

# IKASAVEA COMMUNITY SURVEY



## *Digital Support for Data Coordinators*

*Version 1.2, January 2024*

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#### OTHER CREDITS

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*Report design and remaining graphics: Eleanor McNeill.*

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## ANCORS

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**The survey protocols and manuals were developed by the following project staff members:**

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**ANCORS:** Brooke Campbell, Owen Li, Neil Andrew, Aurelie Delisle, Hampus Eriksson and Dirk Steenbergen.

## SPC-FAME

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## KIRIBATI

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## VANUATU

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## CBFM optimised fishery monitoring program

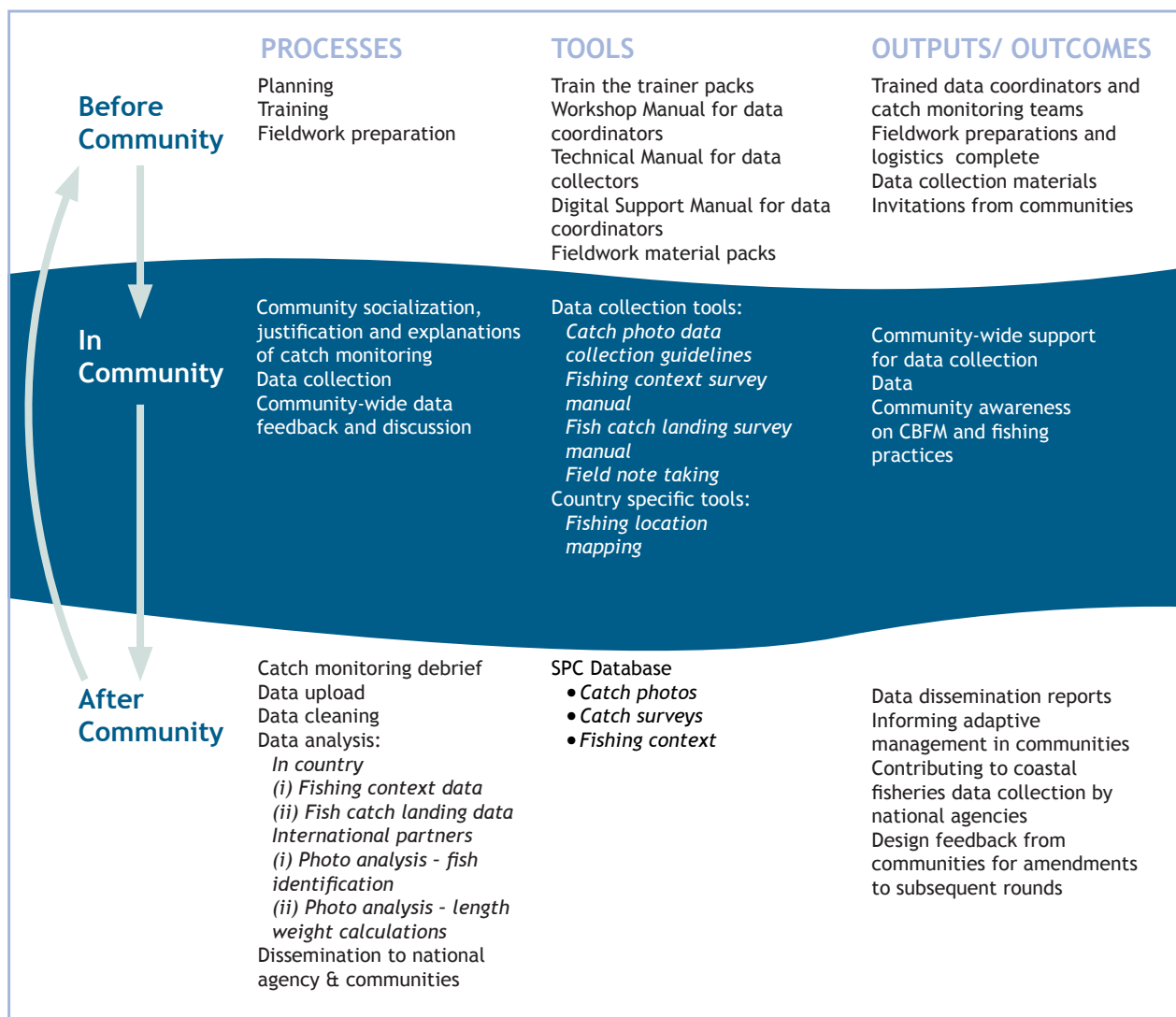


Figure 1. CBFM optimised catch monitoring programme

# INTRODUCTION TO THE MANUAL

## *Digital Support for Data Coordinators*

This manual is one of three designed to support the use of the Ikasavea Community Survey:

1. *Technical Manual for Data Collectors*
2. *Workshop Manual for Data Coordinators*
3. **Data Management Manual for Data Coordinators**

This manual is designed to assist data coordinators, or whomever oversees management and curation of data in the use of the Ikasavea app, and the SPC web interface for the Ikasavea Community Survey.

The information provided is instruction on what needs to happen before, during and after each field trip to ensure the data collected is as clean, complete and useful as possible.

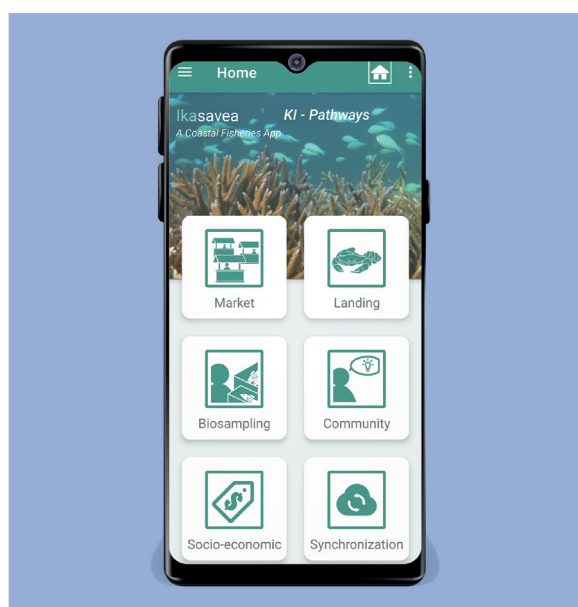
It is vital that the data collected in the communities is not only collected correctly, but also cleaned, transferred and secured appropriately. Errors and inconsistencies can compromise our ability to extract meaning from the data, and therefore, compromises our ability to advise communities about the fisheries they trust us to gather data about.

The steps laid out in this manual will help data collectors manage their surveys and data collectors, ensure data is backed up and uploaded completely, and generate reports from the data using the SPC web interface.

The prescribed steps in this manual are largely based upon a Powerpoint presentation created by SPC-FAME (Appendix A).

Not all of these steps need to be carried out in the precise order that they occur in this manual. However, the steps/procedures have been arranged according to the stages of the catch monitoring program that they should be carried out during (i.e. Before, During and After each field trip). This manual supports a catch monitoring approach based upon a pilot catch monitoring program undertaken in various communities in Vanuatu and Kiribati as part of the Australian government-funded Pathways project.

This manual, and its supporting materials will help you in your tasks as coordinator of this catch monitoring program supported by the Ikasavea Community Survey developed in collaboration with the SPC.



*Ikasavea app launch screen.*

# BEFORE DATA COLLECTION IN COMMUNITIES

## 1 Linking email accounts to devices

To begin, please go to <https://spc.int/coastalfisheries> and log in using your details provided by SPC-FAME. If you have not yet been issued these details, please send an email request to: [ikasavea\\_support@spc.int](mailto:ikasavea_support@spc.int).

Each device that will be used to conduct an Ikasavea Community Survey needs to be linked to an email (Google or any valid email account) and given appropriate permissions by our correspondents at the SPC.

We suggest that these accounts either be designated to individuals going out into the field, or the study sites.

Whichever choice is made, the first step will be to notify SPC-FAME ([ikasavea\\_support@spc.int](mailto:ikasavea_support@spc.int)),

who will issue permission to those accounts to download/update the relevant surveys, and operate the devices.

### To add a data collector/surveyor:

- Type in their names
- Type in their organisation (optional)
- Type in their email
- Push “Save”

The linked accounts can then be seen on the SPC web interface, where you can add surveyors, or allocate them to particular surveys/communities. If necessary, this list can be adjusted for each survey, and surveyors can be attached to different surveys at a later point.

