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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
August 2023

By Inland Fisheries Research and Development Institute


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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 August 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 ($\epsilon\%$) 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.

Floodplain	17	253	255	99.2%
Plateau	10	150	150	100.0%
Tonle Sap	20	299	300	99.7%
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	23	2.05	1.13	11.5%
Floodplain	130	3.02	3.01	8.7%
Plateau	123	4.16	4.24	9.2%
Tonle Sap	155	4.44	5.26	9.5%
Mountainous	55	4.17	3.82	12.3%
Overall	486	3.85	4.23	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	51%	34.28	5.77	21.1%	1,083	2.5%
Floodplain	51%	43.79	9.10	10.9%	13,742	31.1%
Plateau	82%	80.92	16.13	10.8%	6,471	14.6%
Tonle Sap	52%	89.09	20.29	11.0%	17,583	39.8%
Mountainous	61%	87.62	17.09	15.8%	7,035	15.9%
Total estimated catch (MT)					45,914	

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	8.9%	82.1%	0.0%	0.0%
Floodplain	15.7%	89.5%	1.6%	0.3%
Plateau	7.0%	71.5%	0.0%	3.1%
Tonle Sap	15.0%	81.5%	0.5%	1.4%
Mountainous	10.7%	94.0%	3.6%	5.4%
Grand Total	12.2%	82.3%	1.0%	2.0%

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	110.0	84.7%	0.0%	15.3%
Floodplain	716.5	50.1%	25.7%	24.3%
Plateau	1,228.2	24.9%	72.0%	3.1%
Tonle Sap	1,787.1	20.0%	72.4%	7.6%
Mountainous	633.5	53.5%	36.5%	10.0%
Grand Total	4,475.2	32.5%	58.0%	9.6%

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

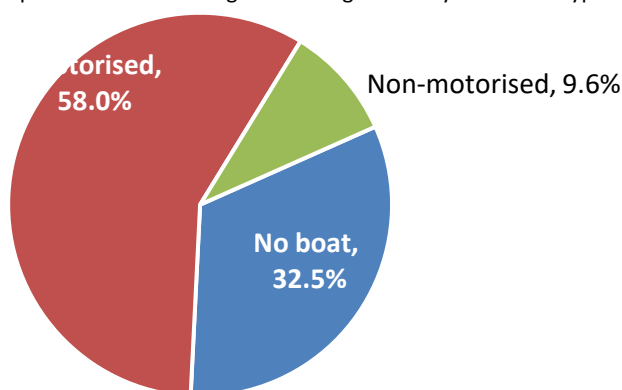


Figure 1. Overall contribution of the main boat types to total reported catch.

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: lakes and ponds	15.5%	18.2%	8.0%	25.2%	43.6%	20.8%
Major Tributaries	0.0%	18.7%	20.1%	15.4%	15.2%	17.0%
Mekong Mainstream	0.0%	10.7%	47.6%	0.0%	0.0%	15.9%
Tributaries to Tonle Sap	0.0%	6.6%	0.0%	33.2%	0.3%	15.3%
Floodplain: rice fields (rain)	47.7%	28.1%	0.7%	12.2%	39.4%	14.4%
Sub-Stream	0.0%	3.1%	18.8%	2.3%	0.0%	7.1%
Floodplain: rice fields (flooded)	0.0%	2.7%	4.8%	2.1%	0.2%	2.8%
Irrigation canals	16.4%	9.9%	0.0%	2.4%	0.0%	2.7%
Reservoir	8.0%	0.4%	0.0%	4.6%	0.0%	2.2%
Stream	12.2%	1.4%	0.0%	1.4%	1.1%	1.1%
Unspecified	0.1%	0.3%	0.0%	1.2%	0.0%	0.6%
Floodplain: flooded forest	0.0%	0.0%	0.0%	0.0%	0.2%	0.02%
Grand Total (kg)	131.4	948.8	1,658.9	2,301.6	803.2	5,843.8

