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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
April 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 April 2022.

Fishing Area	Villages	Households		
		Count	Target	Proportion
Coastal	2	30	30	100.0%
Floodplain	13	185	195	94.9%
Plateau	4	56	60	93.3%
Tonle Sap	12	149	180	82.8%
Total	**31**	**416**	**465**	**89.5%**

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	7	1.85	1.45	29.5%
Floodplain	37	8.80	14.71	27.5%
Plateau	12	3.00	1.61	15.4%
Tonle Sap	67	5.09	5.57	13.4%
Grand Total	**123**	**5.82**	**9.25**	**14.3%**

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)
Coastal	23%	22.46	2.16	21.8%	320
Floodplain	20%	112.02	26.46	23.3%	14,346
Plateau	21%	57.35	6.70	20.2%	1,198
Tonle Sap	45%	86.61	19.94	16.9%	14,827
Total estimated catch (MT)					**30,691**

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	0.0%	93.8%	0.0%	6.3%
Floodplain	8.8%	80.7%	1.8%	9.6%
Plateau	12.8%	87.2%	0.0%	0.0%
Tonle Sap	29.9%	77.5%	4.8%	9.1%
Grand Total	**19.9%**	**80.3%**	**3.1%**	**8.1%**

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	20.9	92.8%	0.0%	7.2%
Floodplain	571	85.3%	10.1%	4.6%
Plateau	90.6	1.5%	98.5%	0.0%
Tonle Sap	750.95	48.2%	44.6%	7.2%
Grand Total	**1,433.5**	**60.7%**	**33.6%**	**5.7%**

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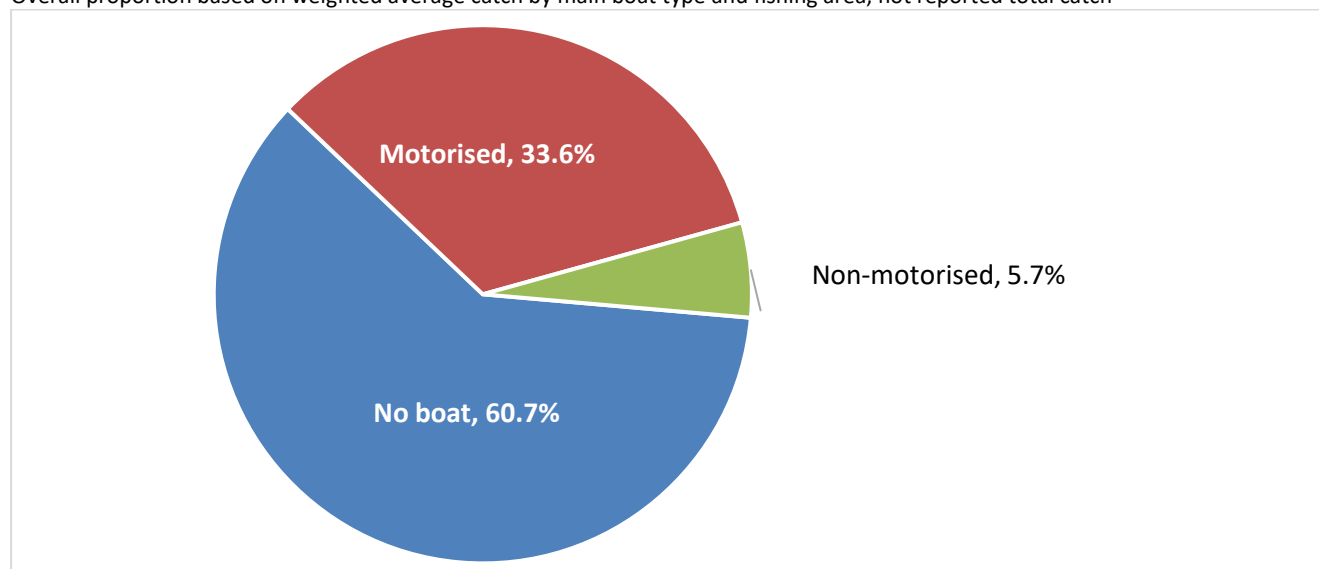

Figure 1. Overall contribution of the main boat types to total reported catch.

