KINGDOM OF CAMBODIA

National Religion King

3

Ministry of Agriculture Forestry and Fisheries

Fisheries Administration

3

Cambodia Programme for Sustainable and Inclusive Growth in the Fisheries Sector: Capture Component

Monthly Statistical Report
Scientific Catch Assessment of Inland Fisheries in Cambodia
December 2022

By Inland Fisheries Research and Development Institute

Funded by European Union
ACA/2018/041-466 and ACA/2019/041-594

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 inaccuracy1, 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.

[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 December 2022.

Fishing Area	Villages	Household		
		Count	Target	Proportion
Floodplain	8	112	120	93.3%
Plateau	7	105	105	100.0%
Tonle Sap	9	122	135	90.4%
Total	**24**	**339**	**360**	**94.2%**

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	62	2.39	2.83	15.0%
Plateau	30	1.79	1.44	14.7%
Tonle Sap	70	4.20	6.52	18.5%
Grand Total	**162**	**3.06**	**4.76**	**12.2%**

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	55%	42.59	12.40	22.2%	15,096
Plateau	29%	38.36	5.23	14.9%	1,069
Tonle Sap	57%	92.79	28.36	21.9%	20,268
Grand Total	48%	63.50	20.64	15.3%	
				Total estimated catch (MT)	**36,433**

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	0.7%	92.5%	0.0%	3.4%
Plateau	0.9%	99.1%	0.0%	0.0%
Tonle Sap	2.9%	97.1%	0.0%	2.4%
Grand Total	**1.7%**	**96.1%**	**0.0%**	**2.1%**

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
Floodplain	327.1	37.2%	30.1%	32.7%
Plateau	152.1	28.5%	54.1%	17.4%
Tonle Sap	877.9	53.4%	44.5%	2.1%
Grand Total	1,357.1	46.7%	42.1%	11.2%

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

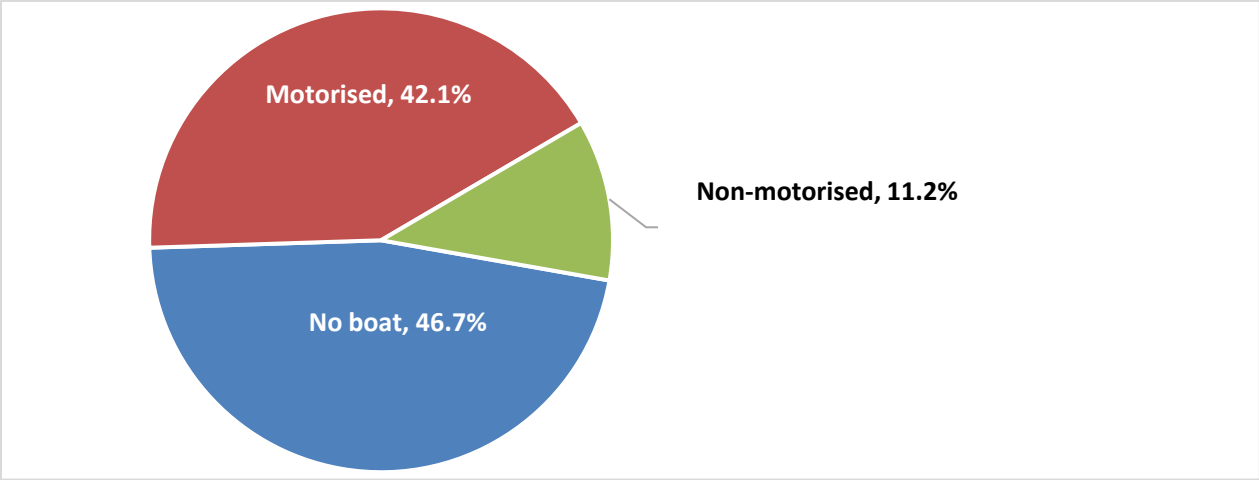

Figure 1. Overall contribution of the main boat types to total reported catch.

