PESKAS data report (testing version)

Contents

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1 Aim

This report summarises relevant statistics and insights from the Peskas platform during the period Jul 2017 - Oct 2021. The report examines the main temporal trends in the national revenue related to small-scale fishing in Timor-Leste and provides quantitative and qualitative information on the catches.

2 What is Peskas

Peskas is the official fisheries national monitoring system of Timor-Leste and represents one of the most sophisticated data collection systems for small-scale fisheries in the world.

Peskas' platform collects real-time information directly from fishermen's activity via a system of digital surveys developed in KoBo toolbox. In addition, Peskas uses the technology provided by Pelagic Data System to record vessel movements via solar-powered tracking devices (see Figure 2.1).

The data and the information collected is subjected to an elaborate processing and cleaning through an open-source code pipeline on GitHub, and provide important data in the hands of fisheries officers, researchers and local stakeholders and enables them to better understand the contribution of fish and fisheries to local livelihoods and food security.

Information about the process and user-centred design of the Peskas pipeline and initial analytics, and its application in fisheries research & management can be found in the following publications:

- PeskAAS: A near real-time monitoring system for small-scale fisheries in Timor-Leste. In A. Tilley & M. B. Roscher (Eds.), Information and communication technologies for small-scale fisheries (ICT4SSF) - A handbook for fisheries stakeholders. In support of the implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (pp. 11–18). FAO; WorldFish.
- PeskAAS: A near-real-time, open-source monitoring and analytics system for small-scale fisheries. PloS One, 15(11), e0234760.
- Nearshore Fish Aggregating Devices Show Positive Outcomes for Sustainable Fisheries Development Frontiers in Marine Science, 6, 487.

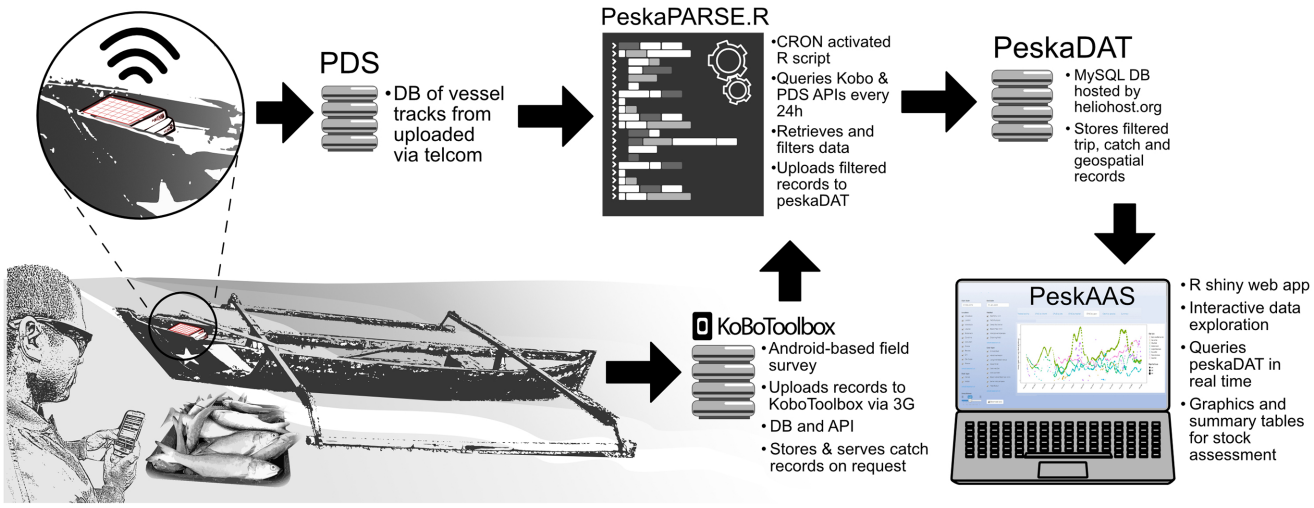

Figure 2.1: A diagrammatic representation of the Peskas application. From PeskAAS: A near-real-time, open-source monitoring and analytics system for small-scale fisheries

3 Revenue

The landing value in USD is obtained from landing surveys at multiple sites around the country. Fishers are asked for the estimated price of their catch at the landing site regardless of whether the catch is deemed for sale or consumption. Prices may change throughout the year and across landing sites. We then obtain monthly estimates using a random-effect statistical model.

