



Scientific support for the management of Coastal and Oceanic Fisheries
in the Pacific Islands region (SciCOFish)



Funded by European Union
(10th EDF)

Before you jump into inshore surveys





Think before you act

Your survey questions must be driven by management questions

Your survey design must be driven by available resources and desired spatial coverage

Does the proposed survey design/forms answer your management questions ?



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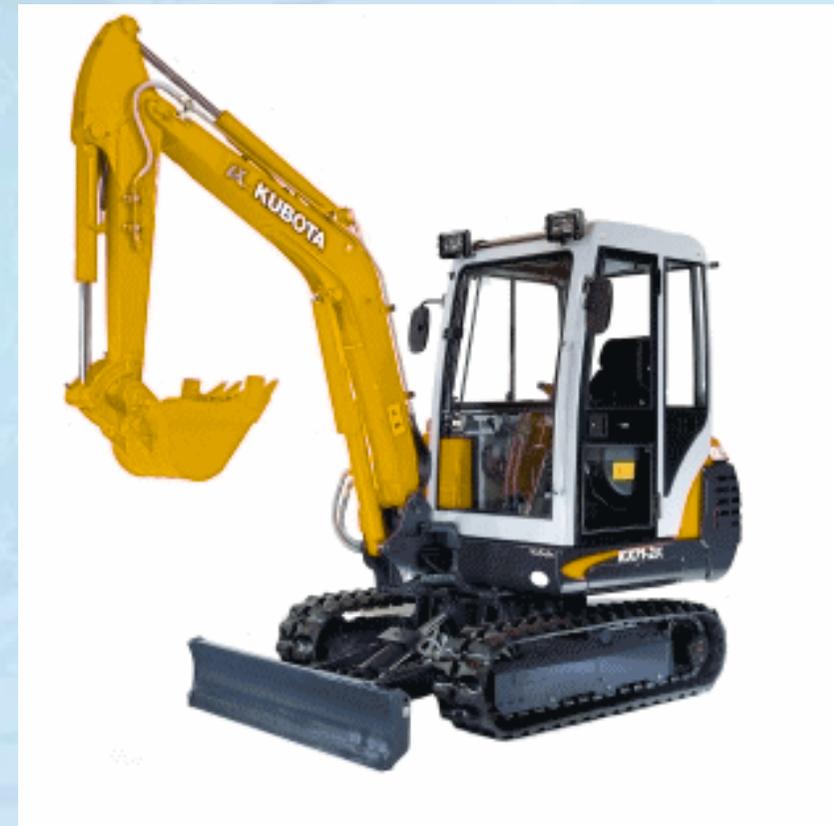


Use the right tool for what you want to produce





Choose the correct tool size





So what is a fisher and where can you survey them ?





What is your survey capacity ?



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When analyzing your data

Do you get the answer to your management question ?

What is the representativeness of your averages ?
(be very cautious)

Does your sampling design allow you to extrapolate ?
(be extra cautious)

What are your assumptions vs facts ?

Revise your sampling design if necessary !



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Type of surveys (and associated databases)

Should be based on management questions...

Underwater surveys: direct assessment of marine resources (ex: density & biomass of aquarium fishes, beche-de-mer, trochus, commercial reef fishes)

=> RFID / UVC & invertebrate manuals in prep.

Socio-economic surveys: assessment of importance of marine resources for livelihood, fish consumption, income, subsistence fishing through household & fisher surveys

=> SEMCoS / Socio-economic survey manual (2007).





Type of surveys (and associated databases)

Creel surveys: Assessment of fishing activities, methods, catch composition, costs

=> Creel & Market Surveys database / survey manual in prep.

Markey surveys: Assessment of market sales, prices, species composition

=> Creel & Market Surveys database / survey manual in prep.