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

Fishing Habitats	Coastal	Floodplain	Plateau	Tonle Sap	Grand Total
Unspecified	0.0%	7.5%	0.0%	44.0%	28.3%
Mekong Mainstream	0.0%	27.1%	98.8%	0.0%	15.9%
Irrigation canals	33.5%	8.9%	0.0%	19.3%	14.7%
Floodplain: lakes and ponds	18.9%	41.0%	0.0%	1.3%	14.6%
Reservoir	0.0%	0.0%	1.2%	21.2%	12.5%
Stream	17.9%	0.1%	0.0%	11.7%	7.1%
Floodplain: rice fields (rain)	22.6%	13.1%	0.0%	1.2%	5.3%
Sub-Stream	0.0%	0.6%	0.0%	1.3%	0.9%
Major Tributaries	0.0%	1.7%	0.0%	0.0%	0.6%
Floodplain: rice fields (flooded)	7.1%	0.0%	0.0%	0.0%	0.1%
Grand Total (kg)	**21.2**	**544.9**	**114.7**	**965.2**	**1646.0**

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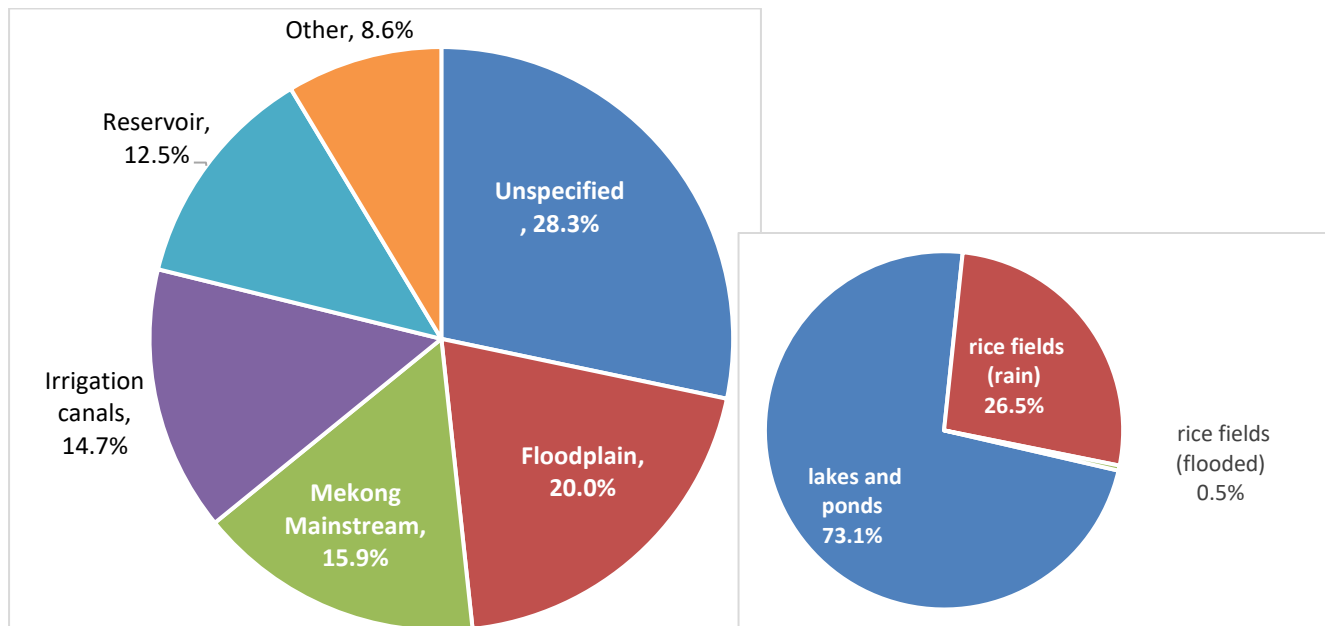
Figure 2. Overall contribution of habitats to total reported catch, with proportion of catch for floodplain habitats.

Table 7. Proportion and reported catch by gear for single gear days, by fishing area.

Fishing habitats	Coastal	Floodplain	Plateau	Tonle Sap	Grand Total
Stationary gillnet	48.1%	21.2%	86.7%	52.0%	45.3%
Hand capture	29.7%	19.5%	0.0%	25.2%	21.6%
Cast net	3.3%	6.7%	1.2%	15.6%	11.5%
Unspecified	0.0%	37.6%	0.0%	0.0%	11.5%
Drifting gillnet	0.0%	0.0%	12.0%	5.8%	4.5%
Horizontal cylinder trap (small)	0.0%	6.9%	0.0%	0.6%	2.5%
scoop baskets	0.0%	4.6%	0.0%	0.0%	1.4%
Bamboo vertical cylinder trap	18.9%	0.7%	0.0%	0.0%	0.5%
Spear	0.0%	0.0%	0.0%	0.5%	0.3%
Covering devices	0.0%	0.9%	0.0%	0.0%	0.3%
Horizontal cylinder trap (large)	0.0%	0.9%	0.0%	0.0%	0.3%
Pole and line	0.0%	0.5%	0.0%	0.0%	0.1%
Pumping	0.0%	0.0%	0.0%	0.2%	0.1%
Seine nets	0.0%	0.3%	0.0%	0.0%	0.1%
Hook long line	0.0%	0.2%	0.0%	0.0%	0.1%
Grand Total (kg)	**21.2**	**440.6**	**114.7**	**866.6**	**1,443.1**