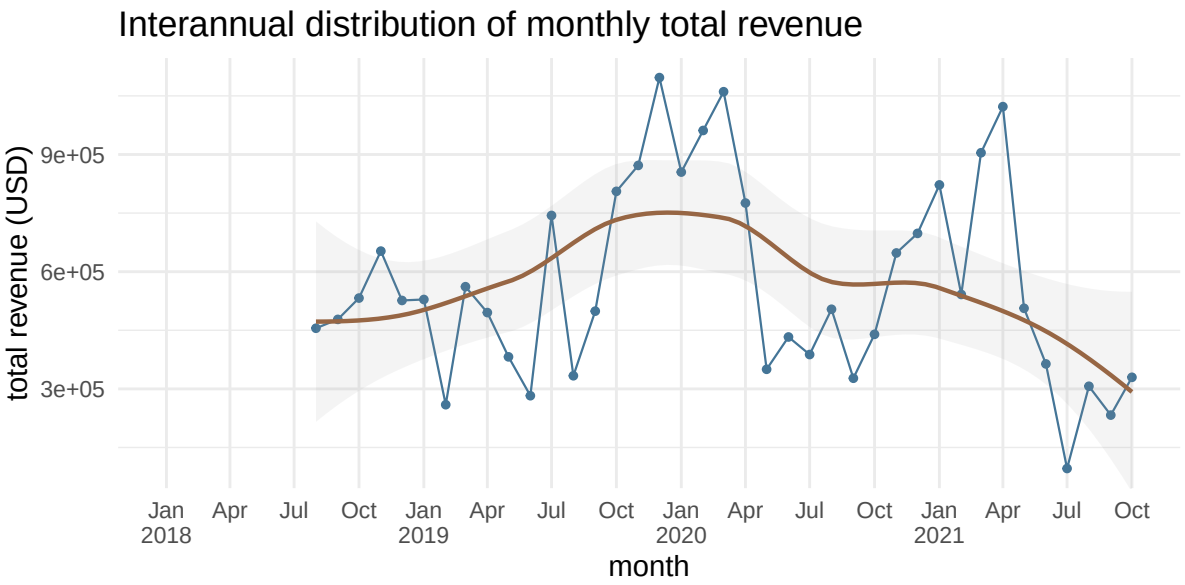

Figure 3.1: Time series of monthly aggregated total revenue. The red line is the local polynomial regression fitted to the time series while the shaded area represents the 0.95 confidence interval.

