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Ministry of Agriculture Forestry and Fisheries

Fisheries Administration

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**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 2022

By Inland Fisheries Research and Development Institute

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 statistical report provides preliminary analysis based on the available data and focuses on the main indicators that are covered by the catch assessment survey. Therefore, the results do not represent final estimates and may be changed in future updates.

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 (ε%). This is used to indicate the accuracy of the estimate for the mean catch. If the ε% is higher than 30% this indicates a high inaccuracy[1], due to high variation or low sample size and the resulting total estimate should not be used.

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 and the accuracy is too low for it to be statistically accurate and representative for the real CPUE. This will be included, where relevant in the annual report.

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[1] For national statistical reports the rule of thumb states that if the *relative* standard error is higher than 30%, the average should not be reported. The current report includes all estimated values to indicate that an estimate is available, with the ε% 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 June 2022.

Fishing Area	Villages	Household		
		Count	Target	Proportion
Floodplain	10	141	150	94.0%
Plateau	7	95	105	90.5%
Tonle Sap	10	141	150	94.0%
Total	**27**	**376**	**405**	**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%
Floodplain	41	1.49	1.59	16.7%
Plateau	33	2.86	2.93	17.8%
Tonle Sap	73	2.75	3.61	15.3%
Grand Total	**147**	**2.42**	**3.06**	**10.4%**

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)
Floodplain	29%	22.96	4.84	19.8%	4,275
Plateau	35%	56.66	10.35	19.1%	1,919
Tonle Sap	52%	40.18	10.84	19.0%	7,919
Grand Total	39%	39.08	9.59	12.1%	
Total estimated catch (MT)					**14,114**

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
Floodplain	8.3%	94.5%	0.0%	11.0%
Plateau	8.7%	98.1%	0.0%	0.0%
Tonle Sap	8.8%	91.2%	2.3%	8.8%
Grand Total	**8.6%**	**94.0%**	**1.0%**	**7.0%**

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
Floodplain	126.3	55.3%	34.0%	10.8%
Plateau	248.5	38.8%	51.2%	10.0%
Tonle Sap	368.8	52.3%	31.1%	16.7%
Grand Total	**743.7**	**48.3%**	**38.3%**	**13.4%**