Name	<input type="button" value="New surveyor"/>
Abel Sami	<input type="button" value="eye"/> <input type="button" value="edit"/> <input type="button" value="delete"/>
Ada Sokach	<input type="button" value="eye"/> <input type="button" value="edit"/> <input type="button" value="delete"/>
Anderson Harrison	<input type="button" value="eye"/> <input type="button" value="edit"/> <input type="button" value="delete"/>
Andre Temakon	<input type="button" value="eye"/> <input type="button" value="edit"/> <input type="button" value="delete"/>
Benathur Kaluatman	<input type="button" value="eye"/> <input type="button" value="edit"/> <input type="button" value="delete"/>
Clement Mokoroe	<input type="button" value="eye"/> <input type="button" value="edit"/> <input type="button" value="delete"/>
Clint Kailo	<input type="button" value="eye"/> <input type="button" value="edit"/> <input type="button" value="delete"/>
David Abel	<input type="button" value="eye"/> <input type="button" value="edit"/> <input type="button" value="delete"/>

## 2 Adding or subtracting fishing methods

The web interface allows you to manage the list of fishing methods that will show up as options for each specific survey. This function allows you to add local fishing methods that have no easy English translation, and to take away those that are irrelevant, minimising the risk of your data collectors missing the correct fishing method.

### To add a new fishing method:

- Type in the fishing method name (you are welcome to use your own language if there is no easy English translation, and you are sure your data collectors will interpret the chosen wording consistently)
- Push “Save”

### To remove a fishing method:

- Click on the “x” next to the method in the table.

If a fishing method is not listed, it can be typed into the notes by the data collector, and you, as the data coordinator can add the new method to the list for next time.

**Note: “Show number of hooks” and “Tufman method id” are not relevant for community surveys. Leave them as default.**

**Community surveys - Fishing methods**

---

CFP Home   Survey home   Fishing contexts   Fishing trips   Fishers   Photos   Quality control   Statistics

---

Authority : VU - Pathways ▼

Nb/page : 20

---

Fishing method	New method
Gleaning/collecting	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Handline	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Local fishing rod	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Net	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Other	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Spearfish (day)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Spearfish (night)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Trolling	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

**Fishing method properties**

Name (EN):\*

Name (FR):

Sort order :

Show number hooks   Tufman Method ID :

---

### 3 Adding commodities often photographed in ‘bundles’

Depending on which community is being visited, some animals will be routinely presented in ‘aggregated units’ such as strings, bags, tubs, or baskets. For these animals, data collectors will need to select the “Add bundle” option in the Community Survey. When “add bundle” is selected, a list of commodities\* will be made available, and data collectors can select an option from that list. This list can be adjusted to be more (or less) specific in the same manner as the fishing methods can.

It is important to remember that the units you choose should be **consistent, even if they are aggregated** (i.e. a string of clams should always consist of the same number of clams). If that is not possible within reason, we strongly suggest

reminding your data collectors to add relevant details in the comments section (e.g. the herring were in a bowl 30cm across).

- Select whether the commodity correspond to fishes or invertebrates.
- Enter the name of the commodity.
- Tick “Use for targeted catch” if you want the commodity to appear in the fishing context form
- Tick “Use for pictures with aggregated catch” if you want the commodity to be used for pictures, for example bags of cockles or buckets of sardines.
- Click ‘Save’ to add the commodity.

**Community surveys - Commodities**

---

CFP Home   Survey home   Fishing contexts   Fishing trips   Fishers   Photos   Quality control   Statistics

Authority : VU - Pathways   Nb/page : 20  

Sort order	Type	Name	New commodity		
0	Fishes	Tuna	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	Fishes	Other pelagic/deep sea	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Fishes	Deep sea bottom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Fishes	Reef fish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Fishes	Sharks and rays	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	Fishes	Goldspot herring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	Fishes	Sardines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	Fishes	None caught	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**New commodity**

Sort order :    Name \*

Type \* Fishes

Use for targetted catch (fishing context)

Use for pictures with aggregated catch

Comments :

\*Commodities are the broad categories of fishes & invertebrates that are reported as targeted by fishers when interviewed (fishing context) and photographed in bulk quantities while reporting catch.



## 4 Replicating existing surveys

If your surveys are consistent, you can clone one for a new community, or new round. Once you clone a survey, please remember to give it a new name in place of the automatic text i.e. “Based on ....”

**Community surveys**

CFP Home   Survey home   Fishing contexts   Fishing trips   Fishers   Photos   Quality control   Statistics

Authority :    Nb/page :

Name		New survey
DIGITISED Malo R1_0923		
Noumea test 2		
DIGITISED Kwamera R1_0923		
DIGITISED Loh R1_0923		
DIGITISED Naone R1_0923		
DIGITISED Peskarus R1_0923		
DIGITISED Port Olry R1_0923		
DIGITISED Takara R1_0923		
Hog Harbour - Round 1		
Hog Harbour - Round 2		
Hog Harbour - Round 3		
Hog Harbour - Round 4		
Ikaukau - Round 1		

**DIGITISED Malo R1\_0923**

General   **Fishing regions**   Surveyors

Authority :

Country :

Name \*

Description :

Start date :    End date :

Code \*    Round :

Comments :

## 5 Setting up the survey: Regions and surveyors

To ensure each survey is linked to the appropriate fishing regions, and maximise the ability to correlate our catch data with previously collected data, a community will need to be selected for each survey.

**Community surveys**

CFP Home   Survey home   Fishing contexts   Fishing trips   Fishers   Photos   Quality control   Statistics

Authority :    Nb/page :

Name		New survey
DIGITISED Malo R1_0923		
Noumea test 2		
DIGITISED Kwamera R1_0923		
DIGITISED Loh R1_0923		
DIGITISED Naone R1_0923		
DIGITISED Peskarus R1_0923		
DIGITISED Port Olry R1_0923		
DIGITISED Takara R1_0923		
Hog Harbour - Round 1		

**DIGITISED Malo R1\_0923**

General   **Fishing regions**   Surveyors

Associated regions :

For country :

Region type :    Parent region :

Santo (SM) - Port Olry (Community)

Aniwa (TF) - Ikaukau (Community)

Efate (SH) - Takara (Community)

Maewo (PN) - Naone (Community)

Malekula (MP) - Peskarus (Community)

Santo (SM) - Hog Harbour (Community)

**Santo (SM) - Port Olry (Community)**

Tanna (TF) - Kwamera (Community)

Torres (TR) - Loh (Community)

Once you have selected your region, you will need to name this specific survey. Make sure this name is unique.

Also remember to:

- Enter a start and end date
- Add any details that will help you keep track of your data (e.g. any extra questions or specifications added to that specific survey)

**Community surveys**

CFP Home   Survey home   Fishing contexts   Fishing trips   Fishers   Photos   Quality control   Statistics

Authority : VU - Pathways   Nb/page : 20   Search

Name	New survey
DIGITISED Malo R1_0923	
Noumea test 2	
DIGITISED Kwamera R1_0923	
DIGITISED Loh R1_0923	
DIGITISED Naone R1_0923	
DIGITISED Peskarus R1_0923	
DIGITISED Port Olry R1_0923	
DIGITISED Takara R1_0923	
Hog Harbour - Round 1	
Hog Harbour - Round 2	
Hog Harbour - Round 3	
Hog Harbour - Round 4	
Ikaikau - Round 1	

**DIGITISED Malo R1\_0923**

General   Fishing regions   Surveyors

Authority : VU - Pathways   Country : Vanuatu

Name \* : DIGITISED Malo R1\_0923   Clone this survey

Description :

Start date : 2023-07-12   End date : 2023-07-26

Code \* : MLO   Round : 1

Comments :

Save   Cancel

Data collectors will also need to be assigned to each survey - please note, if you have chosen to assign individual data collectors accounts, and they are NOT selected for that survey, they will NOT be able to download that specific survey onto their tablet and carry it out.

**DIGITISED Malo R1\_0923**

General   Fishing regions   Surveyors

**Associated surveyors :**

For authority : VU - Pathways

Abel Sami   Select and add >>   Add all >>   Gino Belbong   Willie White

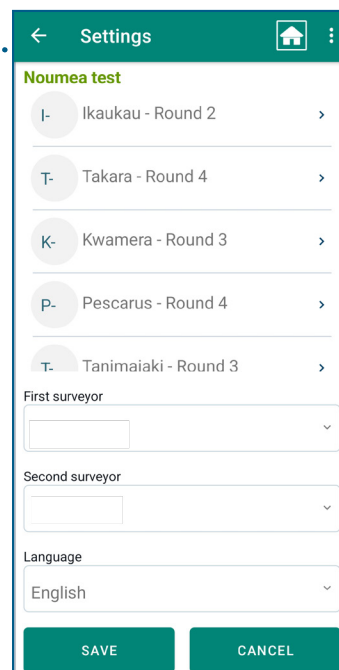
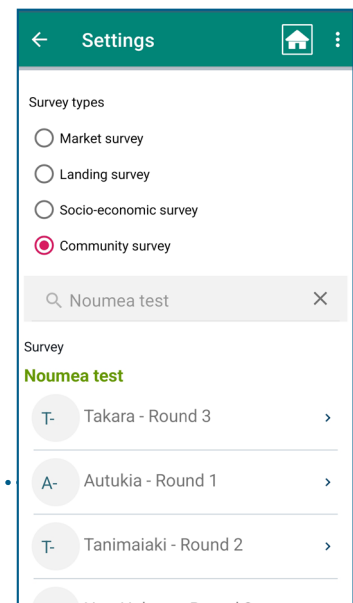
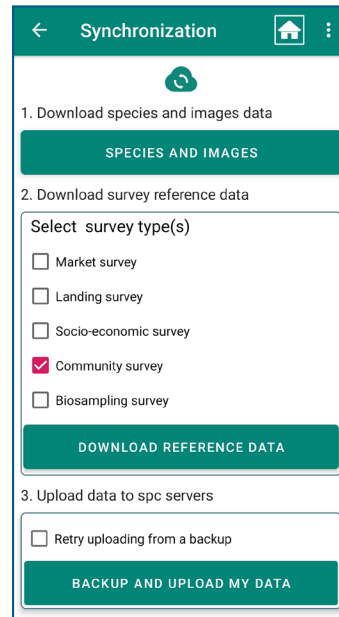
Restrict access to specific users

