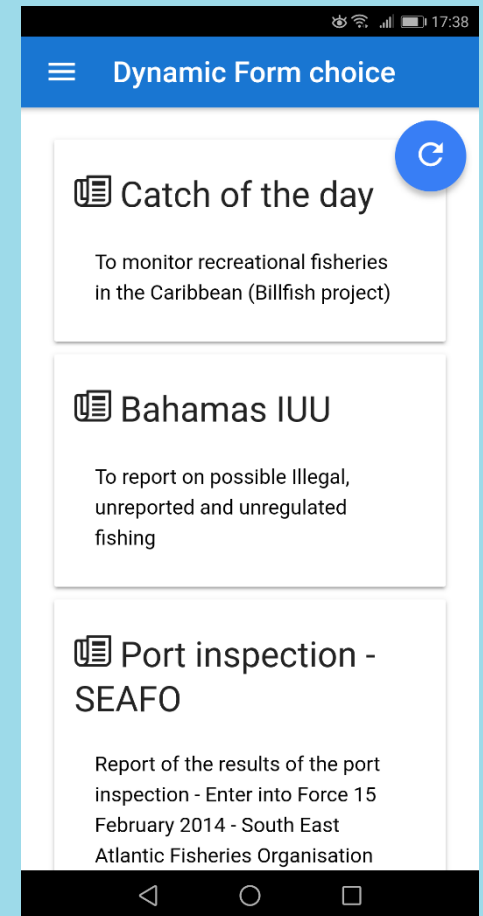
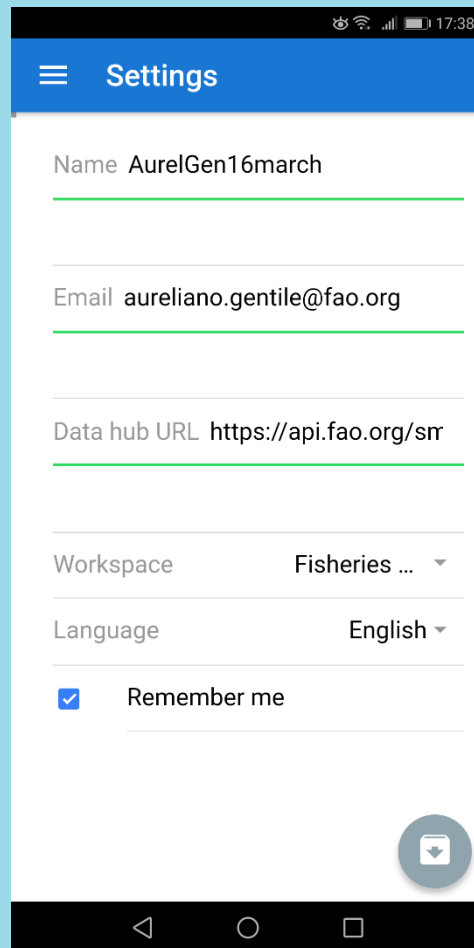
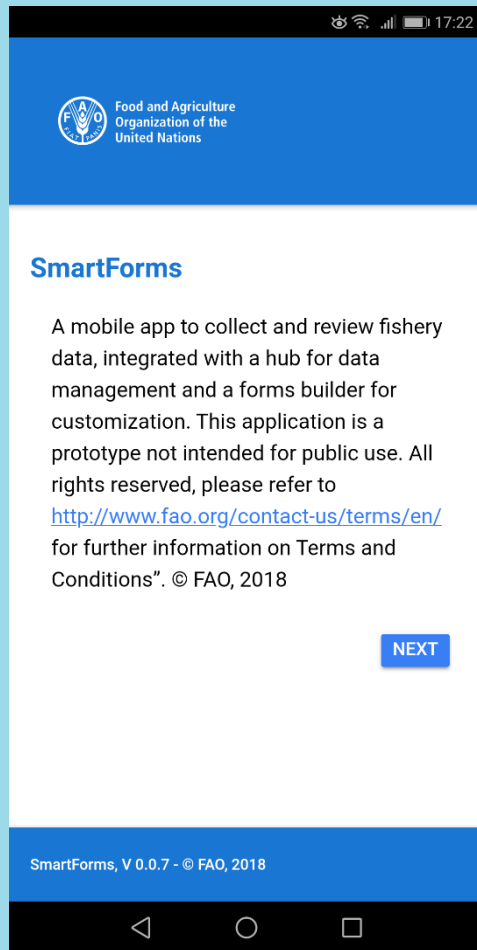
Quick and easy



- Work in progress toward the finalization
- Define your own app with FormsDesigner
- Today: Android only
- Open Source; you can join the fun

App screenshots (1)

Home - Settings – Select your form



App screenshots (2)


Create a new catch/release observation – add details

Recreational/Sport Pelagic F...