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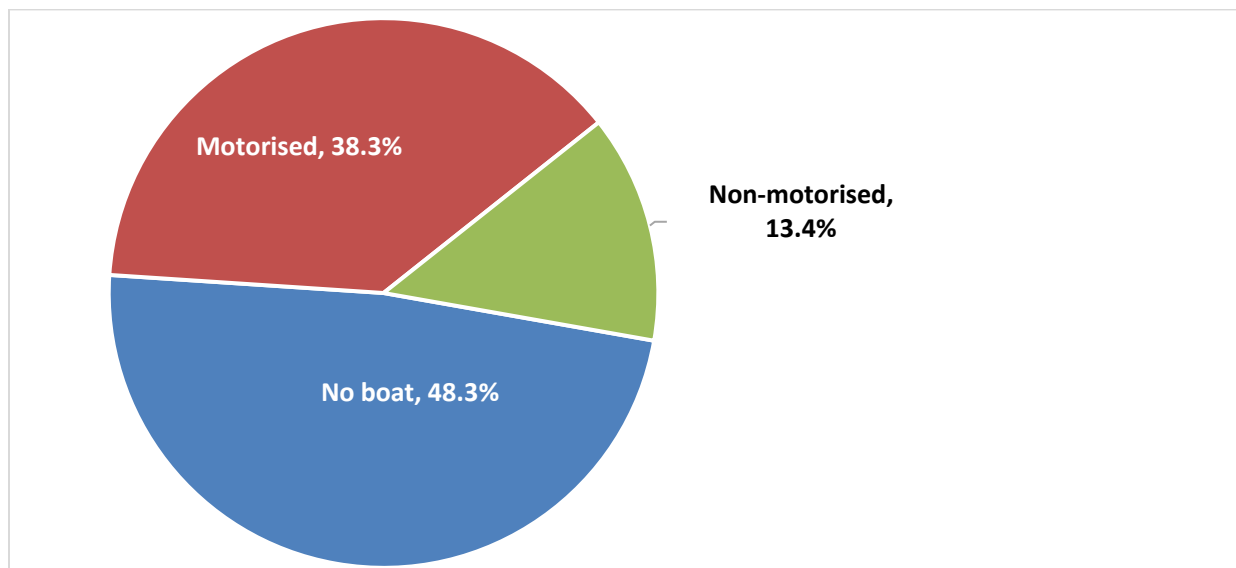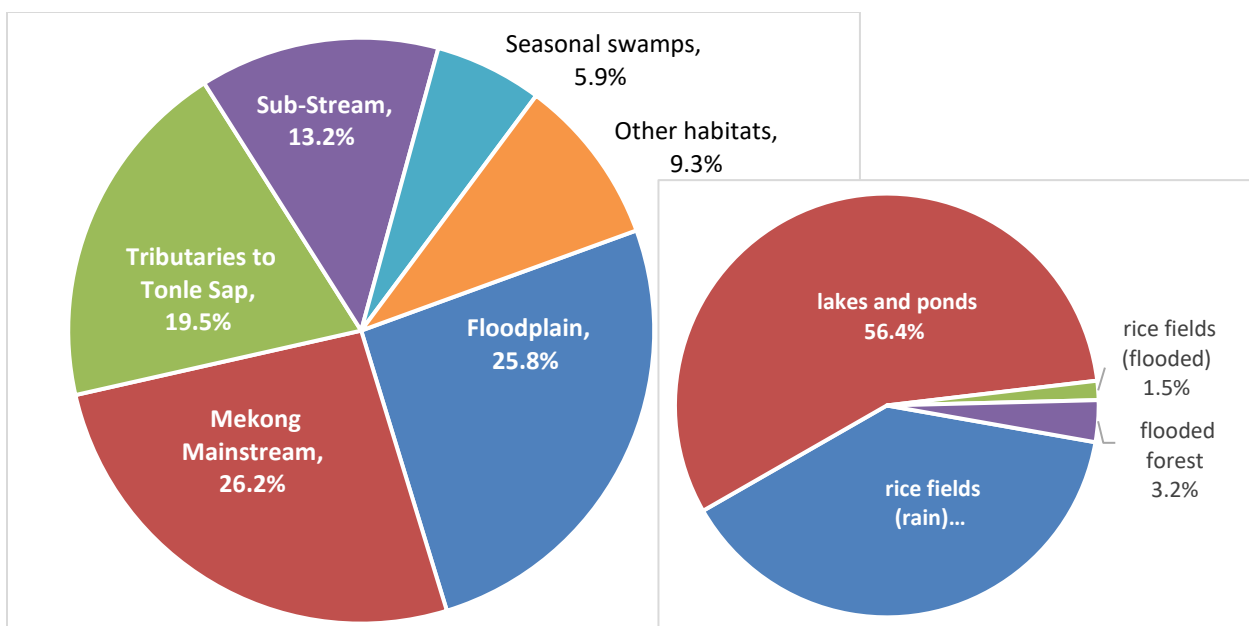

Figure 1. Overall contribution of the main boat types to total reported catch.

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

Fishing Habitats	Floodplain	Plateau	Tonle Sap	Grand Total
Mekong Mainstream	33.2%	63.0%	0.0%	26.2%
Tributaries to Tonle Sap	0.0%	0.0%	38.6%	19.5%
Floodplain: rice fields (rain)	44.2%	6.4%	10.1%	14.6%
Sub-Stream	2.0%	14.3%	16.3%	13.2%
Floodplain: lakes and ponds	11.3%	1.9%	14.9%	10.1%
Seasonal swamps	0.0%	0.0%	11.8%	5.9%
Reservoir	0.0%	12.4%	2.5%	5.3%
Irrigation canals	2.8%	2.0%	1.6%	1.9%
Stream	0.0%	0.0%	2.3%	1.2%
Major Tributaries	5.2%	0.0%	0.0%	0.9%
Floodplain: rice fields (flooded)	0.0%	0.0%	1.6%	0.8%
Floodplain: flooded forest	1.3%	0.0%	0.3%	0.4%
Grand Total (kg)	**154.1**	**303.1**	**467.8**	**925.1**

Only catch for fishing days that report fishing in a single habitat is included, the grand total, includes all catch (including other fish/catch nei), not just catch reported by species and species group, therefore this can be higher than included in table 9.

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[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 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 habitats	Floodplain	Plateau	Tonle Sap	Grand Total
Stationary gillnet	15.0%	29.1%	36.3%	29.8%
Unspecified	4.8%	43.1%	3.4%	16.8%
Horizontal cylinder trap (small)	17.4%	0.0%	16.2%	11.1%
Hook long line	0.0%	18.1%	7.2%	9.4%
Cast net	11.7%	1.3%	13.2%	8.9%
Horizontal cylinder trap	8.1%	4.2%	8.4%	7.0%
Drifting gillnet	25.6%	0.0%	2.2%	6.1%
Hand capture	4.7%	3.2%	3.9%	3.8%
Hook and line	0.0%	0.0%	6.4%	3.0%
Bamboo vertical cylinder trap (large)	8.9%	0.0%	0.0%	1.8%
Scoop baskets	2.6%	0.0%	1.3%	1.1%
Pole and line	0.0%	0.0%	1.6%	0.8%
Wedge cone trap	0.0%	1.1%	0.0%	0.3%
Spear	0.9%	0.0%	0.0%	0.2%
Seine nets	0.2%	0.0%	0.0%	0.0%
Grand Total (kg)	**141.0**	**238.0**	**339.9**	**718.9**