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

Fishing Habitats	Floodplain	Plateau	Tonle Sap	Grand Total
Floodplain: rice fields (rain)	11.5%	0.0%	43.8%	30.4%
Floodplain: lakes and ponds	55.7%	25.0%	8.7%	22.6%
Stream	1.1%	0.0%	26.8%	17.1%
Sub-Stream	0.0%	13.3%	13.5%	10.1%
Mekong Mainstream	10.3%	61.8%	0.0%	10.0%
Irrigation canals	5.6%	0.0%	4.6%	4.3%
Tributaries to Tonle Sap	9.4%	0.0%	0.0%	2.4%
Reservoir	1.7%	0.0%	2.4%	2.0%
Unspecified	2.9%	0.0%	0.0%	0.7%
Major Tributaries	1.8%	0.0%	0.0%	0.4%
Grand Total (kg)	**381.6**	**177.9**	**938.1**	**1,497.6**

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 catch, as this is complicated by fishing days where the reported catch is from multiple habitats or caught by multiple gears

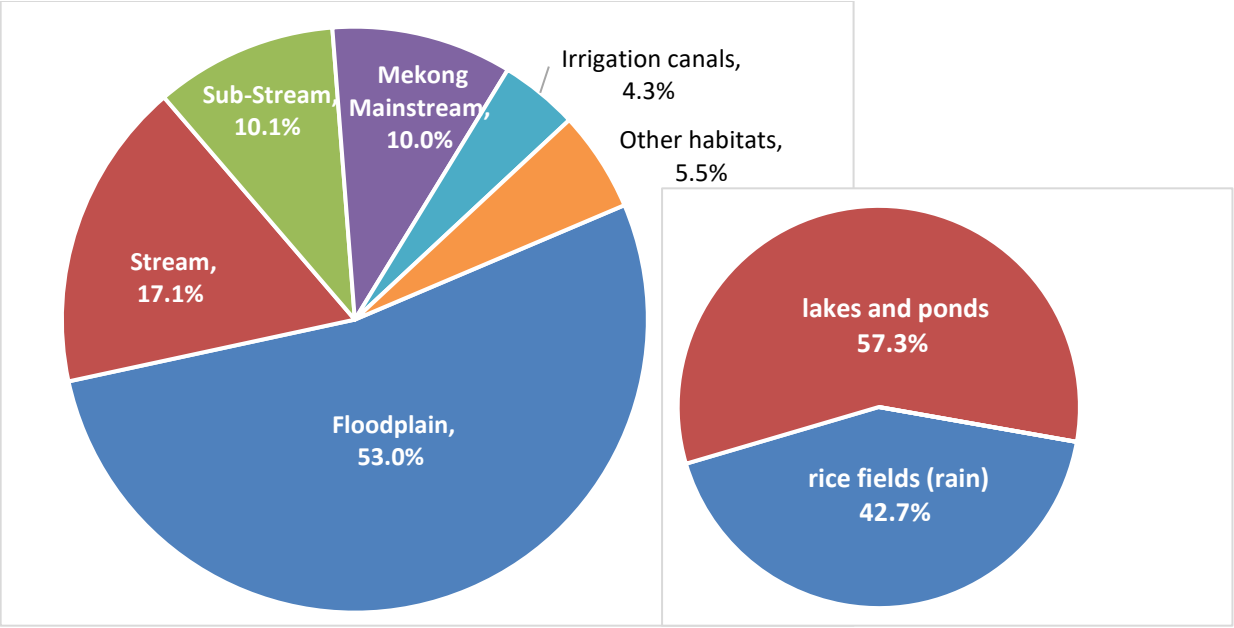

Figure 2. Overall contribution of the habitats to total reported catch, with proportion of catch for floodplain habitats

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	50.3%	50.6%	23.4%	35.6%
Horizontal cylinder trap (small)	5.7%	8.5%	35.2%	22.4%
Cast net	14.3%	19.4%	14.8%	15.4%
Drifting gillnet	19.6%	17.2%	4.6%	11.0%
Unspecified	0.0%	0.0%	15.8%	8.7%
Pole and line	0.3%	0.4%	4.2%	2.4%
Hand capture	2.0%	2.8%	1.7%	2.0%
Hook long line	3.9%	0.8%	0.0%	1.3%
Spear	2.9%	0.0%	0.0%	0.9%
Bamboo vertical cylinder trap	0.9%	0.0%	0.0%	0.3%
Horizontal cylinder trap(lagre)	0.0%	0.3%	0.2%	0.2%
Grand Total (kg)	**294.4**	**159.2**	**551.8**	**1,005.4**