Boat length (feet)
35

Name of reporter
Tom Jones

Add Delete



Boat name
Titanic

Home port
Ny

Captain
AurelGen16march

Vessel name
Enterprise

Home Port
Barbados

Reporting date
2018-03-17

Use current location

Longitude
41,88

Latitude
12,49

Hours fished
4

% of time fishing FADs
25-50%

Species report

Species
White marlin

Number raised
3

Number hooked
4

Number caught
45

Average size (pounds)
678

Recreational/Sport Pelagic F...

Fishing stop time
15:00

Species Name

Unspecified

Blue Marlin

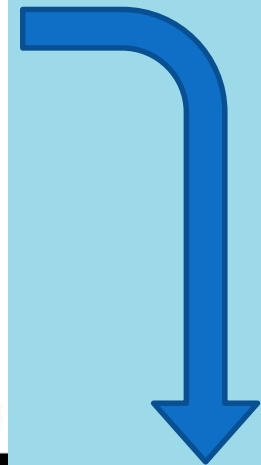
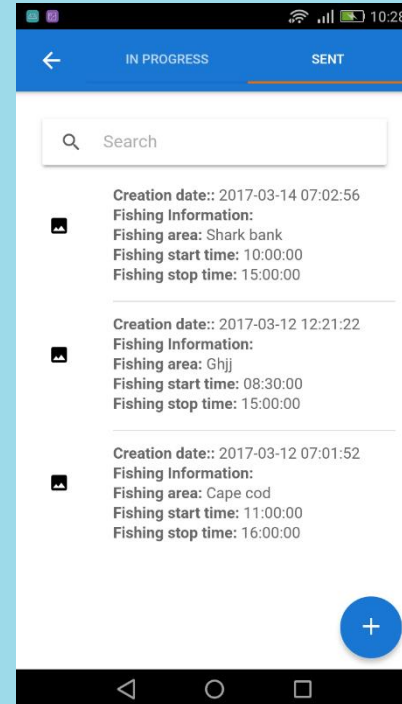
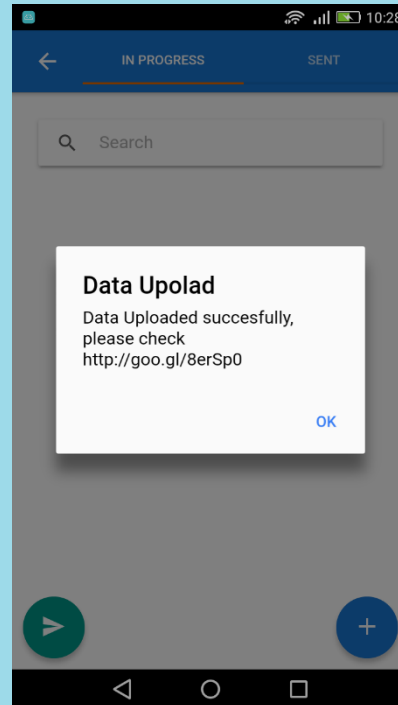
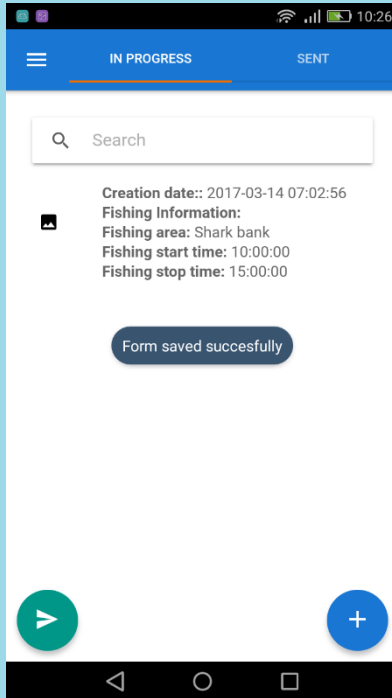
White Marlin

Sailfish

Swordfish

App screenshots (3)

Save and Export



Data Hub

The Forms Designer

- Define
- Design
- Drag & Drop
- Default components
- Data sources
- Data validation
- Distribute to selected devices

The screenshot displays the SmartForms interface, a platform for mobile data collection. The top navigation bar includes the FAO logo, the text 'Food and Agriculture Organization of the United Nations', the 'SmartForms' logo, and the tagline 'A platform for mobile data collection'. A home icon is visible in the top right corner. The interface is split into two main sections: a left sidebar for form design and a right preview pane.

Left Sidebar (Form Designer):

- Reporting** (with a line graph icon)
- Form Builder** (with a wrench icon)
- Logout** (with a door icon)
- Data sources** (with a plus icon)
- Form components** (with a plus icon):
 - Text Field
 - Select
 - Number
 - Text Area
 - Date
 - Checkbox
 - Hidden Field
 - Image
 - Video
 - Group
 - Array
- Custom components** (with a plus icon):
 - Position

Right Preview Pane:

- Title: **SEAFO - REPORT OF THE RESULTS OF THE PORT INSPECTION**
- Section: **Main information**
- Section: **Structure**
 - Use current location** (checked checkbox)
 - Longitude
 - Latitude
 - Reporting date dd/mm/yyyy**
 - 10/07/2017
 - Inspection report no**
 - Port State**
 - Inspecting authority**
 - Principal Inspector**
 - Name of principal inspector
 - Inspector ID
 - Port of inspection**

At the bottom right of the preview pane, there are two circular icons: a save icon and a share icon.


