

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
November 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.

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.

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 November 2023.

Fishing Area	Villages	Household		
		Count	Target	Proportion
Coastal	3	45	45	100.0%
Floodplain	17	246	255	96.5%
Plateau	10	142	150	94.7%
Tonle Sap	16	217	240	90.4%
Mountainous	6	74	90	82.2%
Grand Total	52	724	780	92.8%

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	24	2.36	2.10	18.1%
Floodplain	134	2.52	1.64	5.6%
Plateau	105	2.42	2.03	8.2%
Tonle Sap	138	4.32	5.03	9.9%
Mountainous	63	3.52	3.49	12.5%
Overall	464	3.16	3.43	5.0%

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	53%	38.15	8.99	28.9%	1,258	2.8%
Floodplain	54%	39.17	5.89	7.8%	13,083	29.6%
Plateau	74%	38.18	7.77	11.9%	2,753	6.2%
Tonle Sap	60%	78.58	18.64	12.1%	18,027	40.8%
Mountainous	85%	71.16	12.49	13.3%	7,960	18.0%
Total estimated catch (MT)					43,081	

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	5.1%	54.2%	0.0%	0.0%
Floodplain	8.1%	95.1%	0.0%	0.3%
Plateau	9.3%	99.6%	0.0%	2.0%
Tonle Sap	1.6%	97.1%	0.0%	0.3%
Mountainous	4.0%	96.0%	2.5%	2.5%
Grand Total	5.6%	94.8%	0.4%	1.0%

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	101.1	100.0%	0.0%	0.0%
Floodplain	636.2	60.7%	20.5%	18.9%
Plateau	486.1	20.3%	76.7%	3.0%
Tonle Sap	1,360.5	55.1%	43.2%	1.7%
Mountainous	611.5	86.5%	8.8%	4.6%
Grand Total	3,195.4	58.3%	35.8%	5.8%

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

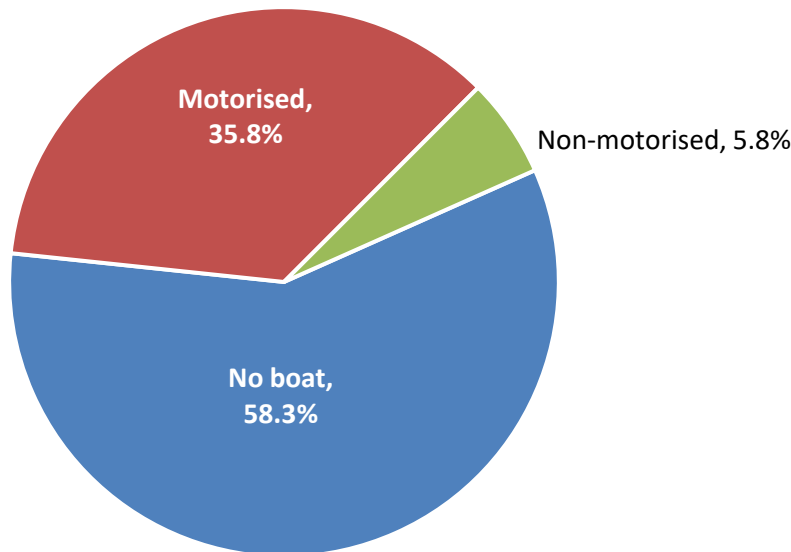


Figure 1. Overall contribution of the main boat types to total reported catch.