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

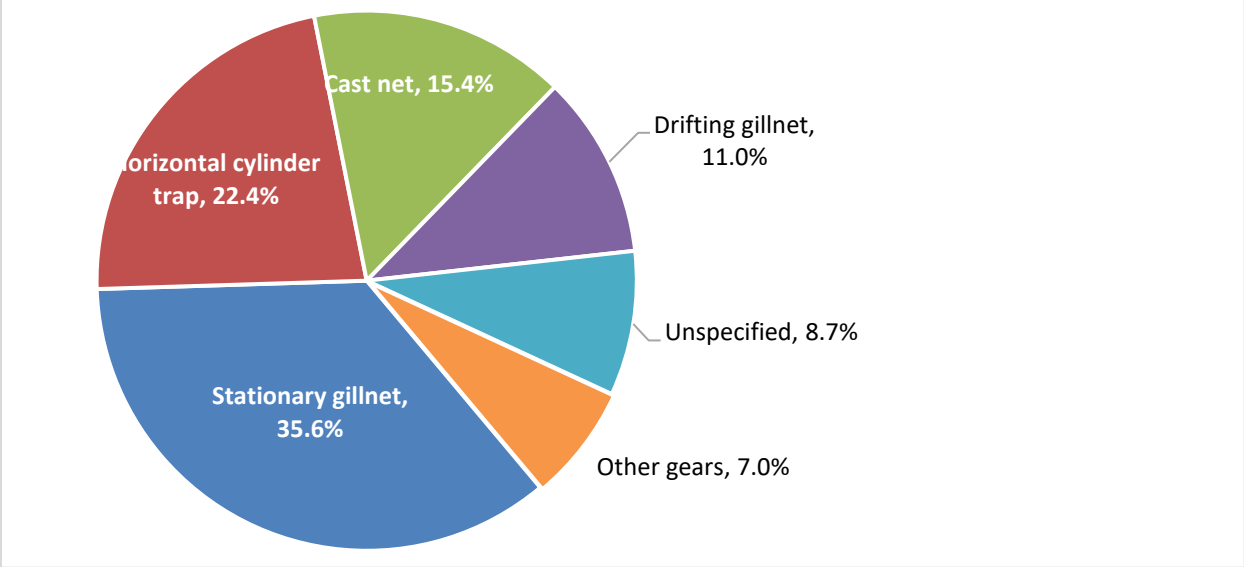

Figure 3. Overall contribution of the gears to total reported catch.

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

Fishing Area	Sold Kg	% Sold	Consumed Kg	% Consumed	Other use Kg	% Other use
Floodplain	198.5	24.2%	171.9	31.2%	69.7	20.2%
Plateau	22.8	2.8%	107.7	19.5%	61.3	17.8%
Tonle Sap	597.9	73.0%	271.4	49.3%	213.2	61.9%
Grand Total	**819.2**	**47.8%**	**551**	**32.1%**	**344.2**	**20.1%**

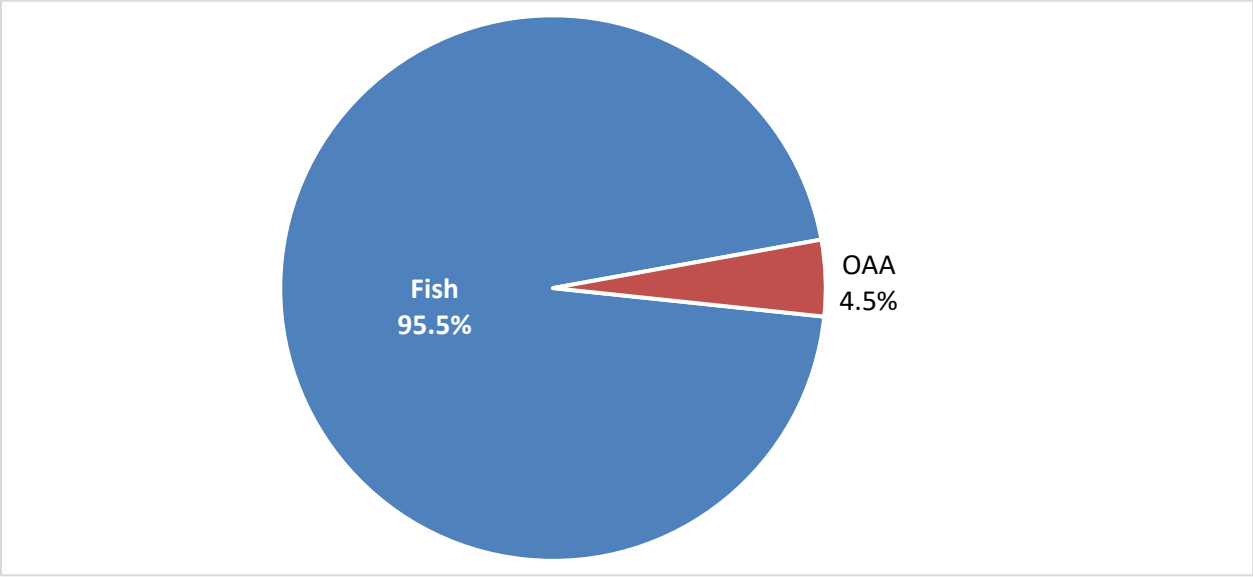

Figure 4. Catch contribution for fish and other aquatic animals.