Authority	User name	Email	Accesses
AU - ANCORS	D	d	<input checked="" type="checkbox"/> Ikasavea access <input checked="" type="checkbox"/> Website access
AU - ANCORS	N	n	<input checked="" type="checkbox"/> Ikasavea access <input checked="" type="checkbox"/> Website access
AU - ANCORS	O	o	<input checked="" type="checkbox"/> Ikasavea access <input checked="" type="checkbox"/> Website access
SPC - Coastal Fisheries	B	b	<input checked="" type="checkbox"/> Ikasavea access <input checked="" type="checkbox"/> Website access
SPC - Coastal Fisheries	f	f	<input type="checkbox"/> Ikasavea access <input type="checkbox"/> Website access
VU - Pathways	K	p	<input type="checkbox"/> Ikasavea access <input type="checkbox"/> Website access
VU - Pathways	L	p	<input type="checkbox"/> Ikasavea access <input type="checkbox"/> Website access
VU - Pathways	M	p	<input checked="" type="checkbox"/> Ikasavea access <input type="checkbox"/> Website access
VU - Pathways	N	p	<input type="checkbox"/> Ikasavea access <input type="checkbox"/> Website access
VU - Pathways	P	p	<input type="checkbox"/> Ikasavea access <input type="checkbox"/> Website access
VU - Pathways	P	p	<input type="checkbox"/> Ikasavea access <input type="checkbox"/> Website access
VU - Pathways	T	p	<input type="checkbox"/> Ikasavea access <input type="checkbox"/> Website access
VU - Vanuatu Fisheries Dept (MALFFB)	s	s	<input checked="" type="checkbox"/> Ikasavea access <input checked="" type="checkbox"/> Website access
VU - Vanuatu Fisheries Dept (MALFFB)	A	a	<input checked="" type="checkbox"/> Ikasavea access <input checked="" type="checkbox"/> Website access
VU - Vanuatu Fisheries Dept (MALFFB)	H	h	<input checked="" type="checkbox"/> Ikasavea access <input checked="" type="checkbox"/> Website access
VU - Vanuatu Fisheries Dept (MALFFB)	L		<input checked="" type="checkbox"/> Ikasavea access <input checked="" type="checkbox"/> Website access

## 7 Systems check

Please ensure that each device is running the Ikasavea community survey smoothly before taking/sending them out into the field:

- a. Make sure that each tablet’s software is updated.
- b. Make sure each tablet has the most recent version of the Ikasavea app (Use Android Play Store).
- c. Set up a “test survey” via the web interface (the same survey can be used for testing every time). To avoid confusion, please use a name that is clearly different than the communities you are visiting (e.g. Test Surveys MFMRD).
- d. Make sure that every device has been synchronised and set to the correct survey and surveyors for that trip - if either are not completed, a survey cannot be completed.
  - i. Synchronise: .....
    - Home > Synchronise
    - Download “species and images” data
    - Select and download reference data for Community survey
  - ii. Settings: .....
    - Select Community survey
    - Select the name of the survey that will be conducted using the device in hand from the “Survey” list.
    - Select Surveyor 1 for the tablet .....
      - Select Surveyor 2 for the tablet
      - Leave current language set to English



e. Run through both the catch and fishing context surveys using the “test survey” to ensure they operate smoothly:

- Make sure that photos can be checked
- Make sure that survey answers are saved and can be both reviewed and adjusted
- Make sure that data can be recorded in all relevant fields
- Use web interface to make sure the data can be synchronised to the SPC-FAME servers effectively, and that the quality of the photos are suitable

It is strongly recommended to run through the test surveys while the tablet is connected to the internet. This way the staff at SPC-FAME are notified immediately when an error occurs.

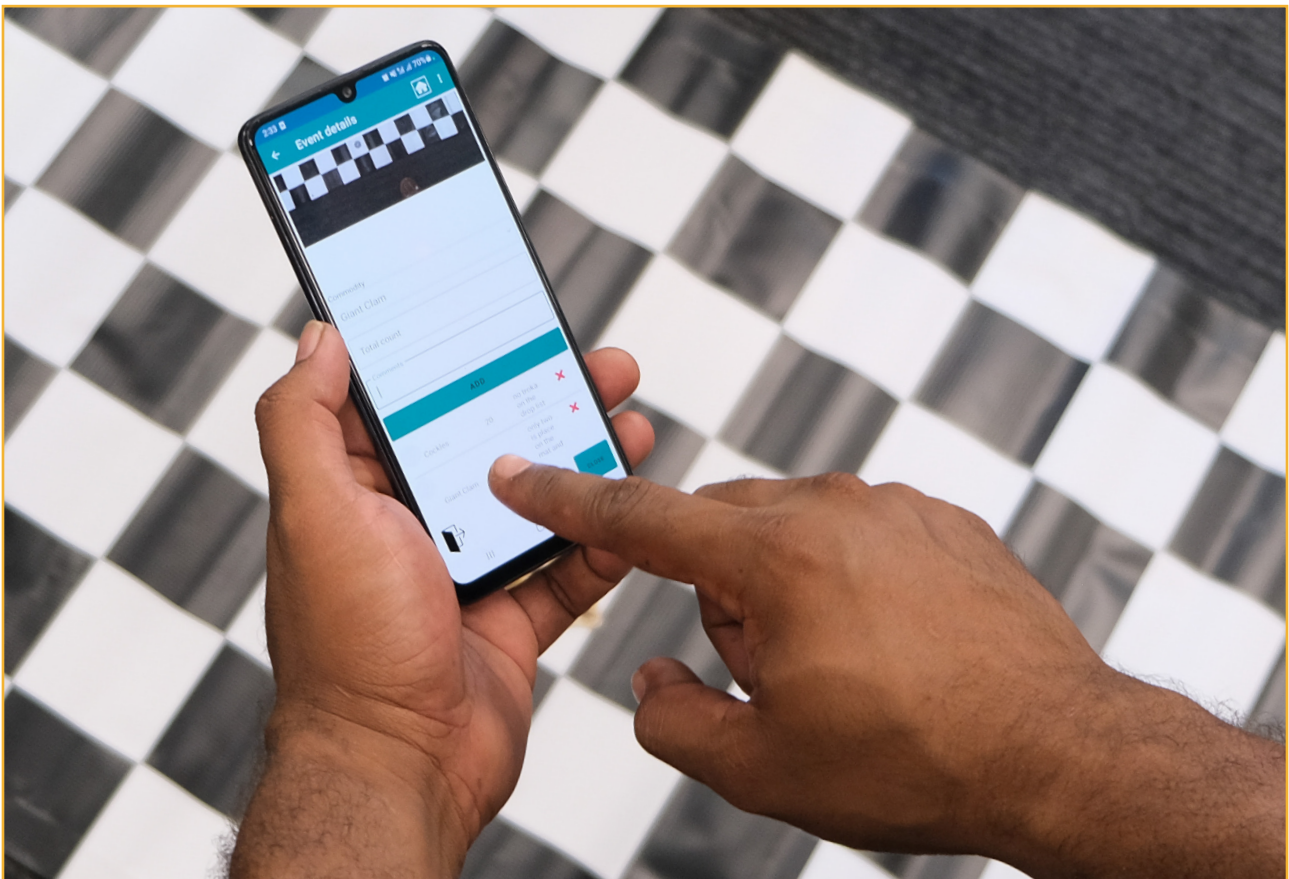
### IN CASE OF ERRORS

If you encounter errors and issues, please do the following:

- Check to see that Ikasavea has been updated to the most recent version
- Try updating and restarting the device
- Try re-installing Ikasavea (i.e. uninstall it, and then re-install it)
- Make sure Ikasavea was given the appropriate permissions upon installation:
  - Access to location
  - Access to camera and pictures/storage

If issues persist, we suggest you reach out to SPC-FAME for assistance: [ikasavea\\_support@spc.int](mailto:ikasavea_support@spc.int)

It will be most helpful if you can provide the particularities of your device (i.e. brand, model number etc.), the name of the survey created and synchronised to the tablet(s) with the issue, and the authority that created the survey.



