KINGDOM OF CAMBODIA

National Religion King

Ministry of Agriculture Forestry and Fisheries

Fisheries Administration

Cambodia Programme for Sustainable and Inclusive Growth in the Fisheries Sector: Capture Component

Monthly Statistical Report
Scientific Catch Assessment of Inland Fisheries in Cambodia
June 2023

By Inland Fisheries Research and Development Institute

Funded by European Union
ACA/2018/041-466 and ACA/2019/041-594

1. Introduction

IFReDI, with technical assistance from FAO CAPFISH project under EU budget support, is implementing a scientific catch assessment survey, using a monthly household recall survey for inland fisheries in Cambodia. The aim is to obtain better information on catch and effort by small-scale household fisheries in Cambodia, and to develop a sustainable catch monitoring methodology for implementation by provincial fisheries administrations, supported by IFReDI. The current monthly statistical report provides preliminary analysis based on the available data and focuses on the main indicators that are covered by the catch assessment survey. A more comprehensive analysis will be included in the annual report.

2. Methodology of data collection and analysis

A description of the methodology can be found in:
Fisheries Administration (FiA). 2021. Manual fo Scientific Catch Assessment by Recall survey of Inlan Fisheries in Cambodia. Inland Fisheries Research an Development Institute of the Fisherie Administration, Phnom Penh, Cambodia. 47 pages.

The total estimated catch in this report is calculated using the proportion of fishing households found by the random household selection under the Household Selection Interview survey. This is taken to be representative for the proportion of fishing households for each fishing area and this is combined with the total number of rural households by fishing area from the NIS 2019 population census to estimate the total number of fishing households. The Fishing Activity Coefficient is estimated from proportion of households reporting fishing activities in the Household Catch Interview.

Estimates for CPUE, the average (mean) daily household catch and the mean monthly household catch used for extrapolating the total catch, come with a value for the relative standard error (ε%). This is used to indicate the statistical accuracy of the estimate for the mean catch. If the ε% is higher than 30% this indicates a high inaccuracy[1], either due to high variation or low sample size and the value cannot be used to represent the real value of the mean catch and are clearly indicated in the tables included in this report.

In tables with the proportion of reported catch obtained by habitat and fishing gear, the average daily catch by habitat or gear (CPUE) isn't included. The available data displays too much variation for it to be statistically accurate for that level of detail for monthly estimates and cannot be expected representative for the real CPUE at low numbers of observations available. When relevant this will be included in the annual report, if sufficient observations are available for individual gears/habitats that give a high enough statistical accuracy.

3. Statistical tables and results

Table 1. Number of random selected households covered by the survey and proportion of target household by fishing area for June 2023.

Fishing Area	Villages	Household		
		Count	Target	Proportion
Coastal	3	45	45	100.0%

[1] For national statistical reports the rule of thumb states that if the relative standard error (ε%) is higher than 30%, the average should not be **reported** and that only estimates with a value of ε%, below 25% should be considered **statistically valid**. The current report includes all estimated values to indicate that an estimate is available, with the value for ε% indicating the statistical accuracy.

Floodplain	17	255	255	100.0%
Plateau	10	159	150	106.0%
Tonle Sap	20	288	300	96.0%
Mountainous	6	90	90	100.0%
Grand Total	**56**	**837**	**840**	**99.6%**

Table 2. Mean **daily** household catch (CPUE), with number of active fishing households, standard deviation and relative standard error, by fishing area.

Fishing Area	Active HH	Daily HH catch (Kg)	SD	ε%
Coastal	10	2.32	1.85	25.1%
Floodplain	77	3.31	3.23	11.1%
Plateau	73	6.07	6.20	11.9%
Tonle Sap	132	6.23	12.22	17.1%
Mountainous	35	5.47	5.87	18.1%
Overall	327	5.31	8.73	9.1%

Mean daily catch calculated based on the reported 5-day catch and fishing days, with SD is Standard Deviation; ε% is relative Standard Error

Table 3. Mean **monthly** household catch, with proportion of active fishing households, standard deviation, relative standard error and total estimated catch by fishing area.