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	*Henicorhynchus lobatus*	ត្រីរៀលអង្គាម	292.3	17.0%	17.0%
2	*Henicorhynchus siamensis*	ត្រីរៀលតុប	213.9	12.5%	29.5%
3	*Channa striata*	ត្រីរស់/ផ្នក់	148.8	8.7%	38.2%
4	*Anabas testudineus*	ត្រីក្រាញ់	141.8	8.3%	46.5%
5	*Barbonymus gonionotus*	ត្រីឆ្ពិនប្រាក់	114.5	6.7%	53.2%
6	*Mixed small or juvenile fish*	ត្រីល្អិតចម្រុះ	99.3	5.8%	58.9%
7	*Trichopodus trichopterus*	ត្រីកំភ្លាញស្រែ	86.9	5.1%	64.0%
8	*Puntioplites proctozysron*	ត្រីច្រកែង	68.2	4.0%	68.0%
9	*Cirrhinus microlepis*	ត្រីក្រឡង់/ព្រួល	55.8	3.3%	71.2%
10	*Puntius orphoides*	ត្រីអំពិលទុំ	53.5	3.1%	74.4%
11	*Hemibagrus spilopterus*	ត្រីឆ្លាំង	42.6	2.5%	76.9%
12	*Clarias batrachus*	ត្រីអណ្តែងរឹង	38.7	2.3%	79.1%
13	*Somanniathelphusa sp.*	ក្តាមស្រែ	36.8	2.1%	81.3%
14	*Pomacea canaliculata*	ខ្យង	26.5	1.5%	82.8%
15	*Mystus singaringan*	ត្រីកញ្ឆេះបាយស	24.8	1.4%	84.3%
16	Other	ផ្សេងទៀត	270.0	15.7%	100.0%
	Total reported catch		**1,714.4**		

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	*Channa striata*	ត្រីរស់/ផ្នក់	2,306	17.2%	17.2%
2	*Henicorhynchus lobatus*	ត្រីរៀលអង្គាម	2,192	16.4%	33.6%
3	*Henicorhynchus siamensis*	ត្រីរៀលតុប	1,711	12.8%	46.3%
4	*Barbonymus gonionotus*	ត្រីឆ្ពិនប្រាក់	1,031	7.7%	54.0%
5	*Anabas testudineus*	ត្រីក្រាញ់	780	5.8%	59.9%
6	*Puntius orphoides*	ត្រីអំពិលទុំ	535	4.0%	63.8%
7	*Hemibagrus spilopterus*	ត្រីឆ្លាំង	511	3.8%	67.7%
8	*Trichopodus trichopterus*	ត្រីកំភ្លាញស្រែ	478	3.6%	71.2%
9	*Clarias batrachus*	ត្រីអណ្តែងរឹង	387	2.9%	74.1%
10	*Puntioplites proctozysron*	ត្រីច្រកែង	375	2.8%	76.9%
11	Mixed small or juvenile fish	ត្រីល្អិតចម្រុះ	348	2.6%	79.5%
12	*Mystus singaringan*	ត្រីកញ្ឆេះបាយស	298	2.2%	81.7%
13	*Macrognathus siamensis*	ត្រីឆ្លួញ	290	2.2%	83.9%
14	*Hemibagrus wyckioides*	ត្រីខ្យា	226	1.7%	85.6%
15	*Labiobarbus siamensis*	ត្រីអាចម៍កុក	164	1.2%	86.8%
16	Others		1,770	13.2%	100.0%
	Total report value		**13,400**		

ថ្ងៃ ខែ ឆ្នាំ ព.ស.២៥៦៦
រាជធានីភ្នំពេញ ថ្ងៃទី ខែ ឆ្នាំ២០២៣
ហត្ថលេខា

បណ្ឌិត ហេង គង់

បានឃើញ
ប្រតិភូរាជរដ្ឋាភិបាល ទទួលបន្ទុកជា
ប្រធានរដ្ឋបាលជលផល និងជាប្រធានកម្មវិធី **CAPFISH-Capture**
ថ្ងៃ ខែ ឆ្នាំ ព.ស.២៥៦៦
រាជធានីភ្នំពេញ ថ្ងៃទី ខែ ឆ្នាំ២០២៣