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

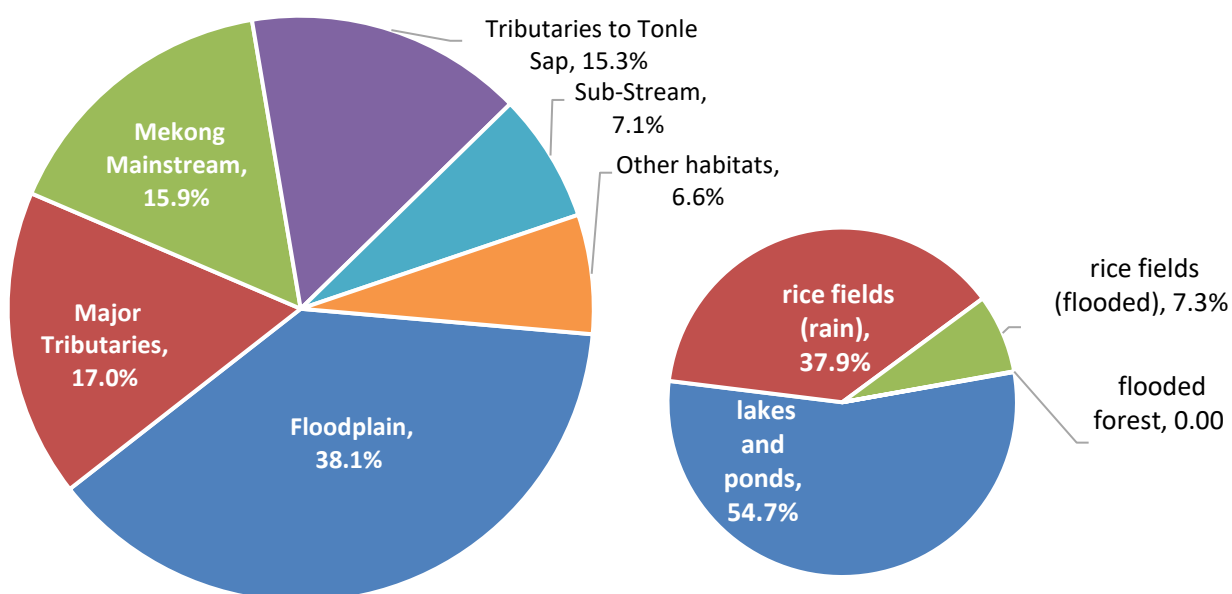


Figure 2. Overall contribution of the habitats to total reported catch, with proportion of catch for floodplain habitats

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	32.1%	11.9%	73.8%	24.6%	34.1%	37.5%
Horizontal cylinder trap	0.0%	9.0%	6.9%	43.1%	0.0%	23.4%
Drifting gillnet	17.6%	36.2%	9.1%	0.9%	0.0%	9.0%
Pole and line	0.0%	1.2%	5.4%	12.0%	0.0%	7.3%
Others gears	2.0%	5.1%	2.3%	4.4%	38.9%	6.4%
Hand capture	44.1%	9.2%	0.6%	4.5%	3.6%	4.9%
Cast net	0.0%	9.7%	0.7%	3.6%	19.3%	4.8%
Horizontal cylinder trap	0.0%	0.2%	0.0%	4.1%	0.0%	1.9%
Bamboo vertical cylinder trap	4.2%	5.8%	0.0%	0.0%	4.2%	1.3%
Hook long line	0.0%	1.6%	0.1%	1.4%	0.0%	0.9%
Hook and line	0.0%	1.4%	0.9%	0.7%	0.0%	0.8%
Spear	0.0%	4.3%	0.0%	0.0%	0.0%	0.7%
Pumping	0.0%	3.6%	0.0%	0.1%	0.0%	0.6%
Push nets	0.0%	0.0%	0.0%	0.7%	0.0%	0.3%
scoop nets	0.0%	0.4%	0.0%	0.0%	0.0%	0.06%
Wedge cone trap	0.0%	0.0%	0.2%	0.0%	0.0%	0.05%
scoop baskets	0.0%	0.3%	0.0%	0.0%	0.0%	0.04%
Seine nets	0.0%	0.2%	0.0%	0.0%	0.0%	0.02%
Grand Total (kg)	131.4	948.8	1,658.9	2,301.6	803.2	5,843.8