Fishing Area	% Active HH	Monthly HH catch (Kg)	SD	ε%	Total (MT)	Contribution (%)
Coastal	22%	33.72	7.06	39.7%	463	1.0%
Floodplain	30%	55.00	8.72	10.8%	10,223	21.4%
Plateau	46%	145.58	30.24	14.6%	6,518	13.7%
Tonle Sap	46%	122.25	61.03	26.1%	21,331	44.7%
Mountainous	39%	88.66	14.66	16.8%	4,530	9.5%
			Total estimated catch (MT)		**43,065**	

SD is Standard Deviation; ε% is relative Standard Error

Table 4. Proportion of fishing days on which male and female adults and children are reporting fishing activities.

Fishing Area	Adult Female	Adult Male	Child Female	Child Male
Coastal	4.8%	66.7%	0.0%	0.0%
Floodplain	15.7%	94.9%	2.3%	3.7%
Plateau	12.6%	66.0%	2.8%	13.4%
Tonle Sap	15.2%	85.7%	3.8%	11.4%
Mountainous	7.4%	91.5%	2.1%	7.4%
Grand Total	**13.6%**	**82.6%**	**2.9%**	**9.5%**

The maximum involvement of each gender and age group is 100% for each fishing area, if they are fishing on all reported fishing days, the total for each fishing area can be more than 100%.

Table 5. Reported catch (Kg) with proportion caught by main boat type by fishing area.

Fishing Area	Catch (Kg)	No boat	Motorised	Non-motorised
Coastal	38.6	97.2%	2.8%	0.0%
Floodplain	586.5	26.6%	56.5%	16.9%
Plateau	1,401.1	14.3%	49.8%	35.8%
Tonle Sap	2,085.9	21.3%	75.9%	2.8%
Mountainous	397.2	57.8%	19.3%	22.9%
Grand Total	4,509.3	23.7%	59.7%	16.7%

Overall proportion based on weighted average catch by main boat type and fishing area, not reported total catch[2]

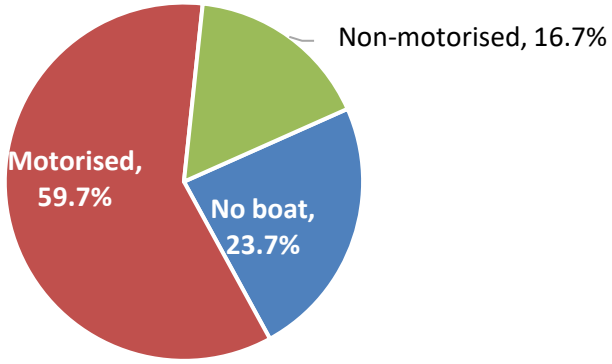

Figure 1. Overall contribution of the main boat types to total reported catch.

Table 6. Proportion and reported catch by habitat for single habitat catches by fishing area.

Fishing Habitats	Coastal	Floodplain	Plateau	Tonle Sap	Mountain	Grand Total
Mekong Mainstream	0.0%	59.9%	88.9%	0.0%	0.0%	39.0%
Tributaries to Tonle Sap	0.0%	12.0%	0.0%	53.0%	0.0%	24.8%
Floodplain: lakes and ponds	63.0%	12.2%	3.6%	12.1%	51.9%	12.4%
Floodplain: rice fields (rain)	0.0%	7.8%	1.1%	10.3%	17.6%	7.1%
Major Tributaries	0.0%	0.0%	0.0%	12.4%	12.3%	6.4%
Sub-Stream	0.0%	1.2%	5.0%	1.0%	4.6%	2.7%
Stream	13.2%	0.4%	0.0%	3.3%	3.5%	1.9%
Reservoir	9.4%	4.2%	0.0%	2.8%	0.0%	1.9%
Irrigation canals	14.4%	0.2%	0.9%	1.6%	0.0%	1.2%
Floodplain: rice fields (flooded)	0.0%	0.0%	0.5%	2.0%	0.0%	1.1%
Others	0.0%	1.8%	0.0%	0.0%	10.1%	0.9%
Floodplain: flooded forest	0.0%	0.0%	0.0%	1.5%	0.0%	0.7%
Seasonal swamps	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%
Grand Total (kg)	**56.2**	**673.8**	**1,803.2**	**2,689.5**	**517.2**	**5,739.9**

Only catch for fishing days that report fishing in a single habitat is included.

