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
October 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 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 October 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	254	255	99.6%
Plateau	10	151	150	100.7%
Tonle Sap	20	299	300	99.7%
Mountainous	6	91	90	101.1%
Grand Total	**56**	**840**	**840**	**100.0%**

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	2.46	3.97	**34.4%**
Floodplain	144	2.29	1.52	5.5%
Plateau	130	3.16	3.36	9.3%
Tonle Sap	226	5.40	7.72	9.5%
Mountainous	62	3.91	3.66	11.9%
Overall	**584**	**3.87**	**5.45**	**5.8%**

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%	50.45	20.25	**51.3%**	1,525	3.4%
Floodplain	57%	31.43	5.51	8.8%	10,969	24.8%
Plateau	86%	58.03	12.94	11.7%	4,872	11.0%
Tonle Sap	76%	126.31	36.98	11.7%	36,345	82.2%
Mountainous	68%	81.19	16.11	15.1%	7,268	16.4%
Total estimated catch (MT)					**60,979**	

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	8.5%	45.8%	0.0%	0.0%
Floodplain	10.4%	91.1%	0.0%	0.9%
Plateau	9.2%	76.2%	0.0%	0.9%
Tonle Sap	13.0%	94.6%	0.0%	3.0%
Mountainous	5.9%	99.5%	0.0%	0.5%
Grand Total	**10.7%**	**88.8%**	**0.0%**	**1.8%**

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	172.3	100.0%	0.0%	0.0%
Floodplain	588.1	68.2%	16.9%	14.9%
Plateau	931.2	15.0%	80.8%	4.2%
Tonle Sap	3,850.4	16.2%	76.4%	7.4%
Mountainous	677.8	75.1%	15.2%	9.7%
Grand Total	**6,219.8**	**29.7%**	**62.6%**	**7.7%**

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

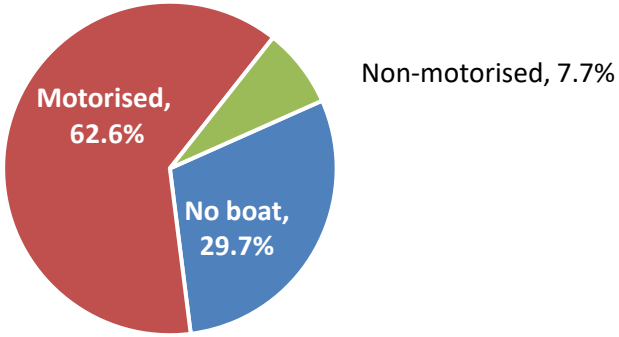

Figure 1. Overall contribution of the main boat types to total reported catch.

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
Tributaries to Tonle Sap	0.0%	12.2%	0.0%	61.8%	0.0%	41.7%
Floodplain: rice fields (rain)	65.0%	35.6%	5.3%	21.3%	44.5%	23.1%
Sub-Stream	0.0%	1.3%	46.2%	1.6%	0.0%	8.0%
Floodplain: lakes and ponds	6.2%	16.2%	1.7%	4.3%	27.5%	6.9%
Mekong Mainstream	0.0%	2.4%	31.5%	0.0%	0.0%	4.9%
Major Tributaries	0.0%	2.1%	14.7%	0.0%	24.3%	4.3%
Stream	9.0%	1.5%	0.0%	4.4%	0.0%	3.3%
Irrigation canals	15.3%	22.4%	0.1%	0.8%	1.5%	3.1%
Floodplain: rice fields (flooded)	0.0%	4.4%	0.6%	3.0%	2.1%	2.7%
Reservoir	0.0%	0.0%	0.0%	2.5%	0.0%	1.6%
Floodplain: flooded forest	0.0%	1.4%	0.0%	0.2%	0.0%	0.26%
Unspecified habitat	4.6%	0.0%	0.0%	0.0%	0.0%	0.1%
Seasonal swamps	0.0%	0.4%	0.0%	0.0%	0.0%	0.1%
Grand Total (kg)	**185.0**	**754.3**	**1,257.3**	**4,757.5**	**839.0**	**7,793.1**