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

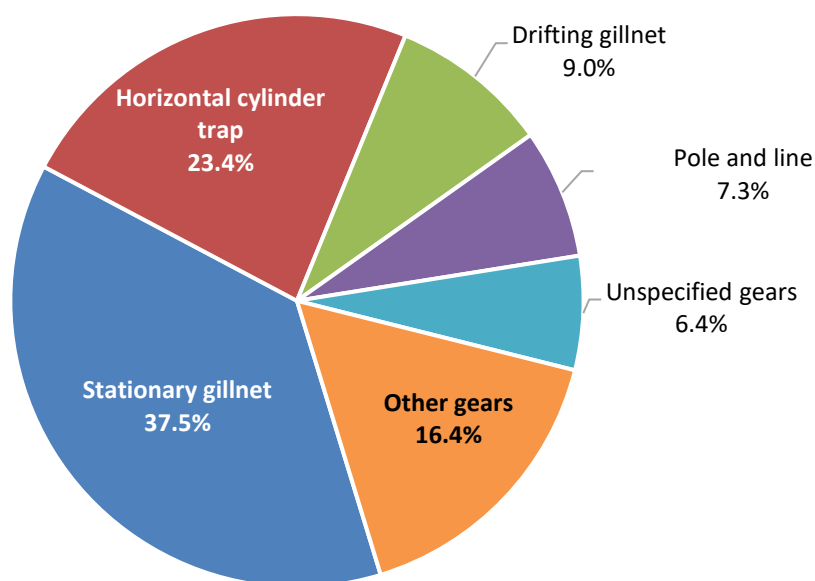


Figure 3. Overall contribution of the gears to total reported catch.

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	43.0	1.4%	76.3	4.6%	12.1	1.0%
Floodplain	416.8	14.0%	396.3	23.6%	135.7	11.3%
Plateau	477.8	16.1%	592.0	35.3%	589.1	49.2%
Tonle Sap	1,706.8	57.5%	409.7	24.4%	185.1	15.4%
Mountainous	324.8	10.9%	202.1	12.1%	276.3	23.1%
Grand Total	2,969.2	50.8%	1,676.4	28.7%	1,198.2	20.5%

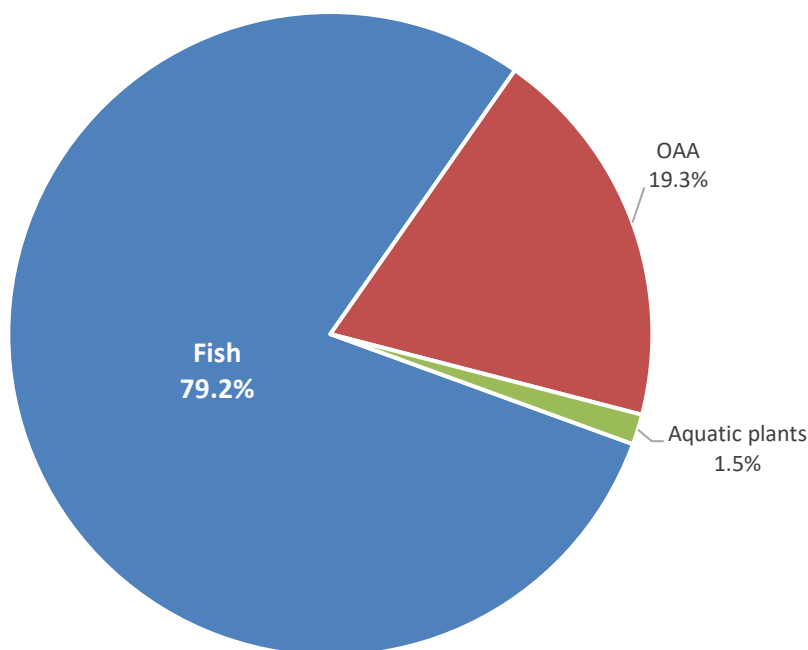


Figure 4. Catch contribution for fish, other aquatic animals (OAA) and aquatic plants.