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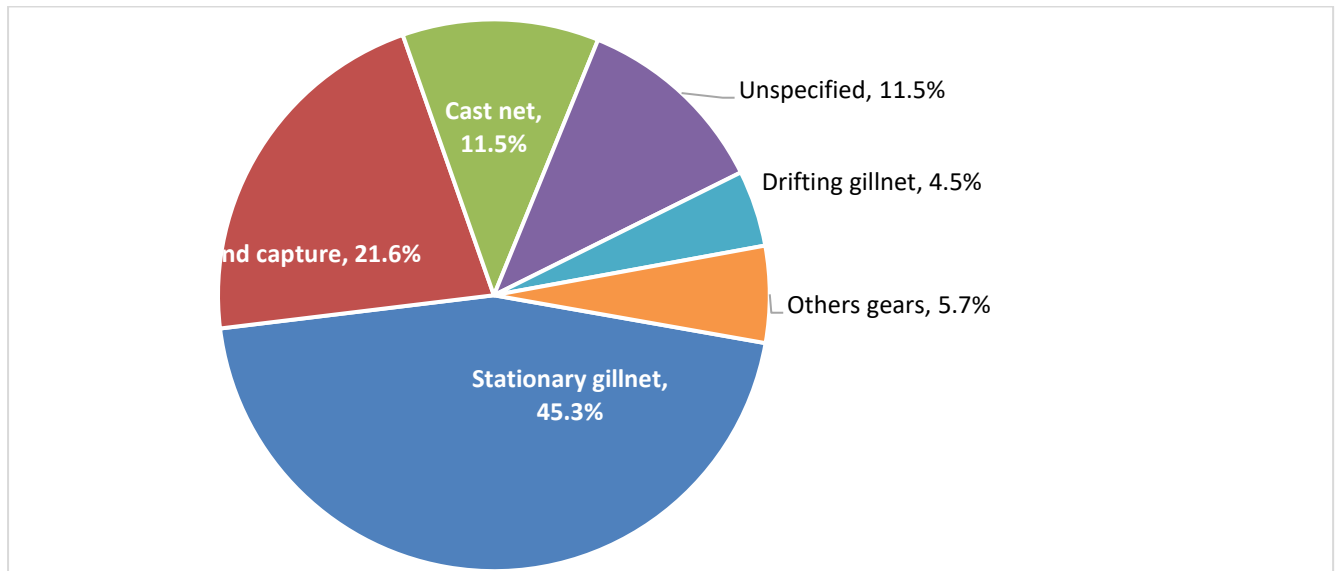
Figure 3. Overall contribution of fishing gears to total reported catch.

Table 8. Reported disposal by fishing area in weight and proportion.

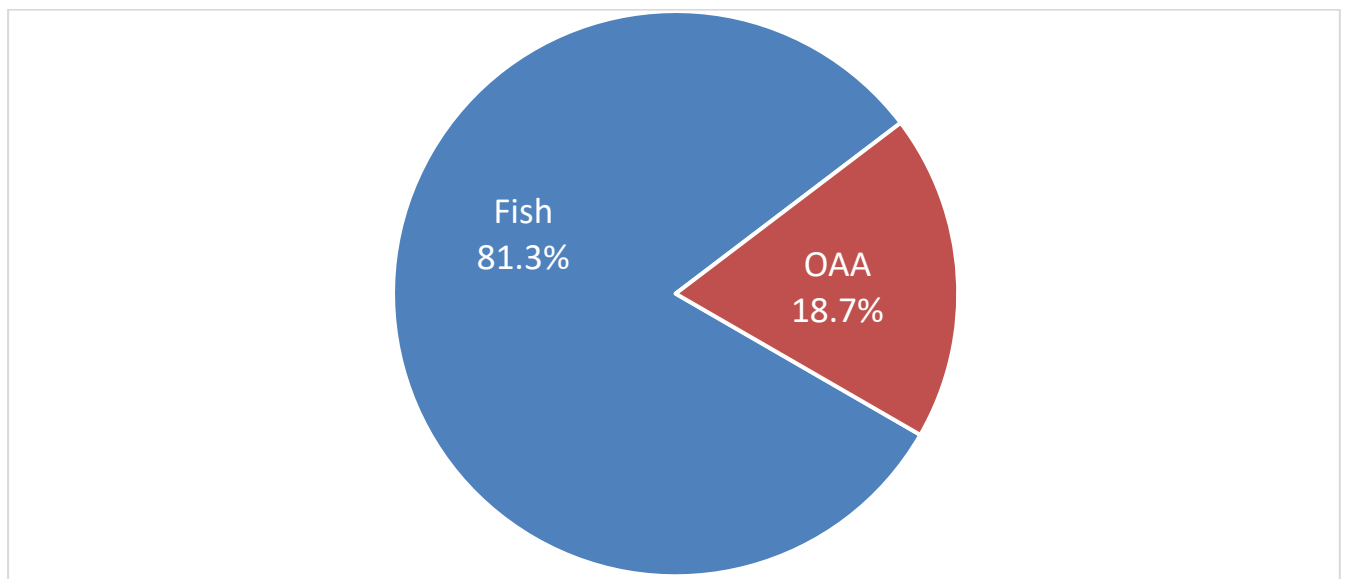| Fishing Area	Sold Kg	% Sold	Consumed Kg	% Consumed	Other use Kg	% Other use
Coastal	0.0	0.0%	21.2	5.4%	5.0	1.8%
Floodplain	428.2	37.8%	111.87	28.5%	150.7	55.0%
Plateau	43.0	3.8%	46.4	11.8%	25.3	9.2%
Tonle Sap	661.5	58.4%	212.7	54.2%	93.0	33.9%
Grand Total	**1132.68**	**63.0%**	**392.17**	**21.8%**	**274.03**	**15.2%**