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
Floodplain: rice fields (rain)	63.6%	24.3%	0.9%	28.8%	59.5%	28.5%
Mekong Mainstream	0.0%	10.9%	62.8%	0.0%	0.0%	12.4%
Floodplain: rice fields (flooded)	20.7%	2.1%	0.0%	23.7%	0.0%	11.9%
Floodplain: lakes and ponds	0.0%	17.0%	4.6%	5.0%	22.2%	9.8%
Tributaries to Tonle Sap	0.0%	7.5%	0.0%	16.3%	0.0%	9.1%
Stream	2.2%	0.8%	0.0%	18.1%	0.0%	8.5%
Sub-Stream	0.0%	7.4%	30.9%	2.9%	0.0%	7.9%
Irrigation canals	13.6%	16.7%	0.0%	4.7%	1.6%	6.3%
Major Tributaries	0.0%	10.2%	0.0%	0.0%	16.7%	4.5%
Reservoir	0.0%	2.3%	0.0%	0.2%	0.0%	0.6%
Floodplain: flooded forest	0.0%	0.7%	0.7%	0.0%	0.0%	0.3%
Seasonal swamps	0.0%	0.0%	0.0%	0.5%	0.0%	0.2%
Grand Total (kg)	152.6	874.9	668.2	1,807.3	747.2	4,250.2

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

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

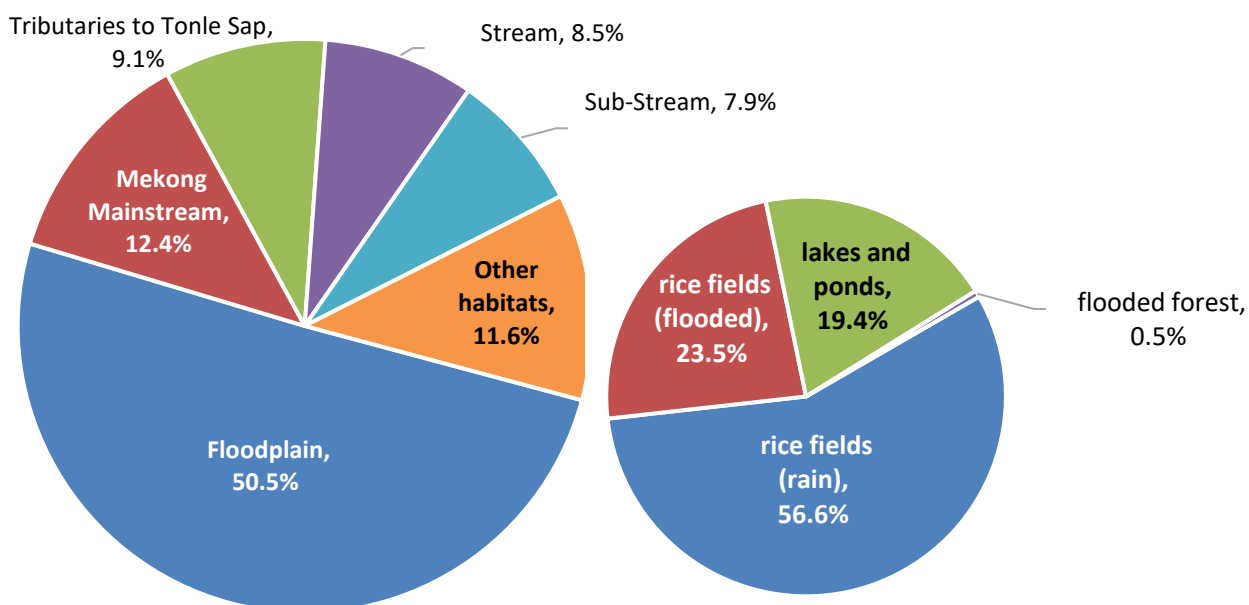


Figure 2. Overall contribution of the habitats to total reported catch, with proportion of catch for floodplain habitats