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	<i>Puntioplites proctozysron</i>	ត្រីប្រកែង	536.8	9.2%	9.2%
2	Mixed small or juvenile fish	ត្រីល្អិតចម្រុះ	363.6	6.2%	15.4%
3	<i>Somanniathelphusa sp.</i>	ក្តាមស្រែ	353.5	6.0%	21.5%
4	<i>Henicorhynchus siamensis</i>	ត្រីរៀលតុប	289.8	5.0%	26.4%
5	<i>Channa striata</i>	ត្រីវីស/ផ្នក់	289.3	5.0%	31.4%
6	<i>Anabas testudineus</i>	ត្រីក្រាញ់	286.9	4.9%	36.3%
7	<i>Barbonymus gonionotus</i>	ត្រីឆ្អិនប្រាក់	283.1	4.8%	41.1%
8	<i>Hemibagrus spilopterus</i>	ត្រីឆ្នាំង	258.5	4.4%	45.5%
9	<i>Henicorhynchus lobatus</i>	ត្រីរៀលអង្កាម	253.9	4.3%	49.9%
10	<i>Cyclocheilichthys enoplos</i>	ត្រីឆ្កែក	222.8	3.8%	53.7%
11	<i>Pomacea canaliculata</i>	ខ្យង	218.7	3.7%	57.4%
12	<i>Hypsibarbus malcolmi</i>	ត្រីឆ្អិនមូល	188.4	3.2%	60.7%
13	Aquatic insects nei	វារីសត្វល្អិត គ្មានក្នុង ក្រុមដី ទៃ	181.9	3.1%	63.8%
14	Snails nei	ខ្យង/ខ្មៅ គ្មានក្នុងក្រុមដីទៃ	150.8	2.6%	66.4%
15	<i>Labiobarbus siamensis</i>	ត្រីអាចម៍កុក	150.8	2.6%	68.9%
16	Other	ផ្សេងទៀត	1815.1	31.1%	
Total reported catch (kg)			5843.9		

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	<i>Puntioplites proctozysron</i>	ត្រីច្រកែង	1,973.2	11.2%	6,350
2	<i>Channa striata</i>	ត្រីរឹស/ផ្លែក់	1,374.1	7.8%	12,425
3	<i>Hemibagrus spilopterus</i>	ត្រីឆ្លាំង	1,224.0	7.0%	9,650
4	<i>Barbonymus gonionotus</i>	ត្រីឆ្អិនប្រាក់	1,112.6	6.3%	7,600
5	<i>Trichopodus microlepis</i>	ត្រីកំភ្លាញត្នក	911.0	5.2%	8,000
6	<i>Henicorhynchus siamensis</i>	ត្រីរៀលតុប	872.5	5.0%	5,850
7	<i>Cyclocheilichthys enoplos</i>	ត្រីឆ្កែក	697.4	4.0%	7,625
8	<i>Macrogathus siamensis</i>	ត្រីឆ្លូញ	593.2	3.4%	12,875
9	<i>Anabas testudineus</i>	ត្រីក្រាញ់	586.0	3.3%	6,650
10	Mixed small or juvenile fish	ត្រីល្អិតចម្រុះ	560.6	3.2%	3,700
11	<i>Somanniathelphusa sp.</i>	ក្តាមស្រែ	551.1	3.1%	2,825
12	<i>Boesemania microlepis</i>	ត្រីប្រម៉ា	529.5	3.0%	6,500
13	<i>Pomacea canaliculata</i>	ខ្យង	420.9	2.4%	3,450
14	Aquatic insects nei	វាវីសត្វល្អិត គ្មាន ក្នុង ក្រុមដំទៃ	411.3	2.3%	2,375
15	<i>Barbonymus schwanenfeldii</i>	ត្រីកាហៃលឿង	380.0	2.2%	10,000
16	Other species		5,375.84	30.6%	
Total reported value (1000 Riel)			17,573.2		