

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
July 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 for Scientific Catch Assessment by Recall survey of Inland Fisheries in Cambodia. Inland Fisheries Research and Development Institute of the Fisheries 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 ($\epsilon\%$). This is used to indicate the statistical accuracy of the estimate for the mean catch. If the $\epsilon\%$ is higher than 30% this indicates a high inaccuracy¹, 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 July 2023.

Fishing Area	Villages	Household		
		Count	Target	Proportion

¹ For national statistical reports the rule of thumb states that if the relative standard error ($\epsilon\%$) is higher than 30%, the average should not be **reported** and that only estimates with a value of $\epsilon\%$, 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 $\epsilon\%$ indicating the statistical accuracy.

Coastal	3	45	45	100.0%
Floodplain	17	258	255	101.2%
Plateau	6	89	90	98.9%
Tonle Sap	10	149	150	99.3%
Mountainous	20	294	300	98.0%
Grand Total	56	835	840	99.4%

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	22	2.61	1.72	14.0%
Floodplain	113	3.15	2.68	8.0%
Plateau	95	4.11	4.94	12.3%
Tonle Sap	151	5.64	10.22	14.7%
Mountainous	46	2.80	1.94	10.2%
Overall	427	4.18	6.78	7.8%

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	49%	31.69	4.62	18.7%	958	2.2%
Floodplain	44%	48.75	10.74	12.4%	13,094	29.6%
Plateau	64%	91.47	23.59	15.9%	5,687	12.9%
Tonle Sap	51%	110.84	41.81	18.4%	21,672	49.0%
Mountainous	52%	46.70	6.86	13.0%	3,171	7.2%
Total estimated catch (MT)					44,582	

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	4.7%	69.8%	4.7%	27.9%
Floodplain	9.4%	96.7%	0.0%	1.2%
Plateau	5.2%	63.1%	0.0%	0.0%
Tonle Sap	13.5%	86.3%	0.2%	6.5%
Mountainous	0.0%	96.0%	0.0%	0.8%
Grand Total	8.7%	83.4%	0.3%	3.9%

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	103.8	83.1%	0.0%	16.9%
Floodplain	681.6	65.5%	23.8%	10.7%
Plateau	1,088.3	6.0%	92.2%	1.7%
Tonle Sap	2,203.0	19.1%	74.6%	6.3%
Mountainous	289.8	49.4%	11.5%	39.1%
Grand Total	4,366.4	26.6%	65.1%	8.3%

Overall proportion based on weighted average catch by main boat type and fishing area, not reported total catch²

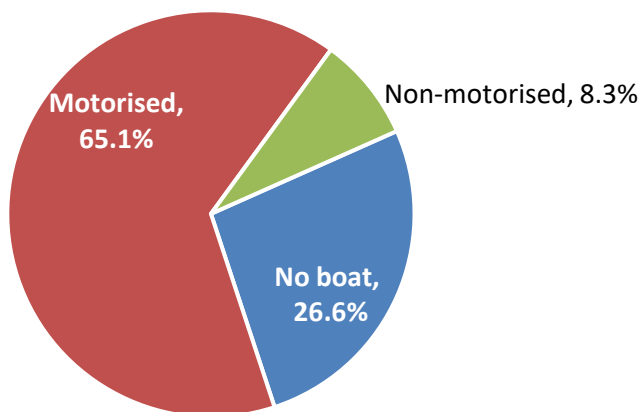


Figure 1. Overall contribution of the main boat types to total reported catch.

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
Tributaries to Tonle Sap	0.0%	17.9%	0.0%	71.8%	0.0%	39.8%
Mekong Mainstream	0.0%	5.1%	82.9%	0.1%	11.7%	23.5%
Floodplain: rice fields (rain)	43.7%	32.8%	2.0%	2.5%	41.5%	9.5%
Floodplain: lakes and ponds	0.0%	16.1%	0.7%	7.4%	24.0%	7.6%
Major Tributaries	0.0%	8.0%	10.6%	0.0%	16.9%	4.8%
Sub-Stream	0.0%	12.3%	3.3%	3.5%	0.0%	4.6%
Stream	35.9%	1.0%	0.0%	6.0%	5.9%	4.2%
Reservoir	1.6%	2.5%	0.0%	5.5%	0.0%	3.3%
Unspecified	0.0%	0.0%	0.0%	2.4%	0.0%	1.2%
Irrigation canals	18.8%	1.7%	0.3%	0.6%	0.0%	1.0%
Floodplain: rice fields (flooded)	0.0%	2.1%	0.3%	0.2%	0.0%	0.5%
Floodplain: flooded forest	0.0%	0.4%	0.0%	0.0%	0.0%	0.1%
Seasonal swamps	0.0%	0.1%	0.0%	0.0%	0.0%	0.02%
Grand Total (kg)	116.2	918.2	1,448.2	2,789.4	358.0	5,630.1