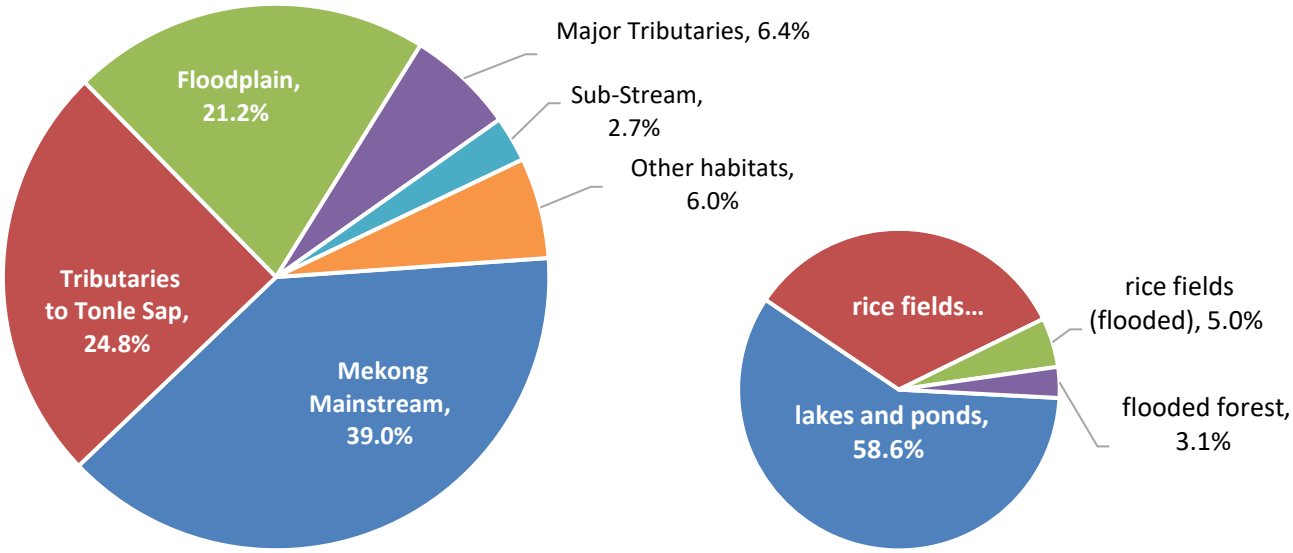

Figure 2. Overall contribution of the habitats to total reported catch, with proportion of catch for floodplain habitats

[2] This is the standard way to calculate, but isn't done for habitat and gear catch, as this is complicated by fishing days where the reported catch is from multiple habitats or caught by multiple gears

Table 7. Proportion and reported catch by gear for single gear days, by fishing area.

Fishing gears	Coastal	Floodplain	Plateau	Tonle Sap	Mountain	Grand Total
Stationary gillnet	59.1%	5.3%	89.0%	24.5%	45.7%	41.5%
Unspecified gears	24.0%	0.7%	1.1%	30.5%	32.0%	18.8%
Drifting gillnet	0.0%	76.1%	1.8%	6.8%	7.0%	13.3%
Horizontal cylinder trap	0.0%	3.9%	3.4%	7.4%	4.9%	5.7%
Seine nets	0.0%	1.0%	0.0%	9.0%	0.0%	5.16%
Hand capture	0.0%	1.3%	0.0%	8.2%	4.6%	4.9%
Cast net	12.0%	7.6%	2.8%	3.4%	2.7%	3.7%
Hook long line	0.0%	0.0%	0.0%	4.5%	0.0%	2.5%
scoop nets	0.0%	0.0%	0.0%	3.5%	0.0%	1.99%
Horizontal cylinder trap	0.0%	0.0%	0.5%	1.7%	0.0%	1.1%
Hook and line	0.0%	0.0%	1.5%	0.1%	0.0%	0.5%
Pumping	0.0%	3.9%	0.0%	0.0%	0.0%	0.4%
Pole and line	0.0%	0.0%	0.0%	0.3%	1.7%	0.2%
Spear	4.8%	0.0%	0.0%	0.1%	0.0%	0.1%
Push nets	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%
Bag nets	0.0%	0.3%	0.0%	0.0%	0.0%	0.03%
Grand Total (kg)	**56.2**	**705.8**	**1,771.2**	**2,689.5**	**517.2**	**5,739.9**

Only catch for fishing days that report fishing with a single gear is included, therefore the total is different from reported catch by habitat.