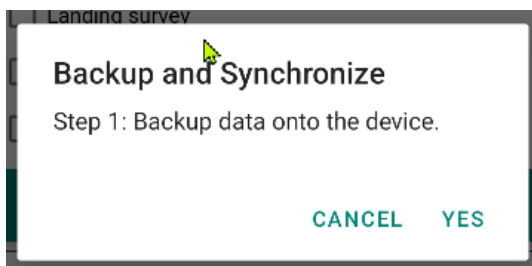
# DURING DATA COLLECTION IN COMMUNITIES

Depending on whether you are in the field with your team, you may want to back up the data from each device each day.

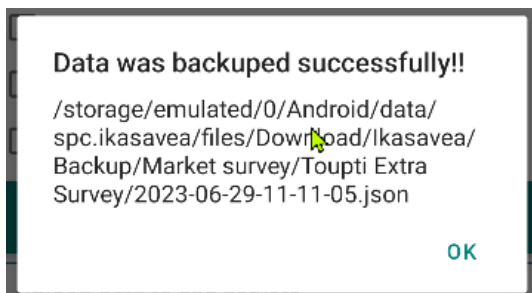
This needs to be done by plugging the chosen device into a secured laptop.

Then, on the Synchronisation page of the Ikasavea app, select “Backup and upload my data”

The following window will open:

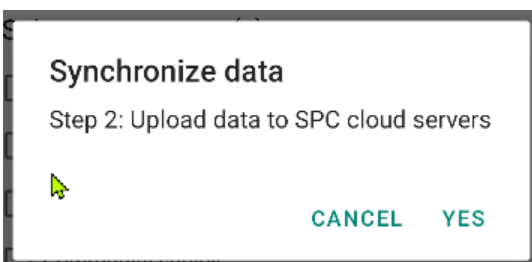


Once you click yes, the following window should confirm that the backup has been completed:



**BEFORE** clicking “OK”, please make sure that you can locate the backup files, and that they are intact. Note: the file will be generated and saved on the tablet in the file location indicated in the popup screen shown below. You must then locate this file and copy and transfer it onto the laptop.

Once you click “OK”, the following screen will appear:



## IMPORTANT - SYNCING IN THE FIELD

If your team is in the field, please click CANCEL.

Synchronising the data to SPC servers will automatically erase all data on the tablets themselves once it has been uploaded.

Keeping the data on each of the tablets in the field, will make it easier for you to keep track of errors.

At times, your data collectors might be forced to complete surveys later on in the field trip owing to time constraints (e.g. there are too many fishers/invertebrate harvesters for everyone to complete a whole survey before someone leaves).

If the data is synchronised/uploaded to the SPC servers, those incomplete surveys will be uploaded and removed from the device, making it impossible for your data collectors to complete those surveys when the fishers/gleaners have more time available.

# AFTER DATA COLLECTION IN COMMUNITIES

## 1 Cleaning

There are two opportunities to begin cleaning the data. Data can be checked on each tablet before backing up and synchronising, or afterwards once things are synchronised to the SPC-FAME servers.

One advantage to checking data before synchronisation would be the ability to check that the correct photographs were uploaded from a device’s gallery (in instances where photos needed to be taken before catch surveys were carried out). This way, the device in question is already in hand, and the correct picture can be uploaded to the catch survey very quickly.

However, data coordinators from Kiribati and Vanuatu have preferred to clean using the web interface once the data has been synchronised. They found data cleaning, correction and management much easier once it was all in one place, and presented more cleanly. Moreover, the data needs to be synchronised to the

SPC-FAME servers anyway, and photos can still be uploaded easily onto the web interface if necessary.

The choice is ultimately your own. However, below, you will find instructions for how to conduct fundamental cleaning exercises using the web interface.

To access the fishing context surveys, follow this pathway:

Survey home > Fishing context (qualitative:)

To access the catch surveys, use this pathway:

Survey home > Fishing trips (quantitative) “  
Once you are comfortable that the data from each tablet can be uploaded to the SPC, you can synchronise that data to the SPC cloud servers. At that point, your access to the data will be through the SPC web portal.

**1a. Double counting:** To check whether any fishers have been double-counted, you can sort the data by fishers’ names.

Community surveys - Fishers

CFP Home
Survey home
Fishing contexts
Fishing trips
Fishers
Photos
Quality control
Statisti

Authority :

Region :

Nb/page :

**Fisher properties**

Full name\*

Gender :  Male  Female

Year of Birth :

Finfish fisher  Invertebrate fisher

Administrative region (filtering) :

Licence No :

Address :

Phone :

Village :

Island :

Comments :

Region	Fisher		New fisher
Takara	A	M	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Takara	A	M	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Takara	A	M	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Takara	A	M	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Takara	A	F	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Takara	B	M	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Takara	C	F	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Takara	C	F	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Takara	C	M	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Takara	D	M	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Takara	D	M	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

**1b. Merging entries:** You can merge surveys from entries if you have confirmed that they are different spellings of the same name etc.

You can also check all the data entered for each completed survey, allowing you to check for inconsistencies, and add information based on data collectors' field notes.

### Community surveys


Introduction


This module allows authorized users from Pacific Island Countries and Territories (PICTs) to enter and analyse survey data collected through Pathways methodology.


#### Creating a new Community Survey


- 1: Create one or more [Surveyors](#)
- 2: Create one or more [Fishing methods](#)
- 2: Create one or more [Commodities](#)
- 3: Create the new [Community survey](#)

#### Data entry and analysis

  
Fishers

  
Fishing trips  
(quantitative)

  
Fishing context  
(qualitative)

  
Reports and  
statistics

#### Data upload (Ikasavea backups)


[Ikasavea community data upload](#)

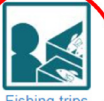
#### Other tools


- [Merge fishers](#)


You can also check all the data entered for each completed survey, allowing you to check for inconsistencies, and add information based on data collectors' field notes.

Data entry and analysis

  
Fishers

  
Fishing trips  
(quantitative)

  
Fishing context  
(qualitative)

  
Reports and  
statistics

## QUANTITATIVE

### Community surveys

CFP Home
Survey home
Fishing contexts
Fishing trips
Fishers
Photos
Quality control
Statistics

Authority : VU - Pathways

Survey : DIGITISED Port Olry R1\_0923

Fisher : All fishers

Nb/page : 20

Fisher	Date	New fishing trip		
A	2023-08-24			
A	2023-08-23			
A	2023-08-23			
S	2023-08-22			
F	2023-08-22			
A	2023-08-			

Data for the trip - A (8/24/2023)

Trip Event 1

Survey date \* 2023-08-24 Surveyor \* D

Consent obtained

Fisher \* A New fisher

Trip departure \* 2023-08-24 09:27 Trip return \* 2023-08-24 12:20

Sea condition :  Calm  Average  Rough  Not at sea


Boat type :  Motor boat  Sail boat  Canoe  No boat  Other

Was it more difficult to fish/collect than usual :  More difficult  About the same  Easier


Please note any special events :

How many fishing events were associated with this fishing trip? :


Data entry and analysis QUALITATIVE




Fishers



Fishing trips (quantitative)



Fishing context (qualitative)



Reports and statistics

Community surveys

[CFP Home](#) [Survey home](#) [Fishing contexts](#) [Fishing trips](#) [Fishers](#) [Photos](#) [Quality control](#) [Statistics](#)

Authority : VU - Pathways

Survey : DIGITISED Port Olry R1\_0923

Fisher : All fishers

Nb/page : 20

Fisher	Date	New fishing context		
A	2023-08-23			
N	2023-08-23			
F	2023-08-22			
S	2023-08-21			
C	2023-08-19			
S	2023-08-19			
J	2023-08-18			
A	2023-08-17			
B	2023-08-17			
C	2023-08-17			
L	2023-08-17			

Survey date \* 2023-08-23    Surveyor \* D

Consent obtained

Fisher \* A

In the last 7 days

1. Did you go fishing, collecting, both or did not go?  
 Fishing    Collecting    Fishing and Collecting    Did not Fish or Collect

How many times did you go per activity listed?    Fishing:     Collecting:

Comments

2. Please identify **all days** fished/collected

Day	Fishing	Collecting	Day (cont.)	Fishing	Collecting
Sunday	<input type="checkbox"/>	<input type="checkbox"/>	Thursday	<input type="checkbox"/>	<input type="checkbox"/>
Monday	<input type="checkbox"/>	<input type="checkbox"/>	Friday	<input type="checkbox"/>	<input type="checkbox"/>
Tuesday	<input type="checkbox"/>	<input type="checkbox"/>	Saturday	<input type="checkbox"/>	<input type="checkbox"/>
Wednesday	<input type="checkbox"/>	<input type="checkbox"/>	Nb Days	<input type="text"/>	<input type="text"/>

Comments

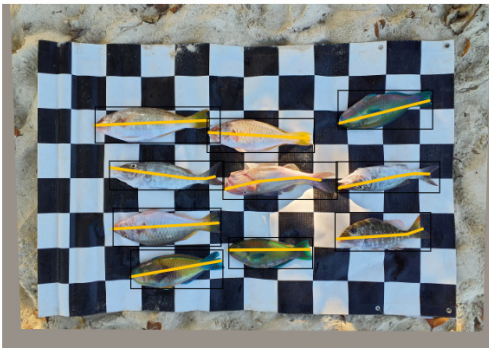
1c. Checking photos: It is also possible to check the photos attached to each catch survey:

Data for the trip - Sebastien ALGUET (8/19/2023)

Trip    Event 1

Event    Load pictures    Picture analysis    Individual measurements

288EF4544E5  
288EF456D0F



288EF456D0F

Ignore photo

Fishes on mat - Mat model Pathway 12x8

Coconut crab - Thoracic length (mm) and weight (g)

Nb of measurements:  1    2    3

Measurement:  Single line    Path

Species :

Suggested :

Previously recorded : Acanthurus sp.