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

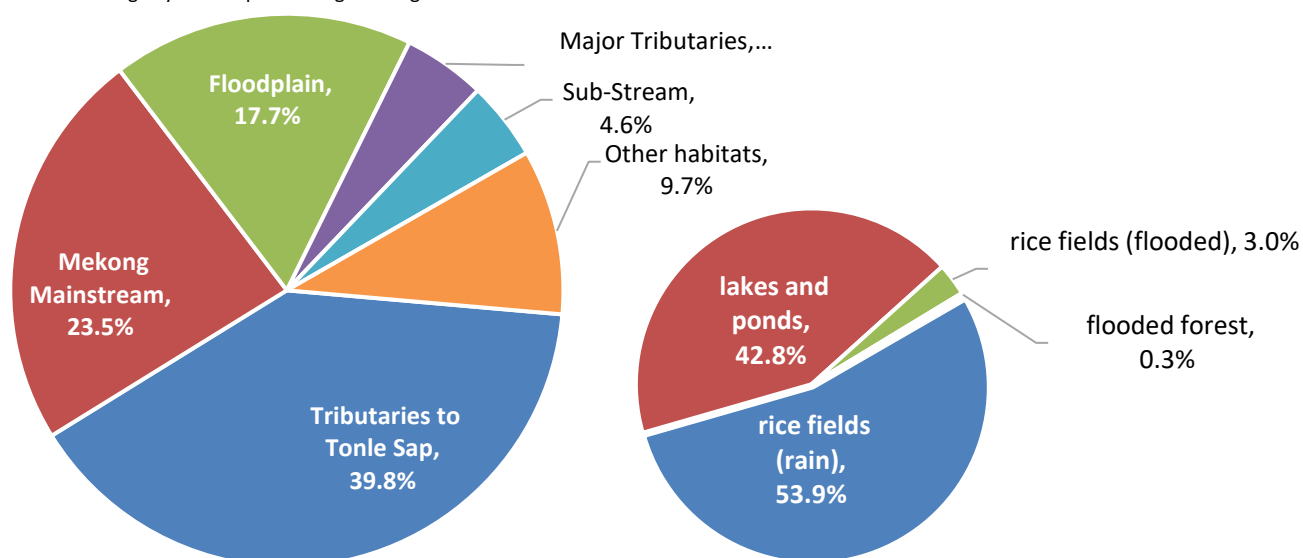


Figure 2. Overall contribution of the habitats to total reported catch, with proportion of catch for floodplain habitats

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	7.3%	15.9%	65.0%	21.8%	26.8%	33.2%
Seine nets	0.0%	9.1%	0.0%	32.2%	0.0%	18.10%
Drifting gillnet	25.9%	27.4%	19.2%	8.4%	14.5%	14.6%
Horizontal cylinder trap	7.8%	20.0%	11.7%	13.6%	14.2%	13.8%
scoop nets	0.0%	0.0%	0.0%	12.7%	0.0%	6.68%
Cast net	16.3%	8.4%	0.7%	4.9%	14.8%	4.8%
Hand capture	41.1%	1.7%	0.2%	2.4%	3.8%	2.6%
Spear	0.0%	10.1%	0.0%	0.1%	0.0%	1.4%
Horizontal cylinder trap	0.0%	3.0%	0.7%	1.0%	6.7%	1.4%
Others gears	0.0%	0.3%	0.0%	0.8%	17.4%	1.0%
Hook long line	0.0%	0.0%	0.3%	1.3%	0.0%	0.8%
Hook and line	0.0%	0.3%	2.3%	0.0%	0.0%	0.7%
Bamboo vertical cylinder trap	1.5%	3.7%	0.0%	0.2%	0.0%	0.6%
Pole and line	0.0%	0.0%	0.0%	0.5%	0.7%	0.3%
Push nets	0.0%	0.0%	0.0%	0.0%	1.2%	0.04%
Grand Total (kg)	116.2	918.2	1,448.2	2,789.4	358.0	5,630.1