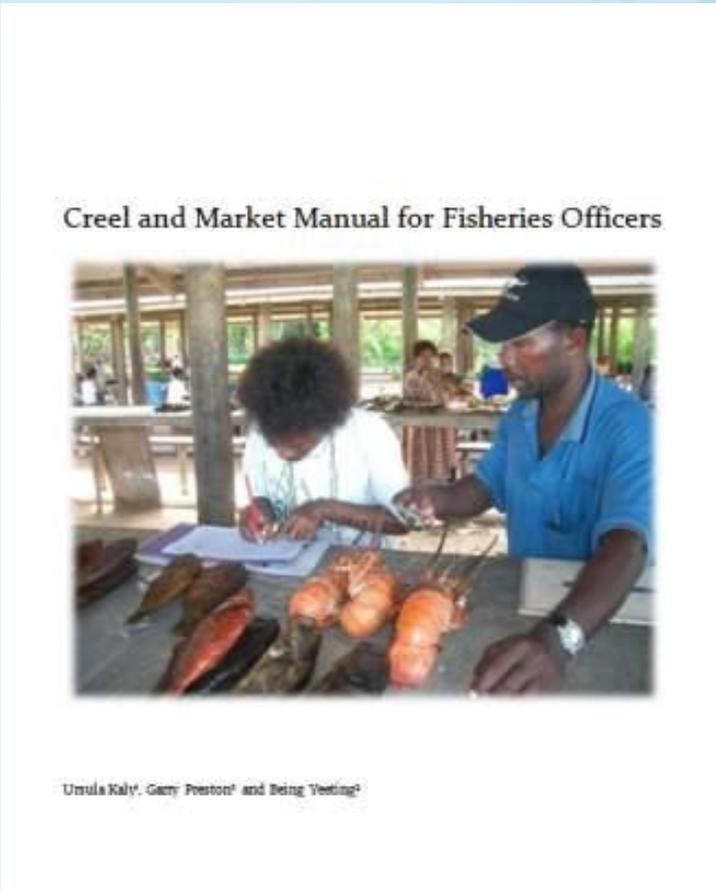
Exports permits: Assessment of exports of commodities (aquarium trade, beche-de-mer,...)

=> Exports database





Creel & Market Manual



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Creel survey

Forms divided into slices (blocks of questions), you can choose the ones you are interested in and skip the rest

For creel surveys :

- C1 : Basic information on fisher
- C2: Species composition
- C3/C4: Species sizes and weights
- C5: Effort data
- C6: Prices
- C7: Perceptions of fishers



General Objective Counts Weights & Sizes Effort Transport Prices Perception Comments

General Information

Landing site : Paul's warf ...

Date of survey : 11/11/2013

Landing no : 1

Surveyors...

Surveyor Name
▶ Being Yeeting
*

Fishers

Number of fishers : 2

Lead Fisher : Paul Ichinel ...

Fisher with others :

Fisher Name
▶ Maria Iciehla
*

Fishing Habits

Fishing frequency : 2 Per week

Fishing months : 11

Fishing Methods :

Fishing Method
▶ Handlining
Gillnetting
*

Fishing Methods...





General	Objective	Counts	Weights & Sizes	Effort	Transport	Prices	Perception	Comments
---------	-----------	--------	-----------------	--------	-----------	--------	------------	----------

Other Landings

	Landing Site	Freq Visits	Period	Landing Sites..
▶	My Landing Site	1	Per month	
*				

Income / Reason for fishing

Subsistence Income

Other reason

Details :

Destination of today's catch : 40 % kept 60 % sold

Expected income : 50 AUD

Estimated total weight : 120 kg

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Species composition / counts

	Species	Fish Product	Tot. Number	Tot. Weight	Weight Unit
▶	Lethrinus atkinsoni		10	5.2	kg
	Lutjanus gibbus		3	2	kg
		Crab		6	kg
		Trochus	60	200	kg
*					

Species Weights & Sizes

	Species	Size Type	Size	Unit	Weight	Unit
	Lutjanus biguttatus	FL	25	cm	1.2	kg
	Lethrinus atkinsoni	FL	12	cm		kg
	Scarus ghobban	FL	30	cm		kg
	Scarus rivulatus	FL	24	cm		kg
	Scarus rivulatus	FL	15	cm		kg
▶	Scarus rivulatus	FL	32	cm		kg
*						





General Objective Counts Weights & Sizes Effort Transport Prices Perception Comments

Effort

Main fishing activity : ... Time spent fishing : hours

Fishing method by fish product

Fish Product	Fishing Method	Nb Hours	Period
Crab	Collecting (Walk)	1	Day & Night
Reef fish	Gillnetting	2	Day
▶ Pelagic fish	Handlining	4	Day

Fish Products...
Fishing Methods...

Gear losses & damages

Fishing Gear	Replace Cost	Repair Cost	Currency
▶ Gillnet		5	AUD
*			

Fishing Gears...

Other costs for the fishing trip

Fishing Cost	Quantity	Unit Price	Price Unit	Total Cost	Currency
Fuel	40	1.2	Per litre	42	AUD
▶ water	2			5	AUD
*					

Fishing Costs...
Price Units...





General | Objective | Counts | Weights & Sizes | Effort | **Transport** | Prices | Perception | Comments

Fishing grounds

Distance of furthest location fished : Grid :

Hours

	Location	Name	Distance	Unit	Hours	Grid Coord.	Longitude	Latitude
▶	Back reef Woja		5	km	2			
*								

Boat

Construction material :

Type of boat : Boat length :

Propulsion type : Boat power : HP

Safety gears

	Safety Gear	Cost	Currency
	Flashlight	15	AUD
▶*			AUD





General Objective Counts Weights & Sizes Effort Transport Prices Perception Comments

Catch uses / selling place

Catch use / selling place
Public fish market
▶ Buyer
*

Catch Uses...