Product type : Dried

Thoracic length:

Specimen No :   Ignore data

Comments :

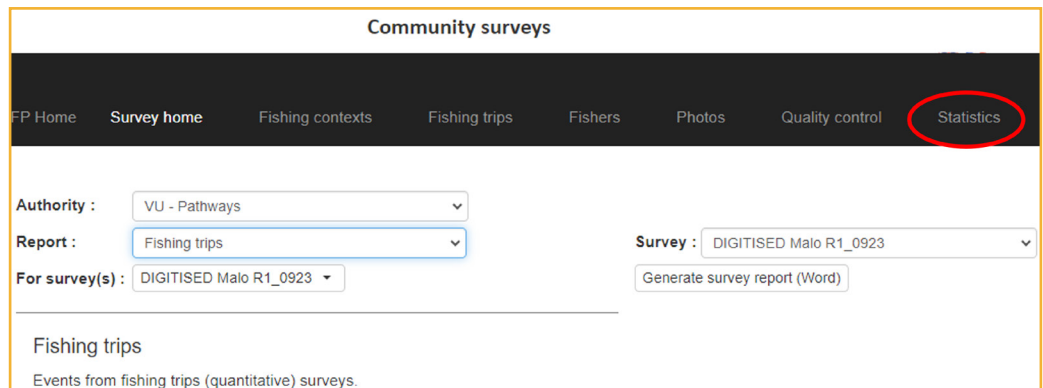
Tick when all specimens have been measured and IDed

<< >>



## 2 Generating reports

The SPC web portal gives you the ability to quickly generate summary reports based on the collected data.



You have two choices. Exporting the data via Excel, or running a report, which will generate a Word Document. The contents of the report can be negotiated with our counterparts at SPC.

Please bear in mind that the size of the fish, and their identification NEED TO BE VALIDATED<sup>^</sup>. If you generate a report before the validation has been completed, the contents of that report can be INACCURATE. The weight generated in these reports is calculated by inserting the length of each fish into a formula with a ratio that is species/genus specific:

$$\text{Weight} = a * \text{Length}^b$$

Where:

- Weight is reported in grams.
- Length is entered in centimetres.
- Coefficients a and b are species/genus specific.

CountryCode	Survey	SurveyCode	SurveyRound	SurveyDate	DataCollector	Fisher	Gender	Village	DateTimeDeparture	DateTimeReturn
VU	DIGITISED Malo R1_0923	MLO	1	16/08/2023	G	G	M	malokikil	8/16/2023 2:00:00 AM	8/16/2023 3:00:00 AM
VU	DIGITISED Malo R1_0923	MLO	1	16/08/2023	W		M	malokikil	8/16/2023 2:30:00 PM	8/16/2023 3:45:00 PM
VU	DIGITISED Malo R1_0923	MLO	1	17/08/2023	W		M	malokikil	8/17/2023 10:00:00 AM	8/17/2023 11:30:00 AM
VU	DIGITISED Malo R1_0923	MLO	1	17/08/2023	W		M	malokikil	8/17/2023 10:00:00 AM	8/17/2023 11:30:00 AM
VU	DIGITISED Malo R1_0923	MLO	1	17/08/2023	W		M	malokikil	8/17/2023 7:48:41 PM	8/17/2023 7:48:41 PM

<sup>^</sup>All catch photos submitted to the SPC still require validation by an expert via the SPC web interface. Validation involves: Identifying the fish/invertebrates to a genus/species level; and ensuring the AI is measuring the animal correctly. With time, as the AI becomes more proficient at identifying different species of fish, less validation will be necessary. However, depending on how many photographs are uploaded of each species of fish, it is still advisable to retain the services of someone familiar with the fish species from the region, who is capable of identifying those fish to a genus or species level.

### 3 Data constraints and analyses

Please bear in mind that no data set is perfect, and there are always constraints and assumptions associated with any data. In the instance of the community survey data, you might want to work through the provided checklist.

The data will show a more accurate picture as time goes on, and multiple, consistent surveys have been conducted. It is risky to have too much confidence in data/reports based on surveys that have only been conducted a few times.

As you see in the figure below, the SPC web interface allows you to access data in two ways - via a survey report in the form of a Word document, or an Excel workbook.

The reporting function on the web interface is open to most kinds of analyses, but your organisation will need to send a list of requests to the SPC. Once those functions/analyses are built in, they will repeat for any dataset you wish to generate a report from.

#### DATA SET CHECKLIST

- Possibility of incomplete coverage:** your sample of fishers/gleaners might not be representative of the entire community
- Temporal variation:** the period of time that the survey was performed might not be representative of the rest of the year
- Accuracy of the surveys:** whether your data collectors/surveyors have asked all of the requisite questions properly, and input the answers as accurately as possible has a significant bearing on how useful the data will be afterwards. There are only very rare instances where data can be responsibly corrected after the fact
- Cleanliness of the data:** data always needs to be cleaned. Do the best you can to ensure all questions were answered and reported correctly, the appropriate photos are attached to the each survey, and that individual fishers are not counted multiple times (e.g. where one fisher is treated as multiple, separate fishers because the fishers' name was spelled differently by several data collectors/surveyors)

CFP Home
Survey home
Fishing contexts
Fishing trips
Fishers
Photos
Quality control
Statistics

Authority : VU - Pathways

Report : Fishing trips

For survey(s) : DIGITISED Malo R1\_0923

Survey : DIGITISED Malo R1\_0923

Generate survey report (Word)

**III- Fish catch top species**

Species	Common name	Total count
Mulloidichthys flavolineatus	Yellowstripe goatfish	46
Caesio caerulea	Blue and gold fusilier	41
Siganus argenteus	Streamlined spinefoot	38
Gnathodentex aureolineatus	Striped large-eye bream	37
Lutjanus gibbus	Humpback red snapper	22
	Other species	299

**Community surveys**

FP Home   Survey home   Fishing contexts   Fishing trips   Fishers   Photos   Quality control   **Statistics**

Authority :

Report :

Survey :

For survey(s) :

## REPORTING

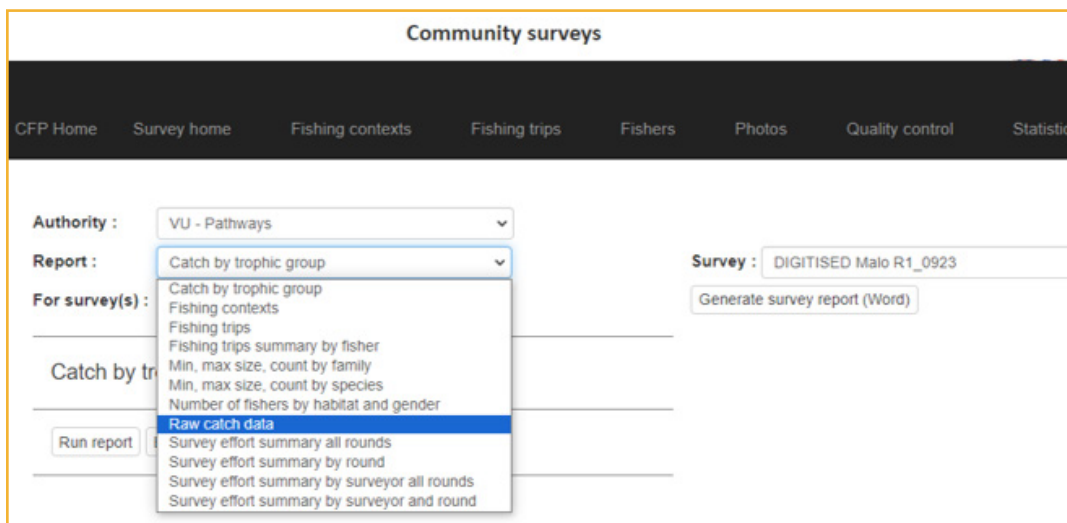
The most basic report (as of publication) presents the following:

1. Total no. fish species: Counted and identified by the AI, but only trustworthy after expert validation
2. Total no. fish caught: Counted by the AI
3. Total weight of fish caught: Calculated using the measured length of the fish and the L/W formula listed on page N.
4. Total no. fish families: A function of the AI count and species identification, but only trustworthy after expert validation
5. Catch by habitat (no. of fish and total weight of fish): A function of the AI count, species identification, and application of L/W coefficients, but only trustworthy after expert validation
6. Most commonly caught fish species: A function of the AI count and species identification, but only trustworthy after expert validation\*
7. Fish species that made up the most weight (kg): A function of the AI count, species identification, and application of L/W coefficients, but only trustworthy after expert validation.
8. Weight (kg) contributed by each family of fishes: A function of the AI count, species identification, and application of L/W coefficients, but only trustworthy after expert validation
9. No. of times a fishing gear was reported being used (by males and by females): Count of responses to the relevant question in the survey - the list of fishing gear/methods can be changed by the data coordinator as specified on page 7.
10. No.s of males and females aware of CBFM regulations: Count of responses to the relevant question in the survey
11. Perceived compliance levels as reported by males and females: Count of responses to the relevant question in the survey\*

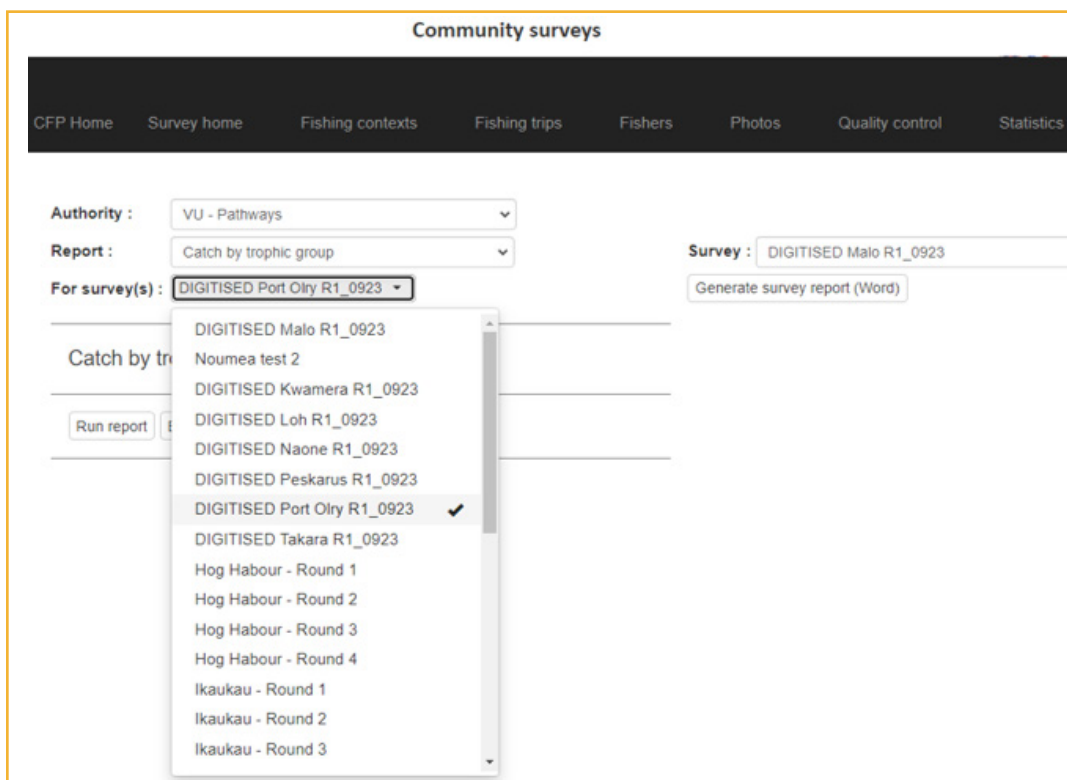
\*Note that 6 of the 11 points above are only trustworthy after the AI driven species IDs have been validated by an expert. Please do not rush and generate reports before you are certain that those species IDs have been validated. The time taken to validate the species IDs will vary depending upon the number of fish photos, the diversity of the recorded catch, and the abilities and time available to your experts.

Once your dataset is complete, you might wish to conduct your own, more complex data analyses using the data.

Select the data that you are interested in using the “Report” dropdown menu.



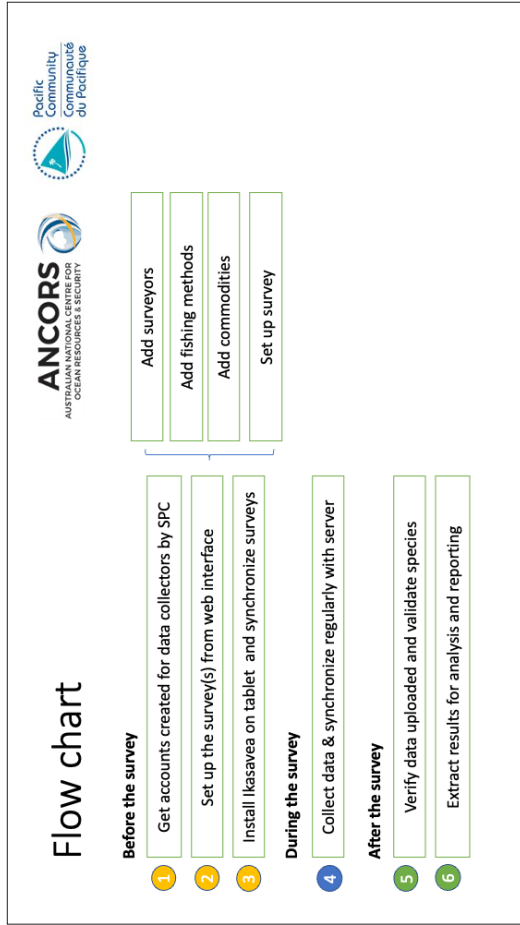
Next, ensure you choose the dataset of interest



Once sure, you can then click the “Export data (Excel)” button. An Excel workbook will then be downloaded to your device, which you can then use like any other Excel workbook.

# APPENDICES

## A: SPC Powerpoint presentation: CBFM database



**Flow chart**

**Before the survey**

1. Get accounts created for data collectors by SPC
2. Set up the survey(s) from web interface
3. Install Ikaavea on tablet and synchronize surveys

**During the survey**

4. Collect data & synchronize regularly with server

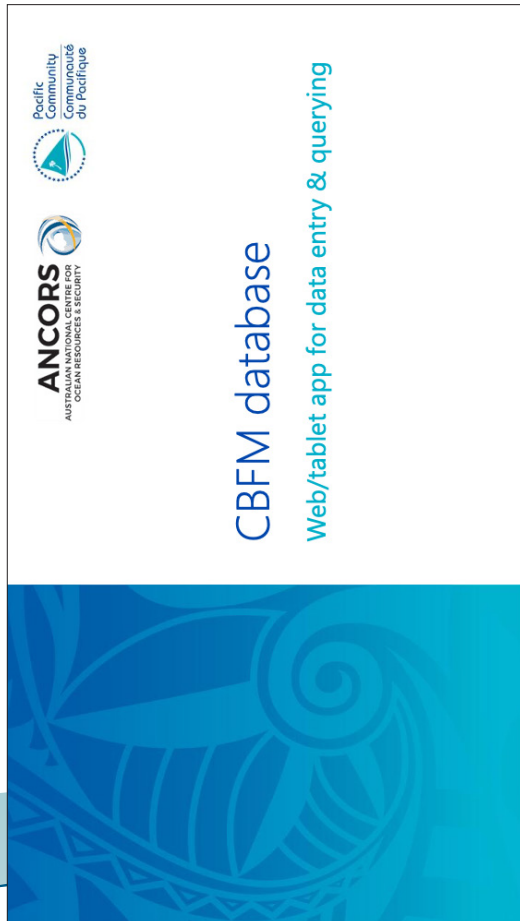
**After the survey**

5. Verify data uploaded and validate species
6. Extract results for analysis and reporting

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Steps in boxes: Add surveyors, Add fishing methods, Add commodities, Set up survey



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# CBFM database

Web/tablet app for data entry & querying



**Set up the survey(s) from web interface**

<https://www.spc.int/CoastalFisheries/>

Creating a new Community Survey

1. Create one or more Surveys
2. Create one or more Fishing methods
3. Create the new Community survey

Data entry and analysis

- Fishes
- Fishing types (quantitative)
- Fishing context (qualitative)
- Reports and statistics