Only catch for fishing days that report fishing with a single gear is included, therefore the total is different from reported catch by habitat. The grand totals, includes all catch, not just catch reported by species and species group, therefore this can be higher than included in table 9.
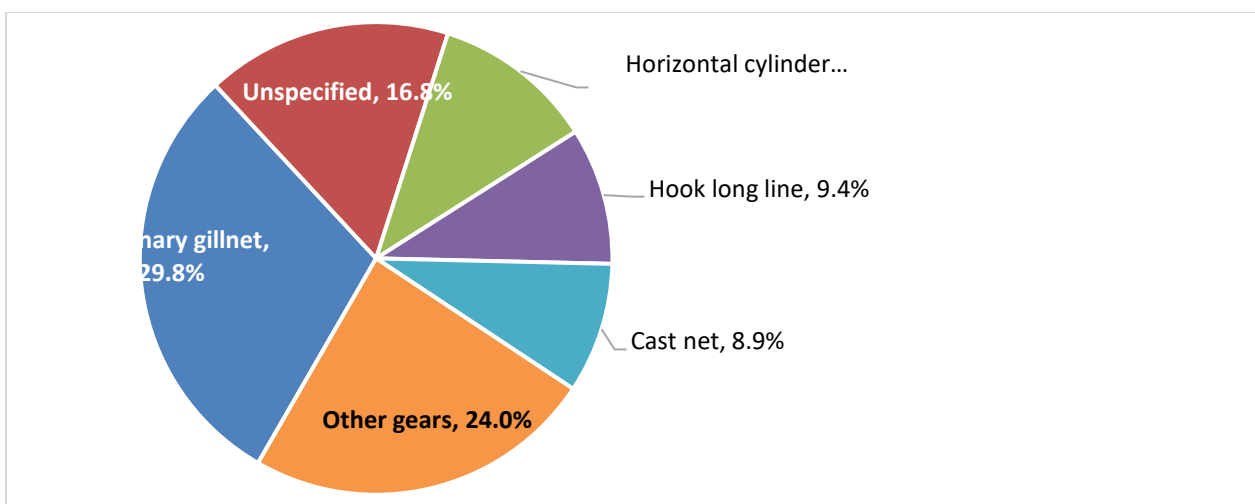
Figure 3. Overall contribution of fishing gears to total reported catch.

Table 8. Reported disposal by fishing area in weight and proportion (all catch).

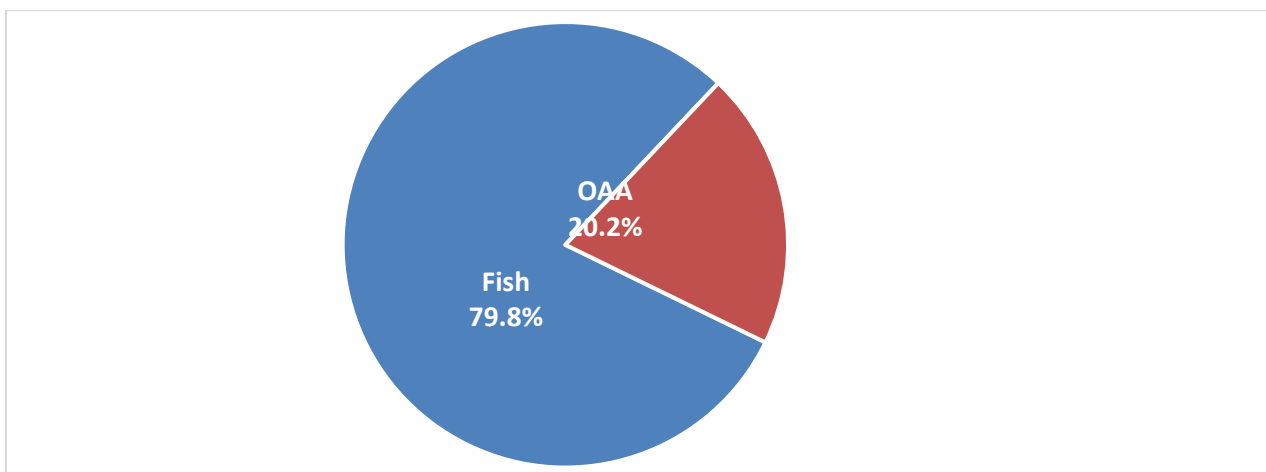| Fishing Area	Sold Kg	% Sold	Consumed Kg	% Consumed	Other use Kg	% Other use
Floodplain	76.0	18.6%	70.6	15.1%	10.3	12.6%
Plateau	103.5	25.3%	164.1	35.2%	44.0	53.7%
Tonle Sap	229.8	56.1%	231.5	49.7%	27.6	33.7%
Grand Total	**409.3**	**42.8%**	**466.15**	**48.7%**	**81.91**	**8.6%**

Figure 4. Catch contribution for fish and other aquatic animals.