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	*Rana tigrina*	លៀស	270	17.2%	17.2%
2	*Trichopodus trichopterus*	ត្រីកំភ្លាញប្រែស	150.5	9.6%	26.8%
3	*Anabas testudineus*	ត្រីក្រាញ់	120.43	7.7%	34.5%
4	*Channa striata*	ត្រីរ៉ស់/ផ្ទក់	104.9	6.7%	41.1%
5	*Puntioplites proctozysron*	ត្រីច្រកែង	91	5.8%	46.9%
6	*Henicorhynchus siamensis*	ត្រីរៀលគុប	82.1	5.2%	52.2%
7	*Henicorhynchus lobatus*	ត្រីរៀលអង្គាម	67.8	4.3%	56.5%
8	*Puntioplites falcifer*	ត្រីច្រកែងក្លោង	60.2	3.8%	60.3%
9	*Hypsibarbus malcolmi*	ត្រីឆ្នីនមូល	55.2	3.5%	63.8%
10	*Mystus singaringan*	ត្រីកញ្ចះបាយស	54	3.4%	67.3%
11	*Clarias batrachus*	ត្រីអណ្ដែងវ៉ិង	53.3	3.4%	70.7%
12	*Cyclocheilichthys furcatus*	ត្រីឆ្នោកភ្លើង	35.3	2.2%	72.9%
13	*Hemibagrus spilopterus*	ត្រីឆ្លាំង	28.2	1.8%	74.7%
14	*Cyclocheilichthys enoplos*	ត្រីឆ្នោក	26	1.7%	76.4%
15	*Scaphognathops bandanensis*	ត្រីជាផាក់	25.5	1.6%	78.0%
16	*Other*	ផ្សេងទៀត	345.1	22.0%	100.0%
	Total reported catch		**1,569.5**		

Table 10. Top 16 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	*Channa striata*	ត្រីរ៉ស់/ផ្ទក់	1,469	12.3%	12.3%
2	*Anabas testudineus*	ត្រីក្រាញ់	1,144	9.6%	21.9%
3	*Trichopodus trichopterus*	ត្រីកំភ្លាញប្រែស	812	6.8%	28.7%
4	*Rana tigrina*	លៀស	675	5.7%	34.4%
5	*Mystus singaringan*	ត្រីកញ្ចះបាយស	648	5.4%	39.8%
6	*Henicorhynchus lobatus*	ត្រីរៀលអង្គាម	644	5.4%	45.2%
7	*Henicorhynchus siamensis*	ត្រីរៀលគុប	642	5.4%	50.6%
8	*Puntioplites proctozysron*	ត្រីច្រកែង	637	5.3%	55.9%
9	*Clarias batrachus*	ត្រីអណ្ដែងវ៉ិង	613	5.1%	61.1%
10	*Hypsibarbus malcolmi*	ត្រីឆ្នីនមូល	442	3.7%	64.8%
11	*Trichopodus trichopterus*	ត្រីកំភ្លាញប្រែស	423	3.5%	68.3%
12	*Hemibagrus spilopterus*	ត្រីឆ្លាំង	338	2.8%	71.1%
13	*Puntioplites falcifer*	ត្រីច្រកែងក្លោង	271	2.3%	73.4%
14	*Cyclocheilichthys enoplos*	ត្រីឆ្នោក	156	1.3%	74.7%
15	*Osteochilus lini*	ត្រីក្រុស	152	1.3%	76.0%
16	Others		2,864	24.0%	100.0%
	Total report value		**11,929**		