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

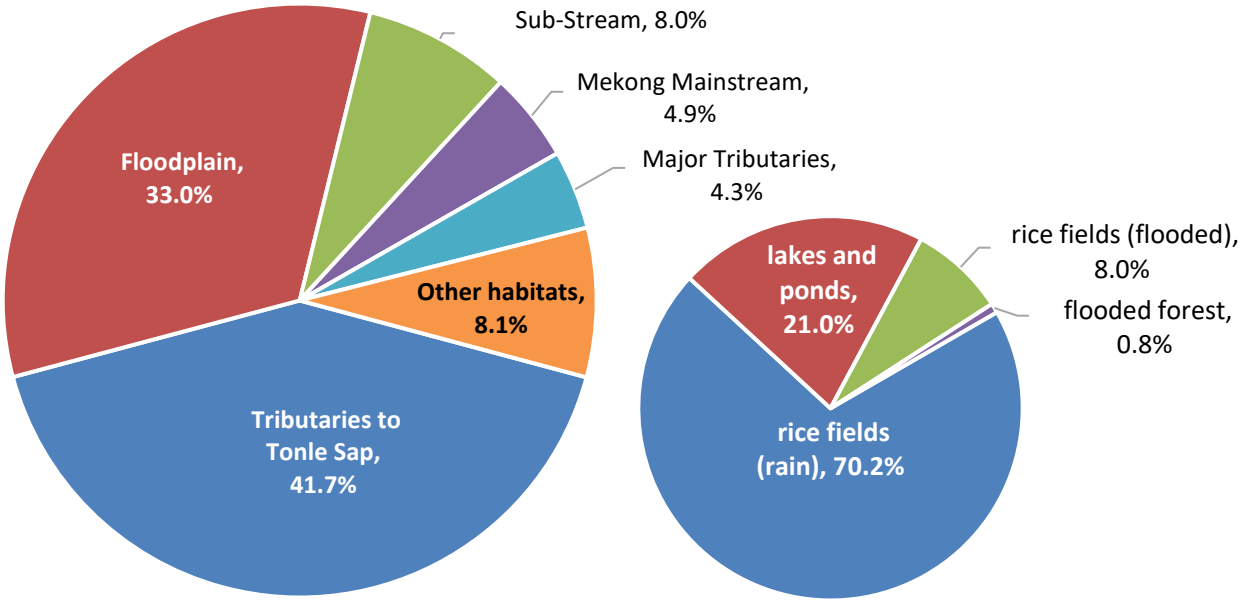

Figure 2. Overall contribution of the habitats to total reported catch, with proportion of catch for floodplain habitats

[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	67.2%	25.9%	49.5%	38.7%	23.3%	37.2%
Horizontal cylinder trap	11.4%	16.3%	5.7%	39.4%	13.0%	30.9%
Others gears	3.0%	0.0%	15.4%	2.8%	50.3%	7.6%
Drifting gillnet	6.1%	23.3%	4.8%	1.4%	0.0%	4.5%
Hook long line	0.0%	1.0%	1.9%	6.1%	0.0%	4.4%
Cast net	0.0%	12.9%	1.9%	1.7%	6.9%	3.6%
Horizontal cylinder trap	0.6%	2.7%	1.3%	4.0%	2.9%	3.4%
Pole and line	0.0%	1.0%	13.8%	1.3%	1.7%	2.1%
Hook and line	0.0%	1.3%	5.1%	1.8%	0.0%	1.7%
Bamboo vertical cylinder trap	5.9%	7.0%	0.0%	0.8%	0.0%	1.7%
Hand capture	4.2%	1.4%	0.0%	1.6%	0.7%	1.5%
Spear	0.0%	6.2%	0.0%	0.0%	1.2%	0.9%
Push nets	1.6%	0.0%	0.3%	0.3%	0.0%	0.3%
Seine nets	0.0%	0.9%	0.0%	0.0%	0.0%	0.1%
scoop nets	0.0%	0.0%	0.0%	0.1%	0.0%	0.04%
Wedge cone trap	0.0%	0.0%	0.4%	0.0%	0.0%	0.02%
Grand Total (kg)	**185.0**	**754.3**	**1,257.3**	**4,757.5**	**839.0**	**7,793.1**