Catch prices

Fish Product	Sale Unit	Number per unit	Price per unit	Currency
Reef fish	String	5	10	AUD
Crab	Piece	1	3	AUD
▶ Pelagic fish	kg	1	5	AUD
*				

Fish Products... Sale Units...





General	Objective	Counts	Weights & Sizes	Effort	Transport	Prices	Perception	Comments
---------	-----------	--------	-----------------	--------	-----------	--------	------------	----------

Perceptions of fishers

Number of years fishing : years Number of years this type of fishing : years

Past types of fishing activities : Doing other types of fishing activities :

	Fishing Activity
▶	Spear fishing
*	

	Fishing Activity
▶	FAD fishing
*	

Are you fishing in the same areas as 5 years ago ?

Yes No

Explain :

Are you catching the same quantities as 5 years ago ?

Yes No

Explain :

Are you catching the same size as 5 years ago ?

Yes No

Explain :



Market survey

Slices for market surveys :

- M1 : Basic information on marketer
- M2: Species composition
- M3/M4: Species sizes and weights
- M5: Income from marketing
- M6: Perceptions of fishers

The screenshot shows the SciCOFish software interface. On the left is a 'Navigation' pane with a tree view showing 'Locations' > 'Papua New Guinea' > 'Madang' > 'Madang 2015' > 'Mandang Market 2015'. The main window has a title bar 'Madang 2015 Mandang Market 2015' and a menu bar with 'General', 'Objective', 'Counts', 'Weights & Sizes', 'Costs', 'Prices', 'Perception', and 'Comments'. The 'Weights & Sizes' tab is active, showing a 'Species Weights & Sizes' table. Above the table are input fields for a dropdown menu, a date field set to 'Monday, 20 May', and a table with 'Code' and 'Date' columns. The 'Code' column has a value of '1' and the 'Date' column has '5/20/2013'. The main table has columns: Species, Sex, In berry, Size Type, Size, Unit, Weight, and Unit. The data rows are:

Species	Sex	In berry	Size Type	Size	Unit	Weight	Unit
Lethrinus atkinsoni		<input type="checkbox"/>	FL	30	cm	0.7	kg
Lutjanus sp.		<input type="checkbox"/>	FL	26	cm	0.6	kg
▶ Scarus ghobban	M	<input type="checkbox"/>			cm	5	kg
*		<input type="checkbox"/>					kg





Creel & Market Surveys queries

3.2.9 Average size or weight (or both) of catch landed by species or family (C3/C4) Mean

This question uses the data collected under C3 on size or C4 on weight, or both, if you have collected both types of data. You may use average size for a species (best) or family (not as good) as a time series to test for changes in the size of fish being caught. That is, as a one-off, these data are not especially useful for management, but if you keep repeating the survey over time (especially years) you might be able to pick up trends in changes in average size. As species become overfished, one of the first signs you will be able to see is a reduction in size of the individuals being caught, usually as length, but can also be applied to weight. As with other outputs from the database, you can use the sort and filter options from the top of each column to select data you are interested in.

The screenshot shows a software interface with a navigation tree on the left and a data table on the right. The navigation tree includes 'Locations' with sub-items for 'Papua New Guinea', 'Madang', 'Tonga', and 'My Creel Survey'. The data table has columns for Survey, Landing Site, Year, Month, Family, Species, NbSizeLe, AvgMeas, and StdErrMesSize. A blue arrow points to the 'Month' column header.

Survey	LandingSit	Year	Month	Month	Family	Species	NbSizeLe	AvgMeas	StdErrMesSize	
My Cre...	Main Jetty	2012	8	August	Fishes	Mullidae	Parupeneus cycl...	2	18.5	0.5
My Cre...	Main Jetty	2012	8	August	Fishes	Mullidae	Parupeneus multi...	2	17	0
My Cre...	Main Jetty	2012	8	August	Fishes	Mullidae	Parupeneus sp.	4	16	1.290994448735
My Cre...	Main Jetty	2012	8	August	Fishes	Muraenidae	Gymnothorax jav...	2	76	4
My Cre...	Main Jetty	2012	8	August	Fishes	Muraenidae	Gymnothorax sp.	9	41.777...	3.967849185704
My Cre...	Main Jetty	2012	8	August	Fishes	Pomacanthidae	Centropyge bicolor	1	30	
My Cre...	Main Jetty	2012	8	August	Fishes	Priacanthidae	Priacanthus hamrur	2	25.5	3.4999999999999
My Cre...	Main Jetty	2012	8	August	Fishes	Scaridae	Leptoscarus vaigi...	254	21.775...	0.153603944266
My Cre...	Main Jetty	2012	8	August	Fishes	Scaridae	Scorpaenopsis	10	27.6	1.687865186822