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
Horizontal cylinder trap	48.6%	10.9%	2.2%	28.6%	4.7%	19.5%
Stationary gillnet	31.3%	19.2%	49.6%	5.4%	15.2%	16.4%
Others gears	3.4%	0.9%	5.2%	23.1%	18.3%	14.0%
Drifting gillnet	3.5%	20.4%	23.9%	8.4%	0.0%	12.3%
Cast net	2.7%	6.1%	3.9%	7.8%	18.0%	7.7%
Pole and line	0.0%	12.5%	9.6%	4.2%	6.0%	6.9%
Horizontal cylinder trap	0.0%	1.1%	3.5%	8.7%	16.4%	6.5%
Bamboo vertical cylinder trap	0.0%	12.1%	0.0%	0.0%	15.6%	4.5%
Hook long line	0.0%	4.1%	2.1%	6.2%	0.0%	4.3%
Hand capture	2.3%	5.2%	0.0%	3.9%	0.0%	3.3%
Spear	5.0%	4.8%	0.0%	3.0%	0.4%	2.9%
Hook and line	0.0%	1.2%	0.0%	0.6%	2.0%	0.8%
Seine nets	0.0%	0.4%	0.0%	0.0%	2.8%	0.4%
Push nets	3.2%	0.0%	0.0%	0.0%	0.5%	0.2%
scoop baskets	0.0%	0.5%	0.0%	0.0%	0.0%	0.1%
Bag nets	0.0%	0.5%	0.0%	0.0%	0.0%	0.1%
Grand Total (kg)	152.6	874.9	668.2	1,807.3	747.2	4,250.2

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

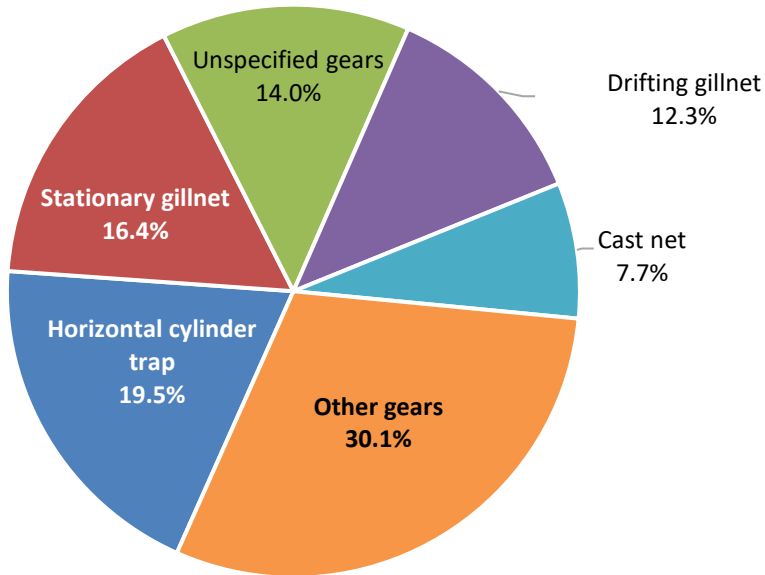


Figure 3. Overall contribution of the gears to total reported catch.

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	51.1	2.7%	50.5	3.4%	51.0	5.8%
Floodplain	341.4	18.2%	306.1	20.4%	227.4	25.9%
Plateau	178.4	9.5%	290.6	19.4%	199.2	22.7%
Tonle Sap	1,014.6	54.2%	480.6	32.0%	312.1	35.5%
Mountainous	286.1	15.3%	372.1	24.8%	89.0	10.1%
Grand Total	1,871.6	44.0%	1,499.9	35.3%	878.7	20.7%

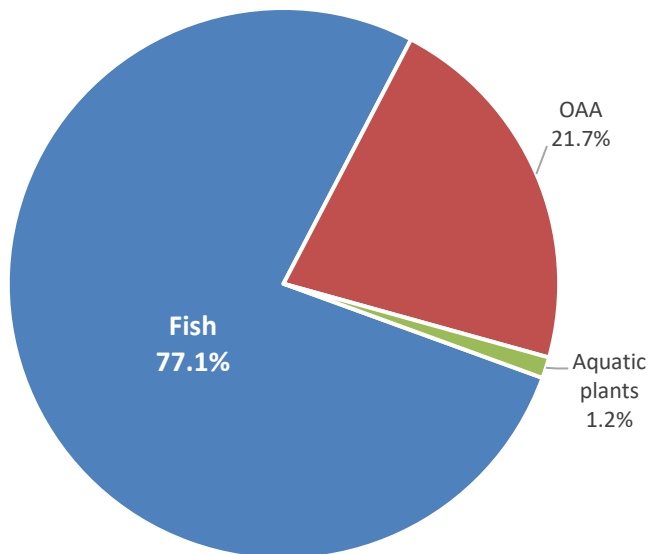


Figure 4. Catch contribution for fish, other aquatic animals (OAA) and aquatic plants.