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

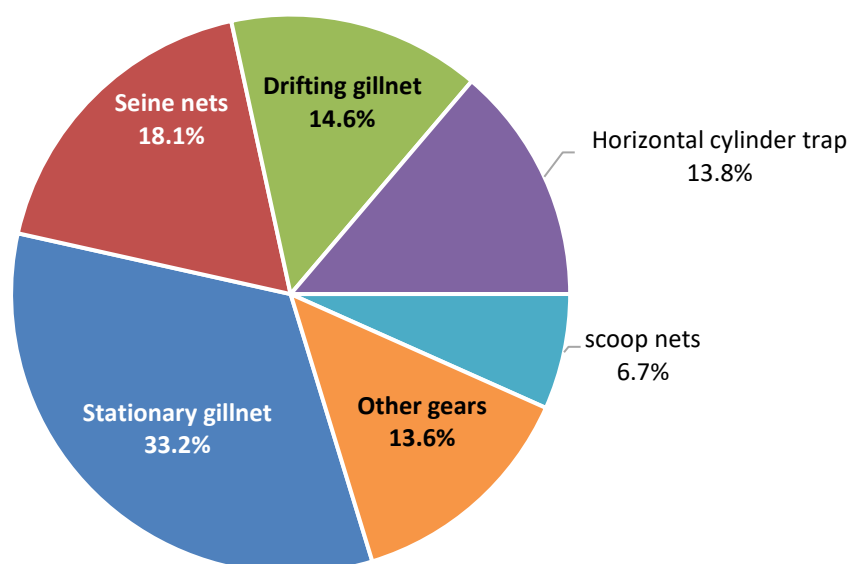


Figure 3. Overall contribution of the gears to total reported catch.

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	54.0	1.6%	60.2	4.2%	2.0	0.3%
Floodplain	497.5	14.4%	278.2	19.4%	142.5	19.4%
Plateau	579.8	16.7%	483.3	33.8%	385.1	52.5%
Tonle Sap	2,171.9	62.7%	425.5	29.7%	192.0	26.2%
Mountainous	162.1	4.7%	184.3	12.9%	11.6	1.6%
Grand Total	3,465.3	61.6%	1,431.6	25.4%	733.2	13.0%

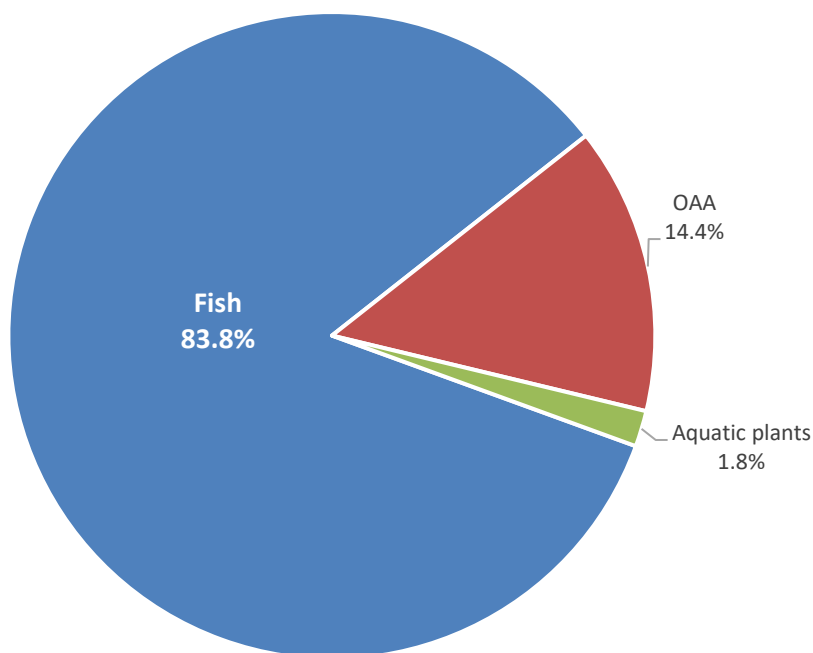


Figure 4. Catch contribution for fish, other aquatic animals (OAA) and aquatic plants.