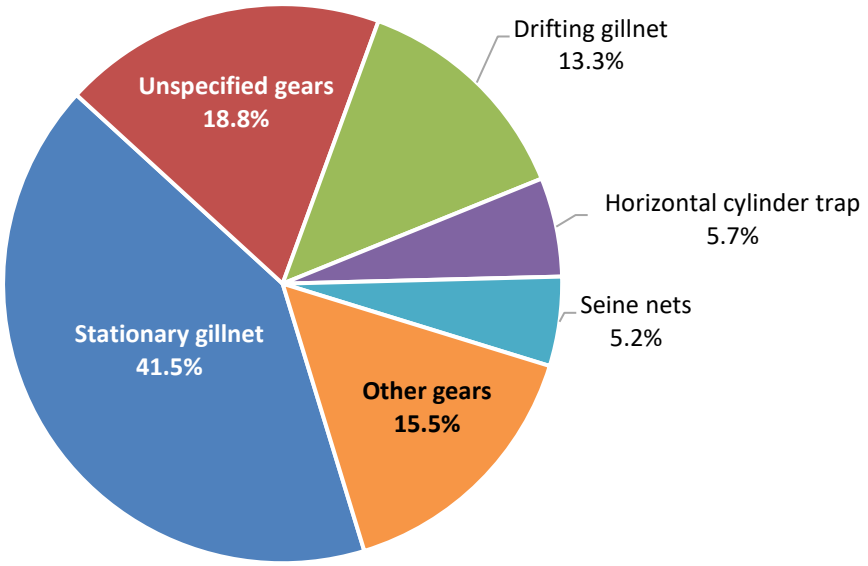

Figure 3. Overall contribution of the gears to total reported catch.

Table 8. Reported disposal by fishing area in weight and proportion.

Fishing Area	Sold Kg	% Sold	Consumed Kg	% Consumed	Other use Kg	% Other use
Coastal	30.9	0.9%	23.6	1.8%	1.7	0.2%
Floodplain	425.5	12.9%	206.7	15.7%	73.6	6.6%
Plateau	549.5	16.6%	447.7	34.0%	774.0	69.2%
Tonle Sap	2,011.2	60.8%	450.1	34.2%	228.2	20.4%
Mountainous	289.4	8.8%	187.5	14.3%	40.3	3.6%
Grand Total	3,306.5	57.6%	1,315.6	22.9%	1,117.8	19.5%

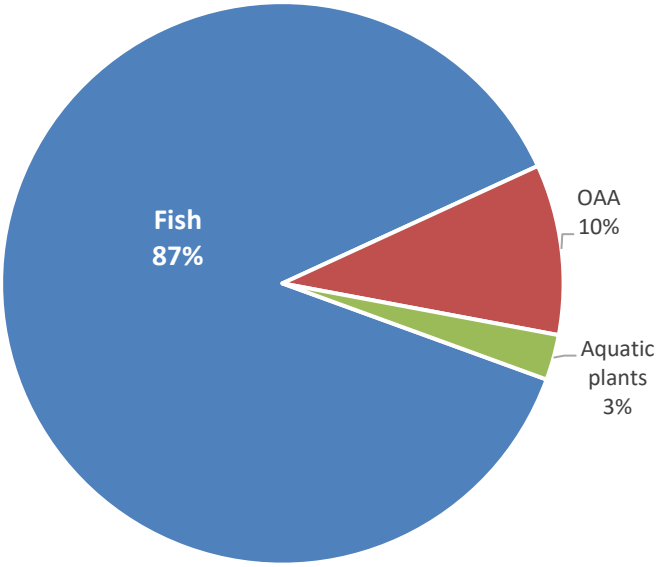

Figure 4. Catch contribution for fish, other aquatic animals (OAA) and aquatic plants.