Creel & Market Surveys queries

Creel Reports

Report : Creel - 3.2.1 Number of fishers by landing [Update Calculated]

Period from [Save]

- Creel - 3.2.1 Number of fishers by landing
- Creel - 3.2.1 Average number of fishers by survey and landing site
- Creel - 3.2.2 Number of fishers (freq) by survey and landing site
- Creel - 3.2.3 Lead fishers by landing
- Creel - 3.2.3 Other fishers by landing
- Creel - 3.2.4 Number of landings for lead fishers
- Creel - 3.2.5 Reasons for fishing and catch use - Details
- Creel - 3.2.5 Reasons for fishing and catch use - Average
- Creel - 3.2.6 Average income per trip
- Creel - 3.2.7 Average eye estimate of weight of catch
- Creel - 3.2.8 Species composition - Details (incl zeros)
- Creel - 3.2.8 Catch composition by species - Avg
- Creel - 3.2.8 Catch composition by species - Avg
- Creel - 3.2.8 Catch size/weights by species - Total
- Creel - 3.2.8 Catch size/weights by species - Land
- Creel - 3.2.8 Catch size/weights by family - Land
- Creel - 3.2.9 Catch size/weights by species - Avg
- Creel - 3.2.9 Catch size/weights by family - Avg
- Creel - 3.2.12 Species richness from catch counts
- Creel - 3.2.12 Species richness from catch detail
- Creel - 3.2.16 Average trip cost
- Creel - 3.2.16 Average trip cost per cost type
- Creel - 3.2.17 Average distance to the furthest site

- Market - 3.3.1 Number of vendors by stall
- Market - 3.3.1 Number of vendors by stall
- Market - 3.3.6 Average income per stall per day
- Market - 3.3.7 Average eye estimate of weight of catch for sale
- Market - 3.3.8 Species composition - Details (incl zeros)
- Market - 3.3.8 Catch composition by species - Avg Number (incl zeros)
- Market - 3.3.8 Catch composition by species - Avg Weight (incl zeros)
- Market - 3.3.8 Product composition - Details (incl zeros)
- Market - 3.3.9 Catch for sale size/weights by species - Avg size and weight
- Market - 3.3.9 Catch for sale size/weights by family - Avg size and weight
- Market - 3.3.10 Size distribution by species
- Market - 3.3.14 Origin of marine products for sale
- Market - 3.3.15 Average selling cost
- Market - 3.3.15 Average market cost per cost type
- Market - 3.3.17 - Number of years selling
- Market - 3.3.19 - Selling same seafoods, quantities and size as 5 years ago
- Market - 3.3.20 - Concerns about resources
- Market - Total recorded counts by market, month and species

- Tonga - Avg nb of (surveyed) boats/day (Week/Saturday)
- Tonga - Avg nb of (surveyed) boats/day (Week/Saturday/Activity)
- Tonga - Avg nb of fishers per boat (Week/Saturday)
- Tonga - Avg nb of fishers per boat (Week/Saturday/Activity)
- Tonga - Average fisher total catch per landing (Week/Saturday)
- Tonga - Average fisher total catch per landing (Week/Saturday/Activity)
- Tonga - Average fisher count per species and landing (Week/Saturday)
- Tonga - Average fisher count per family and landing (Week/Saturday)
- Tonga - Average fisher count per species and landing (Week/Saturday/Activity)
- Tonga - Average fisher CPUE (Week/Saturday/Activity)
- Tonga - Catch percentage (weight) per activity
- Tonga - Catch percentage (count) per family and activity
- Tonga - Average fisher total catch - Octopus strings - per landing (Week/Saturday)
- Tonga - Landings without main activity (effort)
- Tonga - Landings without number of fishers
- Tonga - Landings with total catch = 0
- Tonga - 1.1 Avg nb of (surveyed) boats/week
- Tonga - 1.2 Avg nb of fishers per boat (weighted)
- Tonga - 1.3 Average fisher total catch per landing (weighted)
- Tonga - 2.1 Avg nb of (surveyed) boats/week (Activity)
- Tonga - 2.2 Avg nb of fishers per boat and activity (weighted)
- Tonga - 2.3 Average fisher total catch per landing and activity (weighted)
- Tonga - 4.1 Average fisher count per family and landing (weighted)
- Tonga - 5.1 Average fisher count per family, landing and activity (weighted)
- Tonga - 6.1 Average fisher count per species and landing (weighted)
- Tonga - 7.1 Average fisher count per species, landing and activity (weighted)
- Tonga - 8.1 Average fisher CPUE by Activity (weighted)



This is just a tool
It'll be as good as the use you make of it



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