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	<i>Puntioplites proctozyron</i>	ត្រីច្រកែង	914.8	16.2%	16.2%
2	<i>Henicorhynchus siamensis</i>	ត្រីរៀលតុប	393.8	7.0%	23.2%
3	Small mixed shrimps	កំពឹសចម្រុះ	359.9	6.4%	29.6%
4	<i>Mystus mysticetus</i>	ត្រីកញ្ចុះឆ្នុត	336.7	6.0%	35.6%
5	<i>Channa striata</i>	ត្រីវីស/ផ្នក់	235.1	4.2%	39.8%
6	<i>Hypsibarbus malcolmi</i>	ត្រីឆ្អិនមូល	212.4	3.8%	43.6%
7	<i>Henicorhynchus lobatus</i>	ត្រីរៀលអង្កាម	192.0	3.4%	47.0%
8	<i>Somanniathelphusa sp.</i>	ក្តាមស្រែ	186.4	3.3%	50.3%
9	<i>Osteochilus lini</i>	ត្រីក្រុស	185.9	3.3%	53.6%
10	<i>Mystus singaringan</i>	ត្រីកញ្ចុះបាយស	173.1	3.1%	56.7%
11	<i>Anabas testudineus</i>	ត្រីក្រាញ់	142.2	2.5%	59.2%
12	<i>Polynemus longipectoralis</i>	កំព្រាម	126.0	2.2%	61.4%
13	<i>Cyclocheilichthys enoplos</i>	ត្រីឆ្កោក	125.9	2.2%	63.7%
14	<i>Hemibagrus spilopterus</i>	ត្រីស្លាំង	110.0	2.0%	65.6%
15	<i>Barbonymus gonionotus</i>	ត្រីឆ្អិនប្រាក់	107.3	1.9%	67.5%
16	Other	ផ្សេងទៀត	1828.6	32.5%	
Total reported catch (kg)			5630.1		

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	<i>Puntioplites proctozysron</i>	ត្រីប្រកែង	2,854.5	14.6%	7,075
2	<i>Mystus mysticetus</i>	ត្រីកញ្ចុះឆ្មុត	2,230.8	11.4%	7,525
3	<i>Mystus singaringan</i>	ត្រីកញ្ចុះបាយស	1,402.8	7.2%	6,750
4	<i>Henicorhynchus siamensis</i>	ត្រីរៀលតុប	1,005.8	5.1%	6,400
5	<i>Channa striata</i>	ត្រីរឹស/ផ្នក់	880.9	4.5%	11,100
6	<i>Hemibagrus spilopterus</i>	ត្រីឆ្មាំង	845.1	4.3%	11,025
7	<i>Cyclocheilichthys enoplos</i>	ត្រីឆ្កោក	591.5	3.0%	7,350
8	<i>Barbonymus gonionotus</i>	ត្រីឆ្អិនប្រាក់	581.8	3.0%	8,375
9	<i>Hypsibarbus malcolmi</i>	ត្រីឆ្អិនមូល	568.0	2.9%	5,050
10	<i>Osteochilus lini</i>	ត្រីក្រុស	547.7	2.8%	5,725
11	<i>Syncrossus helodes</i>	ត្រីកញ្ជ្រកឆ្មុត	517.0	2.6%	7,400
12	<i>Boesemania microlepis</i>	ត្រីប្រម៉ា	501.3	2.6%	9,375
13	<i>Polynemus longipectoralis</i>	កំព្រាម	442.0	2.3%	4,000
14	<i>Mystus Bocourti</i>	ត្រីកញ្ចុះក្តោង	415.0	2.1%	11,500
15	<i>Macragnathus siamensis</i>	ត្រីឆ្មុញ	409.3	2.1%	13,900
16	Other species	ប្រភេទដទៃទៀត	5,824.6	29.7%	
Total reported value (1000 Riel)			19,618.1		