

KINGDOM OF CAMBODIA
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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
September 2021**

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 currently piloting scientific catch assessment using a monthly household recall survey for 900 households, covering all provinces 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 randomly selected household coverage of survey is gradually expanding since the start of catch assessment survey in June 2021. 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.

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.

2 Methodology of data collection and analysis

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 standard error (ϵ). This is used to indicate the accuracy of the estimate for the mean catch. To better evaluate the accuracy of the mean value, the *relative* standard error is included, calculated by dividing the standard error by the mean catch. If this is higher than 30% this indicates a high inaccuracy¹, due to high variation or low sample size and the resulting total estimate should be used with extreme caution.

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. This is a basic characteristic of Cambodian inland fisheries; 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.

3 Statistical tables and results

The coverage for data collection during September 2021 is included in Table 1, overall, 49.9% of the target household sample was covered in September.

¹ For national statistical reports a rule of thumb exists 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 the availability of data, with the accuracy indicated by the relative standard error.

Table 1. Number of random selected households covered by the survey and proportion of target household by fishing area for September 2021.

Fishing Area	Villages	Household		
		Count	Target	Proportion
Coastal	-	-	60	0.0%
Floodplain	12	181	315	57.5%
Mountainous	2	24	105	22.9%
Plateau	6	90	105	85.7%
Tonle Sap	11	154	315	48.9%
Total	31	449	900	49.9%

Table 2. Mean **daily** household catch (CPUE), with standard deviation, confidence limits, relative standard error.

Fishing Area	Active HH	Daily HH catch (Kg)	SD	CL	ε%
Coastal	-	-	-	-	-
Floodplain	54	1.55	1.40	0.32	12.3%
Mountainous	7	1.90	1.53	1.26	30.4%
Plateau	44	1.94	3.08	0.79	23.9%
Tonle Sap	101	3.58	3.50	0.58	9.7%

Mean daily catch calculated based on the reported 5-day catch and fishing days, with SD is Standard Deviation; CL is Confidence Limits; ε% is relative Standard Error

Table 3. Mean **monthly** household catch with standard deviation, confidence limits, relative standard error and total estimated catch by fishing area.

Fishing Area	Active HH	Monthly HH catch (Kg)	SD	CL	ε%	Total (MT)
Coastal	-	-	-	-	-	-
Floodplain	54	29.94	30.63	7.05	13.9%	5,498.50
Mountainous	7	27.53	21.43	17.63	29.4%	959.69
Plateau	44	45.86	91.93	23.58	30.2%	2,186.52
Tonle Sap	101	82.25	97.91	16.26	11.8%	20,535.17
Total estimated catch (MT)						29,179.88

SD is Standard Deviation; CL is Confidence Limits; 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		Child	
	Female	Male	Female	Male
Coastal				
Floodplain	15.8%	89.5%	5.3%	8.4%
Mountainous	0.0%	100.0%	0.0%	0.0%
Plateau	8.7%	95.7%	4.3%	13.0%
Tonle Sap	17.6%	92.9%	0.0%	9.5%
Total	14.6%	92.9%	2.4%	10.1%

The maximum involvement of each gender and age group is 100% for each fishing area, if they are fishing on all reported fishing days.

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	-	-	-	-
Floodplain	229.3	65.6%	5.9%	28.6%
Mountainous	34.6	47.7%	-	52.3%
Plateau	312.2	16.5%	33.8%	49.8%
Tonle Sap	1,297.1	24.6%	70.4%	5.0%
Overall	1,873.2	38.3%	38.6%	23.0%