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

No.	Scientific name	Khmer name	catch (kg)	Catch contribution	
				%Catch	%Cum.
1	*Pila polita*	ខ្យងគូថស្ត្រ	75.5	8.6%	8.6%
2	*Puntioplites proctozysron*	ត្រីច្រកែង	71.1	8.1%	16.6%
3	*Channa striata*	ត្រីរ៉ស់/ផ្ទក់	59.6	6.8%	23.4%
4	*Anabas testudineus*	ត្រីក្រាញ់	51.9	5.9%	29.3%
5	*Henicorhynchus siamensis*	ត្រីរៀលគុប	50.4	5.7%	35.0%
6	*Henicorhynchus lobatus*	ត្រីរៀលអង្កាម	43.5	4.9%	39.9%

No.	Scientific name	Khmer name	catch (kg)	Catch contribution	
				%Catch	%Cum.
7	*Boesemania microlepis*	ត្រីប្រម៉ា	40.5	4.6%	44.5%
8	*Somanniathelphusa sp.*	ក្ដាមស្រែ	37.7	4.3%	48.8%
9	*Pangasius pleurotaenia*	ត្រីឈ្លៀត	31.8	3.6%	52.4%
10	*Barbonymus gonionotus*	ត្រីឆ្ពិនប្រាក់	31.1	3.5%	55.9%
11	*Hemibagrus spilopterus*	ត្រីឆ្លាំង	28.8	3.3%	59.2%
12	*Trichopodus trichopterus*	ត្រីកំភ្លាញស្រែ	26.4	3.0%	62.2%
13	*Clarias batrachus*	ត្រីអណ្ដែងវិង	19.0	2.2%	64.3%
14	*Cyclocheilichthys enoplos*	ត្រីឆ្នោក	17.1	1.9%	66.3%
15	*Freshwater crabs nei*	ក្ដាមទឹកសាប គ្មានក្នុងក្រុមដ៍ ទៃ	15.0	1.7%	68.0%
16	Other	ផ្សេងទៀត	282.3	32.0%	100.0%
	Total reported catch		**881.6**		

Table 10. Top 15 reported species **by value** (1000 Riel) in reported catch, with reported value, proportion of value by individual species and species groups.

No.	Scientific name	Khmer name	Value (1000 Riel)	Value Contribution	
				%Value	%Cum.
1	*Boesemania microlepis*	ត្រីប្រម៉ា	668	14.0%	14.0%
2	*Channa striata*	ត្រីរ៉ស់/ផ្ទក់	557	11.7%	25.6%
3	*Puntioplites proctozysron*	ត្រីច្រកែង	313	6.5%	32.2%
4	*Henicorhynchus siamensis*	ត្រីរៀលតុប	302	6.3%	38.5%
5	*Anabas testudineus*	ត្រីក្រាញ់	232	4.9%	43.4%
6	*Pangasius pleurotaenia*	ត្រីឈ្លៀត	207	4.3%	47.7%
7	*Barbonymus schwanenfeldii*	ត្រីកាហៃលឿង	195	4.1%	51.8%
8	*Macrognathus siamensis*	ត្រីឆ្លុញ	147	3.1%	54.9%
9	*Barbonymus gonionotus*	ត្រីឆ្ពិនប្រាក់	145	3.0%	57.9%
10	*Cyclocheilichthys enoplos*	ត្រីឆ្នោក	120	2.5%	60.4%
11	*Pila gracilis*	ខ្យង	113	2.4%	62.8%
12	*Clarias macrocephalus*	ត្រីអណ្ដែងទទន់	111	2.3%	65.1%
13	*Puntius brevis*	ត្រីអង្កត់ប្រាក់	98	2.1%	67.1%
14	*Mekongia rattei*	ខ្ចៅទន្លេ	98	2.0%	69.2%
15	*Hemibagrus spilopterus*	ត្រីឆ្លាំង	90	1.9%	71.1%
16	Others		1,383	28.9%	100.0%
	Total report value		**4,778**		

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