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

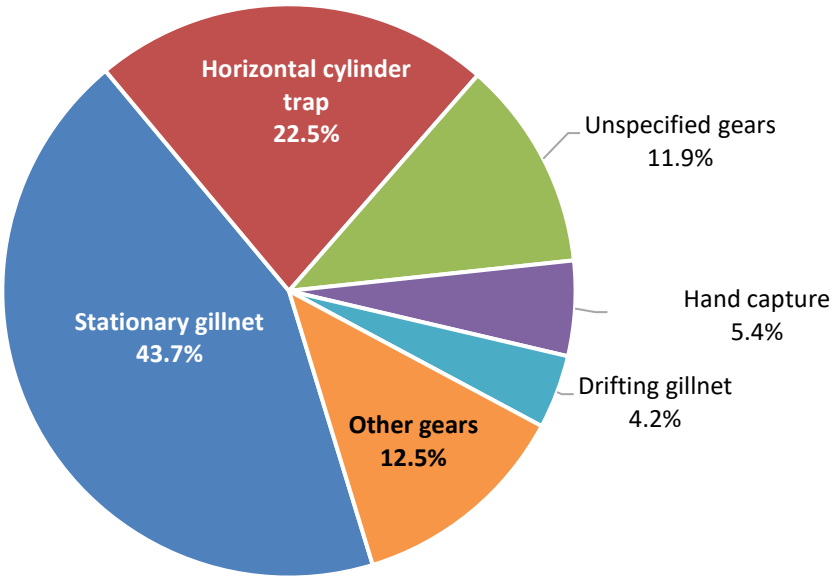

Figure 3. Overall contribution of the gears to total reported catch.

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	28.8	0.6%	47.7	2.6%	108.5	8.0%
Floodplain	275.0	6.0%	313.1	16.9%	166.2	12.2%
Plateau	494.5	10.8%	481.7	26.0%	281.1	20.6%
Tonle Sap	3,532.2	77.1%	695.9	37.6%	529.4	38.9%
Mountainous	250.7	5.5%	311.7	16.8%	276.6	20.3%
Grand Total	**4,581.2**	**58.8%**	**1,850.0**	**23.7%**	**1,361.9**	**17.5%**

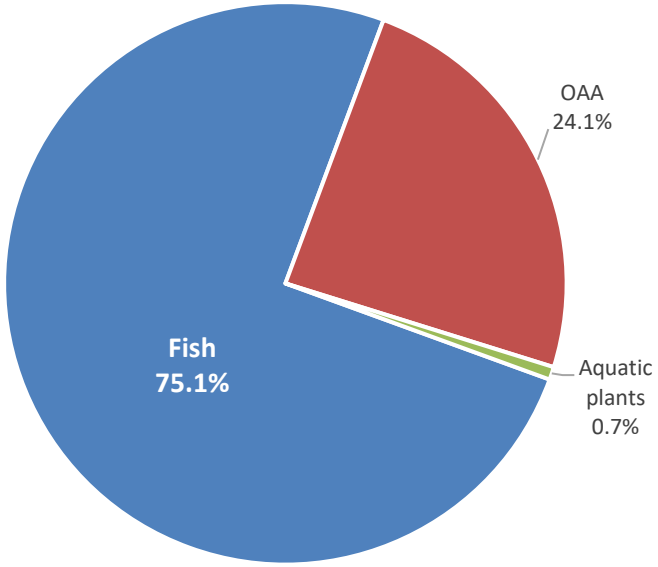

Figure 4. Catch contribution for fish, other aquatic animals (OAA) and aquatic plants.