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

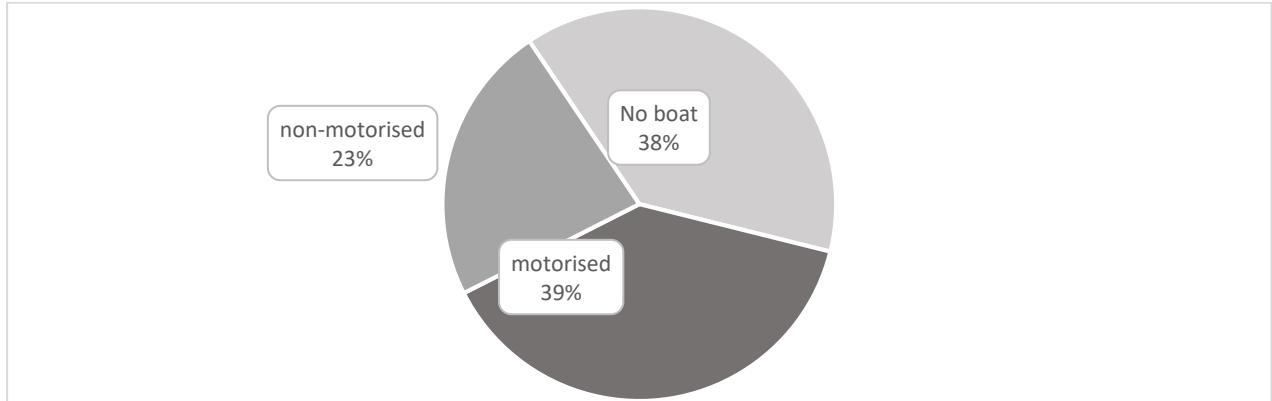
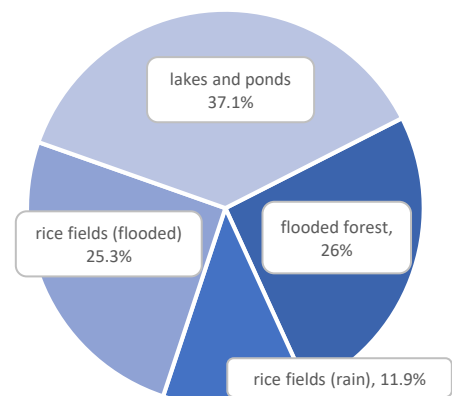


Figure 1. Overall contribution of the main boat types to total reported catch.

Table 6. Reported catch by habitat for single habitat catches by fishing area.

	Floodplain	Mountainous	Plateau	Tonle Sap	Overall
Fishing habitats					
Floodplain: lakes and ponds	46.2%	0.0%	46.0%	14.3%	23.7%
Floodplain: flooded forest	0.0%	0.0%	8.9%	21.7%	16.4%
Floodplain: rice fields (flooded)	1.2%	0.0%	1.4%	23.1%	16.2%
Tributaries to Tonle Sap	0.0%	0.0%	0.0%	20.7%	14.1%
Floodplain: rice fields (rain)	13.4%	100.0%	0.0%	6.5%	7.6%
Mekong Mainstream	6.1%	0.0%	29.8%	1.2%	6.9%
Stream	4.1%	0.0%	0.0%	6.1%	4.7%
Sub-Stream	17.7%	0.0%	8.7%	1.1%	4.5%
Reservoir	4.6%	0.0%	5.1%	2.7%	3.3%
Irrigation canals	3.6%	0.0%	0.0%	1.9%	1.8%
Other habitats	3.1%	0.0%	0.0%	0.6%	0.8%
Total catch single habitat days	219.7	25.5	307.6	1192.4	1745.1

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 catc reported catch is from multiple habitats or caught by multiple gears