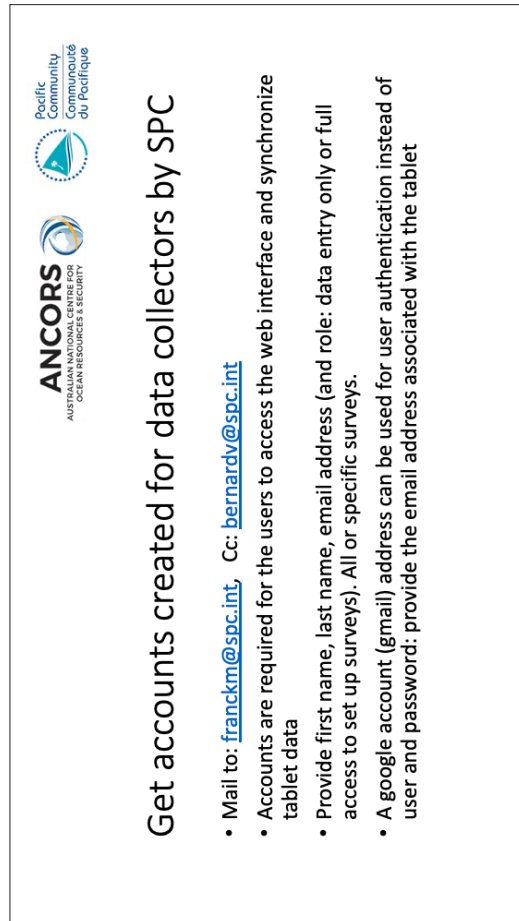
Community surveys Pathways

Other tools

- Merge fishes

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### Get accounts created for data collectors by SPC

- Mail to: [frankm@spc.int](mailto:frankm@spc.int), Cc: [bernardv@spc.int](mailto:bernardv@spc.int)
- Accounts are required for the users to access the web interface and synchronize tablet data
- Provide first name, last name, email address (and role: data entry only or full access to set up surveys). All or specific surveys.
- A google account (gmail) address can be used for user authentication instead of user and password: provide the email address associated with the tablet



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## Add surveyors (if necessary)

Community surveys - Surveyors

GF7 Home Survey home Fishing contents Fishing tips Statistics

Creating a new Community Survey

- Create one or more [Surveyors](#)
- Create one or more [Fishing methods](#)
- Create one or more [Community surveys](#)

**Surveyor properties**

Authority: VU - Fisheries

First name:  Last name:

Organizations:

Email:

Comments:

[Save](#) [Cancel](#)

**Existing surveyors**

Name	Last name	Drop stone	Drop stone	Handline	Net	Other	Specialist (day)	Specialist (night)	Trotting
Ahai Didi		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ahai Serei		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Adeison Itionon		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Chemert Molesoa		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
David Abali		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
David Loo		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Gireka Teraso		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ham Rempo		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Add missing surveyors**  
You'll associate them to surveys later



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## Add fishing methods (if necessary)

Community surveys - Fishing methods

GF7 Home Survey home Fishing contents Fishing tips Statistics

Creating a new Community Survey

- Create one or more [Surveyors](#)
- Create one or more [Fishing methods](#)
- Create one or more [Community surveys](#)

**Fishing method properties**

Authority: VU - Fisheries

Name (EN):  Drop stone

Name (FR):

Sort order:  3

Show number hooks Tuffman Method ID:

[Save](#) [Cancel](#)

**Existing fishing methods**

Fishing method	New method
Drop stone	<input checked="" type="checkbox"/>
Gleaning/collecting	<input checked="" type="checkbox"/>
Handline	<input checked="" type="checkbox"/>
Net	<input checked="" type="checkbox"/>
Other	<input checked="" type="checkbox"/>
Specialist (day)	<input checked="" type="checkbox"/>
Specialist (night)	<input checked="" type="checkbox"/>
Trotting	<input checked="" type="checkbox"/>

**Add only fishing methods of importance to your country and not present in the default list**



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## Installing IkaSavea on your tablet

From Google Play

**IkaSavea**  
SPEC - NAME

Google Play also Applications Free at Play Linux Android

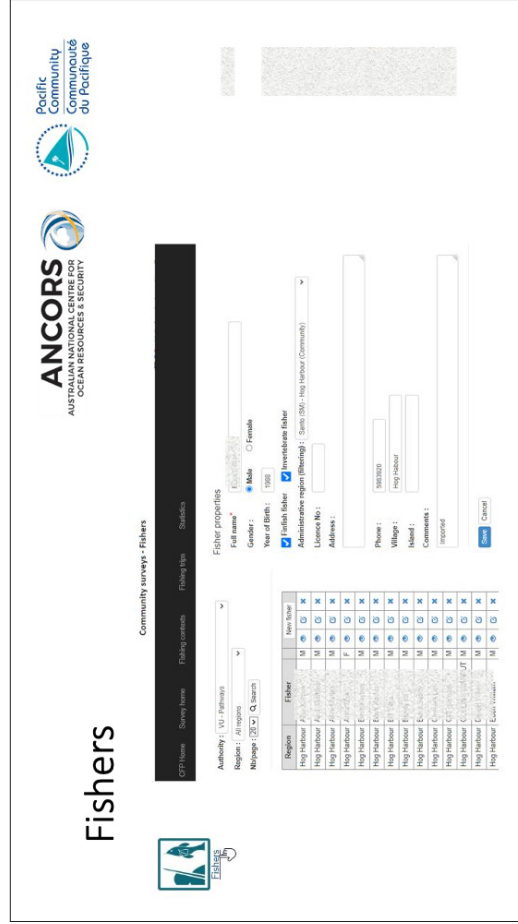
100+ Downloads

Includes set of fishing opportunities

Content requires age dependency for certain on-line options

[GET IT ON Google Play](#)





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## Fishers

Community surveys - Fishers

GF7 Home Survey home Fishing contents Fishing tips Statistics

**Fisher properties**

Authority: VU - Fisheries

Region: All regions

Full name:

Gender:  Male  Female

Year of Birth:  1992

English fisher  Invertebrate fisher

Administrative region (Bilingual):  Sans (0) - (No Inshore Community)

License No.:

Address:

Phone:  985020

Willage:  Noy-inshore

Herat:

Comments:

[Save](#) [Cancel](#)

**Existing fishers**

Region	Fisher	New fisher
Hog Inshore	A	<input checked="" type="checkbox"/>
Hog Inshore	F	<input checked="" type="checkbox"/>
Hog Inshore	M	<input checked="" type="checkbox"/>
Hog Inshore	I	<input checked="" type="checkbox"/>
Hog Inshore	E	<input checked="" type="checkbox"/>
Hog Inshore	Y	<input checked="" type="checkbox"/>
Hog Inshore	W	<input checked="" type="checkbox"/>
Hog Inshore	G	<input checked="" type="checkbox"/>
Hog Inshore	S	<input checked="" type="checkbox"/>
Hog Inshore	O	<input checked="" type="checkbox"/>
Hog Inshore	C	<input checked="" type="checkbox"/>
Hog Inshore	T	<input checked="" type="checkbox"/>
Hog Inshore	H	<input checked="" type="checkbox"/>
Hog Inshore	U	<input checked="" type="checkbox"/>
Hog Inshore	V	<input checked="" type="checkbox"/>
Hog Inshore	N	<input checked="" type="checkbox"/>
Hog Inshore	B	<input checked="" type="checkbox"/>
Hog Inshore	L	<input checked="" type="checkbox"/>
Hog Inshore	K	<input checked="" type="checkbox"/>
Hog Inshore	J	<input checked="" type="checkbox"/>
Hog Inshore	M	<input checked="" type="checkbox"/>
Hog Inshore	A	<input checked="" type="checkbox"/>

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## Fishing context (qualitative)

Community surveys - Fishing context

Creating a new Community Survey

1. Create one or more **Surveyors**
2. Create one or more **Fishing methods**
3. Create one or more **Commodities**

Commodities are used for aggregated catch

Only commodities of importance to your country and in the default list

Commodities are used for qualitative surveys (fishing context) and for aggregated catch

Specify if the commodity should appear in the qualitative surveys or for aggregated catch (or both)

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## Add commodities (if necessary)

Community surveys - Commodities

Creating a new Community Survey

1. Create one or more **Surveyors**
2. Create one or more **Fishing methods**
3. Create one or more **Commodities**

Commodities are used for aggregated catch

Only commodities of importance to your country and in the default list

Commodities are used for qualitative surveys (fishing context) and for aggregated catch

Specify if the commodity should appear in the qualitative surveys or for aggregated catch (or both)

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## Set up survey: general properties

Hog Harbour - Round 1

Associated communities

Associated data collectors

Set up survey: regions and surveyors

Note you can clone an existing survey for a new round

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## Set up survey: regions and surveyors

Hog Harbour - Round 1

Associated communities

Associated data collectors

Set up survey: regions and surveyors

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## Catch survey (quantitative): catch

Data for the trip - *HOg Harbour* (6/26/2022)

PHO\_KAUT\_079\_105  
PHO\_KAUT\_179\_105.JPG

Event: Event 1  
Picture analysis  
Individual measurements

PHO\_KAUT\_079\_105  
PHO\_KAUT\_179\_105.JPG

Ignore photo  
Fishes on mat: Mat model Pathway: 12:08  
Measurement: Single line O Path  
Species: Suggested: e.g. *Scylla serrata*  
Previously recorded:  Set species  
Fork length:   
Specimen No.:   
Comments:   
Add specimen

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## Report generation

Survey: Hog Harbour - Round 1  
Generate survey report (Word)

1. Catch by habitat

Habitat	Total count	Total weight (kg)
Water	179	27.4
Soft mud	2	2.8
Hard or pebbles	2	2.8