Table 9. Top 15 species **by weight** in reported household catch, with weight and proportion of catch by individual species and species groups.

No.	Scientific name	Khmer name	Catch (kg)	Catch contribution	
				%Catch	%Cum.
1	*Puntioplites proctozysron*	ត្រីច្រកែង	1,252.0	21.8%	21.8%
2	*Henicorhynchus lobatus*	ត្រីរៀលអង្គាម	576.8	10.0%	31.9%
3	*Henicorhynchus siamensis*	ត្រីរៀលតុប	487.1	8.5%	40.3%
4	*Mystus singaringan*	ត្រីកញ្ឆុះបាយស	288.1	5.0%	45.4%
5	*Labiobarbus siamensis*	ត្រីអាចម៍កុក	244.2	4.3%	49.6%
6	*Channa striata*	ត្រីរ៉ស់/ផ្គក់	225.0	3.9%	53.5%
7	*Somanniathelphusa sp.*	ក្តាមស្រែ	210.1	3.7%	57.2%
8	*Cyclocheilichthys enoplos*	ត្រីឆ្កោក	169.5	3.0%	60.2%
9	*Hypsibarbus malcolmi*	ត្រីឆ្ពិនមូល	147.3	2.6%	62.7%
10	*Barbonymus gonionotus*	ត្រីឆ្ពិនប្រាក់	123.1	2.1%	64.9%
11	*Hemibagrus spilopterus*	ត្រីឆ្លាំង	122.4	2.1%	67.0%
12	*Osteochilus lini*	ត្រីក្រុស	119.3	2.1%	69.1%
13	*Mystus Bocourti*	ត្រីកញ្ឆុះក្តោង	119.1	2.1%	71.2%
14	*Anabas testudineus*	ត្រីក្រាញ់	116.4	2.0%	73.2%
15	Mixed small or juvenile fish	ត្រីល្អិតចម្រុះ	78.9	1.4%	74.6%
16	Other	ផ្សេងទៀត	1460.6	25.4%	
	Total reported catch (kg)		**5,739.9**		

Table 10. Top 15 species **by value** (1000 Riel) for amount sold, with reported value, proportion of value and average price for individual species and species groups.

No.	Scientific name	Khmer name	Value (1000 Riel)	%Value	Price (Riel/kg)
1	*Puntioplites proctozysron*	ត្រីច្រកែង	3,155.4	15.6%	6,400
2	*Mystus singaringan*	ត្រីកញ្ឆុះបាយស	1,888.5	9.3%	7,375
3	*Henicorhynchus siamensis*	ត្រីរៀលតុប	1,522.2	7.5%	7,800
4	*Channa striata*	ត្រីរ៉ស់/ផ្ទក់	1,501.4	7.4%	12,100
5	*Cyclocheilichthys enoplos*	ត្រីឆ្កោក	1,475.6	7.3%	17,025
6	*Boesemania microlepis*	ត្រីប្រម៉ា	1,265.0	6.2%	43,000
7	*Henicorhynchus lobatus*	ត្រីរៀលអង្កាម	867.4	4.3%	6,375
8	*Hemibagrus spilopterus*	ត្រីឆ្លាំង	786.0	3.9%	10,975
9	*Mystus Bocourti*	ត្រីកញ្ឆុះក្តោង	567.7	2.8%	5,625
10	*Macrognathus siamensis*	ត្រីឆ្លួញ	533.8	2.6%	15,250
11	*Labiobarbus siamensis*	ត្រីអាចម៍កុក	499.6	2.5%	6,175
12	*Hypsibarbus malcolmi*	ត្រីឆ្ពិនមូល	482.5	2.4%	5,125
13	*Pangasius pleurotaenia*	ត្រីឈ្វៀត	423.4	2.1%	9,200
14	*Barbonymus gonionotus*	ត្រីឆ្ពិនប្រាក់	419.5	2.1%	7,200
15	*Somanniathelphusa sp.*	ក្តាមស្រែ	342.4	1.7%	3,625
16	Other species	ប្រភេទដ៏ទៃទៀត	4,519.20	22.3%	
	Total reported value (1000 Riel)		**20,239.6**		