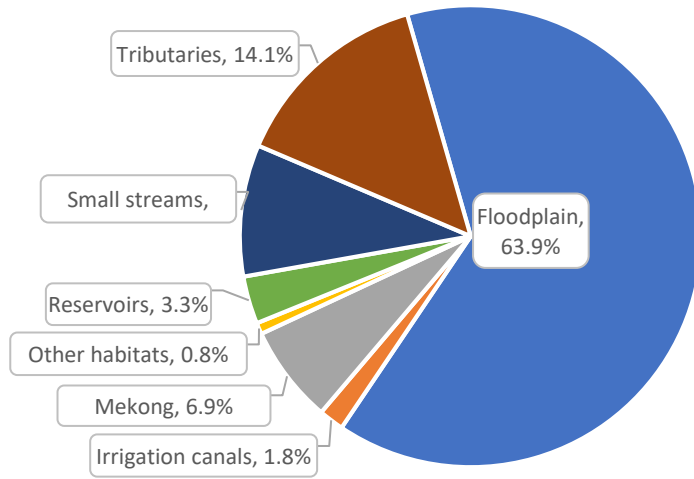


Figure 2. Overall contribution of the habitats to total reported catch, with proportion of catch for floodplain habitats.

Table 7. Reported catch by gear for single gear days, by fishing area.

Fishing habitats	Floodplain	Mountainous	Plateau	Tonle Sap	Overall
Stationary gillnet	64.8%	0.0%	87.6%	40.8%	52.3%
Horizontal cylinder trap	0.9%	0.0%	5.0%	28.0%	19.0%
Cast net	4.2%	0.0%	0.0%	7.9%	5.7%
Spear	19.4%	73.7%	0.0%	0.0%	4.6%
Hook and line	1.3%	0.0%	0.1%	3.5%	2.4%
Drifting gillnet	0.0%	0.0%	2.6%	0.3%	0.7%
Pole and line	1.0%	0.0%	2.8%	0.0%	0.7%
Hook long line	0.0%	0.0%	0.0%	0.6%	0.4%
Vertical hanging vase trap	2.5%	0.0%	0.0%	0.0%	0.4%
Hand capture	1.7%	0.0%	0.0%	0.1%	0.3%
Seine nets	1.9%	0.0%	0.0%	0.0%	0.3%
Giant cast nets	0.6%	0.0%	0.0%	0.0%	0.1%
Push nets	0.2%	0.0%	0.0%	0.1%	0.1%
Bamboo vertical cylinder trap	0.1%	0.0%	0.0%	0.0%	0.0%
Other gears	1.4%	26.3%	1.7%	18.6%	13.1%
Total catch single gear days	208.1	34.6	278.1	926.8	1447.6

Only catch for fishing days that report fishing with a single gear is included

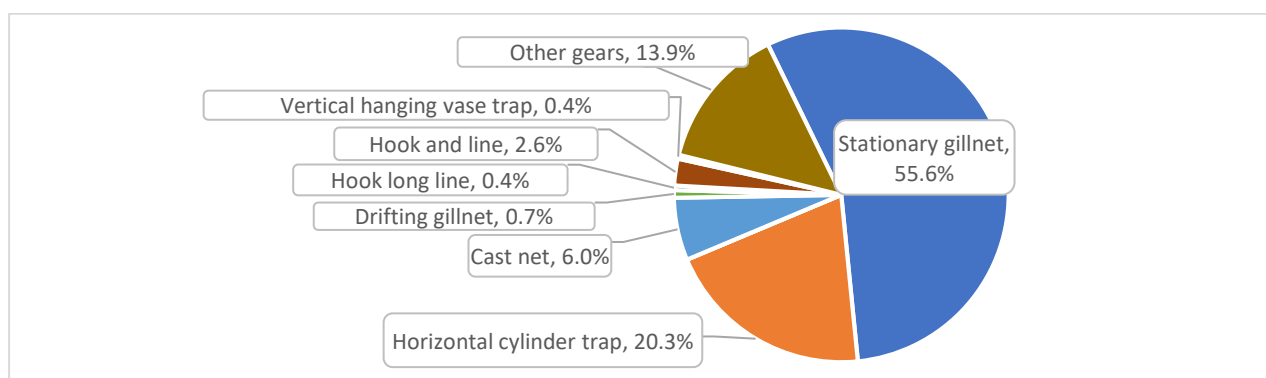


Figure 3. Overall contribution of the gears to total reported catch.