Form Designer; D_oI_tY_{ourself} Apps


The SmartForms App can contain many Forms




- Adapt a form to a fishery
(campaign, survey, observer forms, sightings / encounters, landings)
- Customise data entry and validation rules
- Customise display and language to localize app
- Use CWP standards *(list of species, geartypes, countries, areas, ...)*
 - Standardization of collected data
 - Access to multilingual, well defined lists
 - Very useful when creating select lists

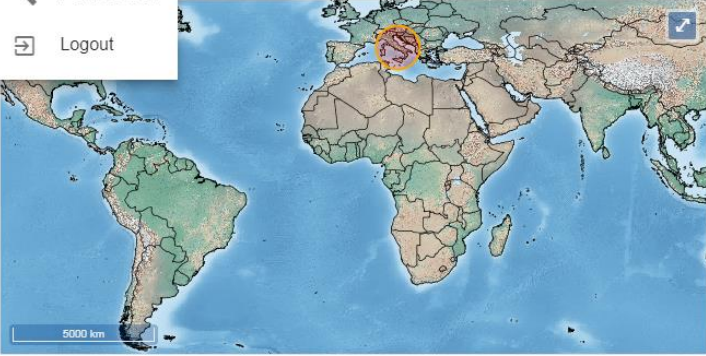
The Data Hub

- Overview map
- Organized Workspaces
- Overview Forms
- Observations


Food and Agriculture Organization of the United Nations

SmartForms A platform for mobile data collection
 

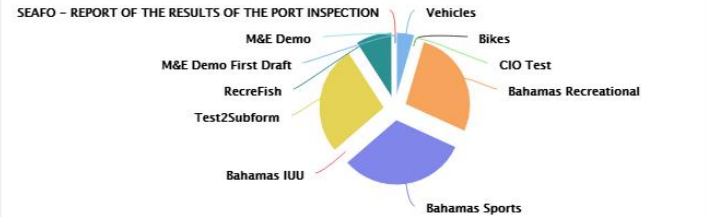
-  Reporting
-  Form Builder
-  Logout



English Français

Data by Form
Data by Workspace






















Number of compiled forms by type



CIO
Fisheries and Aquaculture
Forestry
SOLAR

Bahamas Recreational

Bahamas Sports

			Vessel type ↑	Flag State ↑	Reporting date dd/mm/yyyy ↑	Type of fishing ↑	License number ↑	Captain ↑
			unspecified	Bahamas	2017-06-19T16:06:00.000Z	Fishing in Bahamian Water	0987	Flynn
			Outboard	Bahamas	2017-06-19T16:06:00.000Z	Game fish	Hg987	Roy
			Outboard	Bahamas	2017-06-19T16:06:00.000Z	unspecified	Tf1234	Bealy
			Small vessels other than dinghy	Bahamas	2017-06-18T16:06:00Z	Game fish	Tyr	Cook
			Small vessels other than dinghy	Bahamas	2017-06-19T16:06:00.000Z	unspecified	Tf1234	Bealy
			Small vessels other than dinghy	Bahamas	2017-06-18T16:06:00Z	Game fish	Tyr	Cook2
			Outboard	Bahamas	2017-06-19T16:06:00.000Z	Game fish	007007	Hamm

Rows per page: 10

Bahamas IUU

Test2Subform

RecreFish

SEAFO - REPORT OF THE RESULTS OF THE PORT INSPECTION

Master Data Features



Data Hub

- FAO MDM Services
 - Master Data Management for reference data; FAO Areas, LME's, Ecosystems
 - Dynamic lists, hierarchies, Multi-lingual, taxonomic keys and images
 - Spatially explicit (only in my EEZ) also for species
 - Advanced validation (LW-relations, gear specificity)
- Security
 - Private data management in FAO or proprietary data hub
 - Users and group management
- Data management
 - Edit – Approve - Reject observations or Send back to observers
 - Reports (Fisherman certificate, management reports, encounter reports)
 - Image-lists, hierarchies, synchronization
- API's

Take away message

- “FAO is developing a mobile platform called **SmartForms** which will be **Open Source**, versatile and **configurable with forms and templates** adaptable to data collection needs, and which will be **connected** with FAO’s fisheries and aquaculture knowledge base and Reference and MDM data services.
- This will **enhance data collection capacity** and **promote use of standards** and harmonization of datasets among data collection schemes.
- SmartForms is currently used in the context of the Caribbean Billfish Project (WECAFC) to propose an innovative approach to **data collection for recreational fisheries**, a sector poorly documented and monitored.”

شكرا

謝謝

Merci

Thank You

Благодарю

¡Muchas Gracias!