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>Somanniathelphusa sp.</i>	ក្តាមស្រែ	724.7	17.1%	17.1%
2	<i>Channa striata</i>	ត្រីវ៉ស់/ផ្នក់	563.7	13.3%	30.3%
3	<i>Anabas testudineus</i>	ត្រីក្រាញ់	354.8	8.3%	38.7%
4	Mixed small or juvenile fish	ត្រីល្អិតចម្រុះ	303.5	7.1%	45.8%
5	<i>Puntioplites proctozysron</i>	ត្រីច្រកែង	208.9	4.9%	50.7%
6	<i>Henicorhynchus siamensis</i>	ត្រីរៀលតុប	160.6	3.8%	54.5%
7	<i>Henicorhynchus lobatus</i>	ត្រីរៀលអង្កាម	135.4	3.2%	57.7%
8	<i>Macragnathus siamensis</i>	ត្រីឆ្លូញ	125.5	3.0%	60.6%
9	<i>Trichopodus trichopterus</i>	ត្រីកំភ្លាញស្រែ	122.8	2.9%	63.5%
10	<i>Osteochilus lini</i>	ត្រីក្រុស	111.5	2.6%	66.1%
11	<i>Barbonymus gonionotus</i>	ត្រីឆ្អិនប្រាក់	106.5	2.5%	68.7%
12	<i>Clarias batrachus</i>	ត្រីអណ្តែងរឹង	101.9	2.4%	71.0%
13	<i>Hypsibarbus malcolmi</i>	ត្រីឆ្អិនមូល	94.9	2.2%	73.3%
14	<i>Clarias macrocephalus</i>	ត្រីអណ្តែងទន់	91.6	2.2%	75.4%
15	Aquatic insects nei	វារីសត្វល្អិត គ្មានក្នុង ក្រុមដីទៃ	70.3	1.7%	77.1%
16	Other	ផ្សេងទៀត	973.7	22.9%	
Total reported catch (kg)			4250.3		

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>Channa striata</i>	ត្រីវ៉ស់/ផ្នក់	2,411.0	21.7%	10,450
2	<i>Somanniathelphusa sp.</i>	ក្តាមស្រែ	985.5	8.9%	2,700
3	<i>Puntioplites proctozysron</i>	ត្រីច្រកែង	714.0	6.4%	7,275
4	<i>Macragnathus siamensis</i>	ត្រីឆ្លូញ	682.5	6.1%	18,075
5	Mixed small or juvenile fish	ត្រីល្អិតចម្រុះ	570.1	5.1%	12,350
6	<i>Clarias macrocephalus</i>	ត្រីអណ្តែងទន់	562.0	5.0%	12,075
7	<i>Henicorhynchus siamensis</i>	ត្រីរៀលតុប	496.4	4.5%	5,900
8	<i>Anabas testudineus</i>	ត្រីក្រាញ់	415.7	3.7%	5,300
9	<i>Hypsibarbus malcolmi</i>	ត្រីឆ្អិនមូល	412.0	3.7%	7,375
10	<i>Barbonymus gonionotus</i>	ត្រីឆ្អិនប្រាក់	376.8	3.4%	9,325
11	<i>Clarias batrachus</i>	ត្រីអណ្តែងរឹង	349.5	3.1%	12,225

12	<i>Hemibagrus spilopterus</i>	ត្រីឆ្មាំង	298.3	2.7%	9,750
13	<i>Osteochilus lini</i>	ត្រីក្រុស	273.9	2.5%	5,400
14	<i>Cyclocheilichthys enoplos</i>	ត្រីឆ្មោក	210.5	1.9%	11,600
15	<i>Notopterus notopterus</i>	ត្រីស្លាត	200.0	1.8%	8,000
16	Other species		2,172.06	19.5%	
Total reported value (1000 Riel)			11,130.26		