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

Fishing Area	Sold		Consumed		Other	
	Kg	%	Kg	%	Kg	%
Floodplain	57.8	25.2%	125.0	54.5%	46.6	20.3%
Mountainous	0.0	0.0%	33.3	96.1%	1.3	3.9%
Plateau	150.6	48.2%	133.2	42.7%	28.4	9.1%
Tonle Sap	998.6	77.0%	280.9	21.7%	17.6	1.4%
Overall	1207.0	64.4%	572.4	30.6%	93.8	5.0%

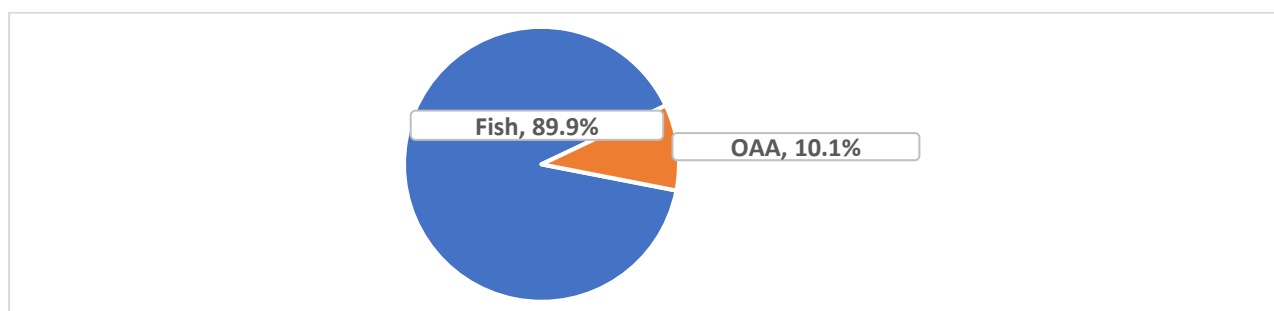


Figure 4. Catch contribution for fish and other aquatic animals.

Table 9. Top 10 reported species and species groups **by weight** in reported household catch, with reported weight and proportion of catch by individual species and species groups.

	Scientific name	catch (kg)	Catch contribution	
			Proportion	Cumulative
1	<i>Anabas testudineus</i>	215.3	11.5%	11.5%
2	<i>Clarias batrachus</i>	210.9	11.3%	22.7%
3	<i>Channa striata</i>	137.5	7.3%	30.1%
4	Other fish nei	135.3	7.2%	37.3%
5	<i>Mystus mysticetus / Mystus bocourti</i>	117.0	6.2%	43.6%
6	<i>Somanniathelpusa brandti</i>	112.5	6.0%	49.6%
7	<i>Cyclocheilichthys repasson</i>	94.7	5.1%	54.6%
8	<i>Puntioplites proctozysron</i>	66.2	3.5%	58.1%
9	<i>Henicorhynchus sp.</i>	65.1	3.5%	61.6%
10	Other species	718.9	38.4%	100.0%
	Total reported catch	1873.2		

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

	Scientific name	Value (1000 Riel)	Value Contribution	
			Proportion	Cumulative
1	<i>Clarias batrachus</i>	2240.2	14.6%	14.6%
2	<i>Anabas testudineus</i>	1834.3	12.0%	26.6%
3	<i>Channa striata</i>	1711.9	11.2%	37.8%
4	<i>Mystus mysticetus / Mystus bocourti</i>	1061.5	6.9%	44.7%
5	Other fish nei	935.6	6.1%	50.8%
6	<i>Cyclocheilichthys repasson</i>	700.8	4.6%	55.4%
7	<i>Henicorhynchus sp.</i>	592.3	3.9%	59.3%
8	<i>Puntioplites proctozysron</i>	456.6	3.0%	62.2%
9	<i>Henicorhynchus siamensis</i>	370.6	2.4%	64.7%
10	Other species	5411.7	35.3%	100.0%
	Total reported value	15315.5		