Catch by habitat and no. of catches

Water: 179 (82%)  
Soft mud: 2 (1%)  
Hard or pebbles: 2 (1%)

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## Catch survey (quantitative): trips

Community surveys

Authority: VOT Fisheries  
Survey: Hog Harbour - Round 1

Event 1  
DMD for this trip: 11/13/2019

2019-11-13  
Survey date: 2019-11-13

Fisher:  New fisher  
Trip departure: 2019-11-13 07:00  
Trip return: 2019-11-13 06:45  
Sea conditions: Calm Average Rough Not at all  
Boat type: Motor boat Sail boat Canoe No boat Other  
Was it more difficult to fish/catch than usual: Yes No  
Please note any special events:  
Is set of Logbooks from Inshore Fisher data on the 13/11/2019, special log rights on a near by island  
How many fishing events were associated with this fishing trip?: 1  
Comments:

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## Reporting



Authority: VOT Fisheries  
Report: Fishing trips  
For example: Hog Harbour - Round 1, Nat CERF

Fishing trips  
Events from fishing trips (quantitative surveys)

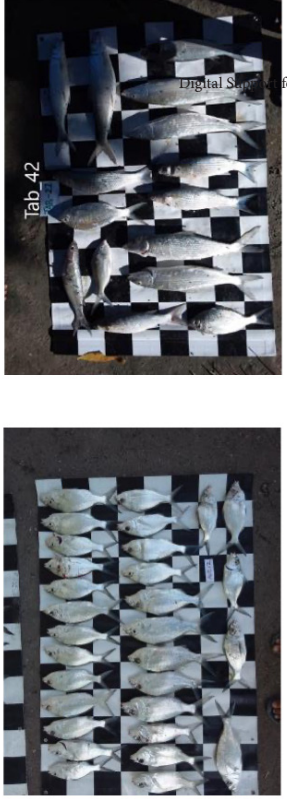
Survey	SurveyCode	SurveyRound	SurveyDate	Date/Time/Duration	Fisher	Gender	Village	SecLocation	BoatType	Number/Centers	Month/Day/Year	SpecialEvents
Hog Harbour	HOG	2	7/10/2020	7/10/2020 12:00:00 AM	John Vella	M	Hog Harbour	Average	Motor boat	1	Yes	Community work for Youthlab (1000)
Hog Harbour	HOG	2	7/10/2020	7/10/2020 12:00:00 PM	John Vella	M	Hog Harbour	Canoe	No boat	1	Yes	Wanted checked up on the whole National Campsite
Hog Harbour	HOG	2	7/10/2020	7/10/2020 12:00:00 AM	John Vella	F	Hog Harbour	Average	Motor boat	2	No	Community work
Hog Harbour	HOG	2	7/10/2020	7/10/2020 12:00:00 PM	John Vella	F	Hog Harbour	Average	Motor boat	2	No	Community work



## B: SPC Powerpoint presentation: Automated processing of landing images






### Failed checkerboard mat calibration

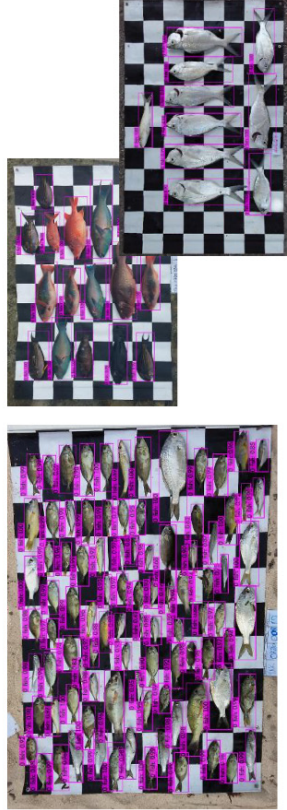


Another mat interferes with calibration  
 Calibration of these images would have to be done manually by selecting 5 know key points on the image


Mat blending with background

### Fish detection on a checkerboard





The checkerboard background adds an extra difficulty for automatic detection but it works generally well

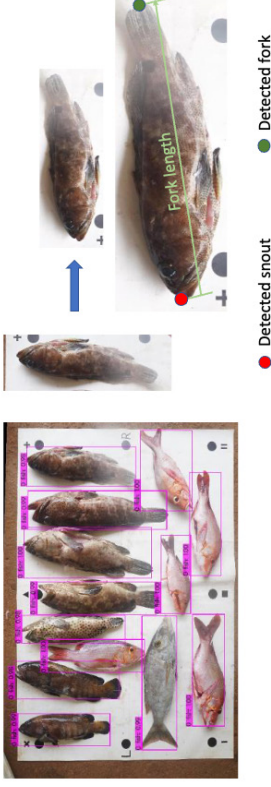



### Automated processing of landing images

#### Measuring boards and calibrated mats

### Fish detection and measurement



Fishes are detected from the calibrated mat, then rotated and/or flipped to standardize the picture  
 Snout and fork are detected for fish measurement

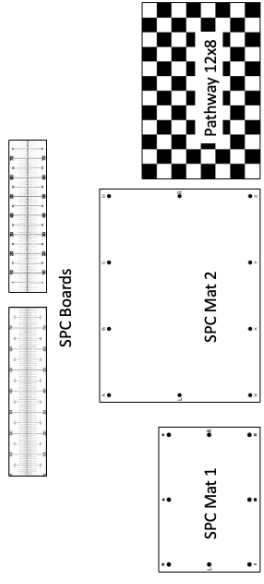
### Scale detection and reading digits



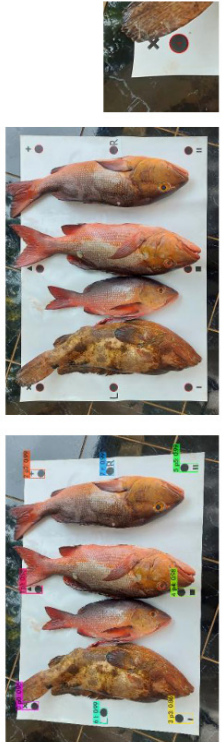
Reading digits 0.600

For measuring board photos, scale is detected and digits read from detected scale picture. Resulting number is further processed to choose a weight unit (kg or g).

### Standard mats & boards for calibration



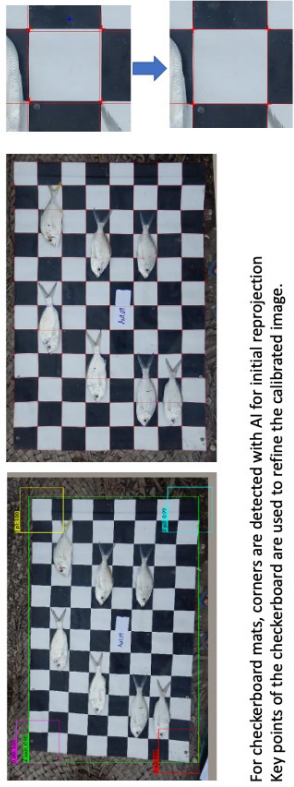
### Standard mats & boards for calibration



For SPC mats, markers are detected with AI for initial reprojection. Black circles are also used to refine the calibrated image.

You need at least 4 non-aligned and fully visible markers to calibrate an image. More is better.

### Standard mats & boards for calibration



For checkerboard mats, corners are detected with AI for initial reprojection. Key points of the checkerboard are used to refine the calibrated image.

Calibration can be impaired if corner blocks are not visible or free

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### Failed checkerboard mat calibration

Another mat interferes with calibration  
Mat blending with background

Calibration of these images would have to be done manually by selecting 5 know key points on the image

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### Fish detection and measurement

● Detected snout ● Detected fork

Fishes are detected from the calibrated mat, then rotated and/or flipped to standardize the picture  
Snout and fork are detected for fish measurement

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### Fish detection on a checkerboard

The checkerboard background adds an extra difficulty for automatic detection but it works generally well

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### Failed checkerboard mat detection

Missing corners of the mat

Missing one column of the mat

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### Fish measurement (checkerboard)

● Detected snout ● Detected fork

Detected fishes the calibrated checkerboard are rotated and/or flipped to standardize the picture  
Snout and fork are detected for fish measurement. For the above example detected length is 19.751 cm and the manually measured length with ImageJ is 19.831 cm

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### Automated species identification

PHIC\_KAUT\_1218\_108.jpg

Ignore photo

Fishes on mat: Mat model Pathway 1208

Measurement: Single line Path

Species: **Pseudobalistes flavimarginatus**

Suggested: Pseudobalistes flavimarginatus 79.4

Previously recorded: Set species

Longueur à la fourche: 302.4 mm

Specimen No.: 1

Ignore data

Update specimen

Save data

*Pseudobalistes flavimarginatus*  
Yellowmargin lingparrotfish

Note: Add 2.5x to add  
Blue to purple/blue or tan with dark spots and (1)  
crosshatch pattern on body. (2) Height of fins yellow to orange, preceded by light blue on second dorsal, anal and caudal fins.