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	*Somanniathelphusa sp.*	ក្តាមស្រែ	1,067.8	13.7%	13.7%
2	*Puntioplites proctozysron*	ត្រីប្រកែង	603.4	7.7%	21.4%
3	*Channa striata*	ត្រីរ៉ស់/ផ្នៃក់	592.9	7.6%	29.1%
4	*Anabas testudineus*	ត្រីក្រាញ់	530.7	6.8%	35.9%
5	Mixed small or juvenile fish	ត្រីល្អិតចម្រុះ	451.7	5.8%	41.7%
6	*Hypsibarbus malcolmi*	ត្រីឆ្អិនមូល	389.3	5.0%	46.7%
7	*Notopterus notopterus*	ត្រីស្លាត	354.5	4.5%	51.2%
8	*Henicorhynchus siamensis*	ត្រីរៀលគុប	283.7	3.6%	54.8%
9	Small mixed shrimps	កំពឹសចម្រុះ	279.1	3.6%	58.4%
10	*Henicorhynchus lobatus*	ត្រីរៀលអង្គាម	218.3	2.8%	61.2%
11	Aquatic insects nei	វារីសត្វល្អិត គ្មានក្នុងក្រុមដ៏ទៃ	206.1	2.6%	63.9%
12	*Trichopodus trichopterus*	ត្រីកំភ្លាញស្រែ	203.1	2.6%	66.5%
13	*Mystus mysticetus*	ត្រីកញ្ឆុះឆ្នូត	167.9	2.2%	68.6%
14	*Hemibagrus spilopterus*	ត្រីឆ្លាំង	165.4	2.1%	70.8%
15	*Macrognathus siamensis*	ត្រីឆ្ពូញ	155.1	2.0%	72.7%
16	Other	ផ្សេងទៀត	2124.3	27.3%	
	Total reported catch (kg)		**7,793.3**		

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	*Channa striata*	ត្រីរ៉ស់/ផ្នៃក់	2,973.0	12.9%	9,475
2	*Puntioplites proctozysron*	ត្រីច្រកែង	2,181.6	9.5%	5,600
3	*Notopterus notopterus*	ត្រីស្លាត	1,628.8	7.1%	6,200
4	*Hypsibarbus malcolmi*	ត្រីឆ្ពិនមូល	1,362.4	5.9%	5,575
5	*Anabas testudineus*	ត្រីក្រាញ់	1,292.0	5.6%	5,425
6	*Macrognathus siamensis*	ត្រីឆ្លូញ	1,251.0	5.4%	12,200
7	*Somanniathelphusa sp.*	ក្តាមស្រែ	1,077.5	4.7%	2,125
8	*Hemibagrus spilopterus*	ត្រីឆ្លាំង	1,000.2	4.4%	10,875
9	Small mixed shrimps	កំពឹសចម្រុះ	769.6	3.4%	5,250
10	*Mystus mysticetus*	ត្រីកញ្ឆុះឆ្នូត	555.0	2.4%	6,325
11	*Mystus singaringan*	ត្រីកញ្ឆុះបាយស	514.3	2.2%	4,950
12	*Henicorhynchus siamensis*	ត្រីរៀលតុប	496.5	2.2%	6,450
13	*Barbonymus gonionotus*	ត្រីឆ្ពិនប្រាក់	427.2	1.9%	8,100
14	Mixed small or juvenile fish	ត្រីល្អិតចម្រុះ	418.3	1.8%	6,825
15	*Fejervarya limnocharis*	កង្កែប	400.0	1.7%	13,000
16	Other species	ប្រភេទដ៏ទៃទៀត	6,621.55	28.8%	
	Total reported value (1000 Riel)		**22,968.9**		