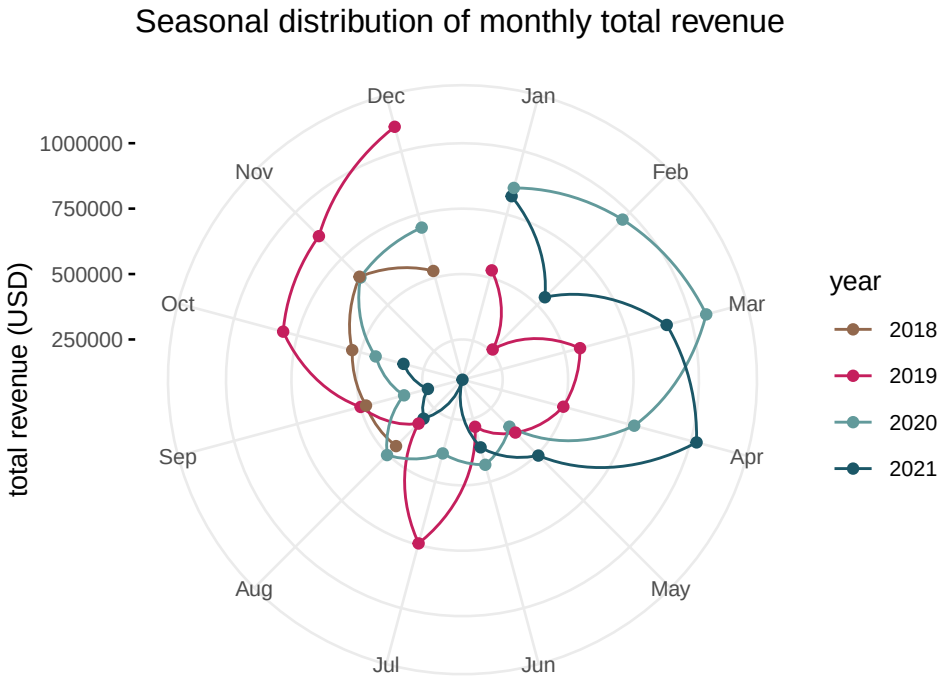

Figure 3.2: Monthly revenue shown for each year of Peskas' activity

4 Catches

Brief explanation of how identification works, must contain the table of catch codes table

Table 1: Catch codes (ASFIS), scientific and common names of Peskas catches

Catch code	Taxonomic rank (family)	Common name
SKH	Carcharhinidae	Shark
PWT	Scaridae	Parrotfish
GPX	Serranidae	Grouper
DRZ	Drepaneidae	Sicklefish
THF	Polynemidae	Threadfin
PUX	Triacanthidae	Tripodfish
GOX	Mullidae	Goatfish
BWH	Priacanthidae	Moontail bullseye
BEN	Belonidae	Long tom
MUI	Muraenidae	Moray
COZ	Cardiidae	Cockles
YDX	Holocentridae	Soldierfish
OCZ	Octopodidae	Octopus
DOS	Chirocentridae	Wolf herring
FLY	Exocoetidae	Flying fish
RAX	Scombridae	Short bodied mackerel
MZZ	-	Other
THO	Terapontidae	Terapon
DSF	Pomacentridae	Sergeant
SFA	Istiophoridae	Sailfish
MOO	Menidae	Moonfish
CGX	Carangidae	Jacks/Trevally/Other Scad
SUR	Acanthuridae	Unicornfish
APO	Apogonidae	Cardinalfish
PEZ	-	Shrimp
IHX	Chaetodontidae	Butterflyfish
MHL	Pempheridae	Blackspot sweeper
CLP	Clupeidae	Herring
LGE	Leiognathidae	Ponyfish
EMP	Lethrinidae	Emperor
SUR	Acanthuridae	Surgeonfish
MOB	Nemipteridae	Bream
DOX	Coryphaenidae	Dolphinfish
SDX	Carangidae	Mackerel scad
BAR	Sphyraenidae	Barracuda

Catch code	Taxonomic rank (family)	Common name
-	-	No catch
MIL	Chanidae	Milkfish
SRX	-	Stingrays
IAX	Sepiidae	Cuttlefish
CRA	-	Crab
CLP	Clupeidae	Sardines/pilchards
SWX	-	Seaweed
CUX	-	Sea cucumber
BGX	Haemulidae	Javelin/Grunt
MOJ	Gerreidae	Mojarra/Silverbelly
KYX	Kyphosidae	Chub
LWX	Lutjanidae	Jobfish
IHX	Chaetodontidae	Bannerfish
SPI	Siganidae	Spinefoot
TRI	Balistidae	Triggerfish
SNA	Lutjanidae	Snapper/seaperch
CBA	Rachycentridae	Cobia
SLV	-	Lobster
GZP	Hemiramphidae	Garfish
TUN	Scombridae	Tuna/Bonito/Other Mackerel
MUL	Mugilidae	Mullet
ECN	Echeneidae	Remora
GRX	Haemulidae	Sweetlips
WRA	Labridae	Wrasse
MZZ	-	Unknown
CJX	Caesionidae	Fusilier

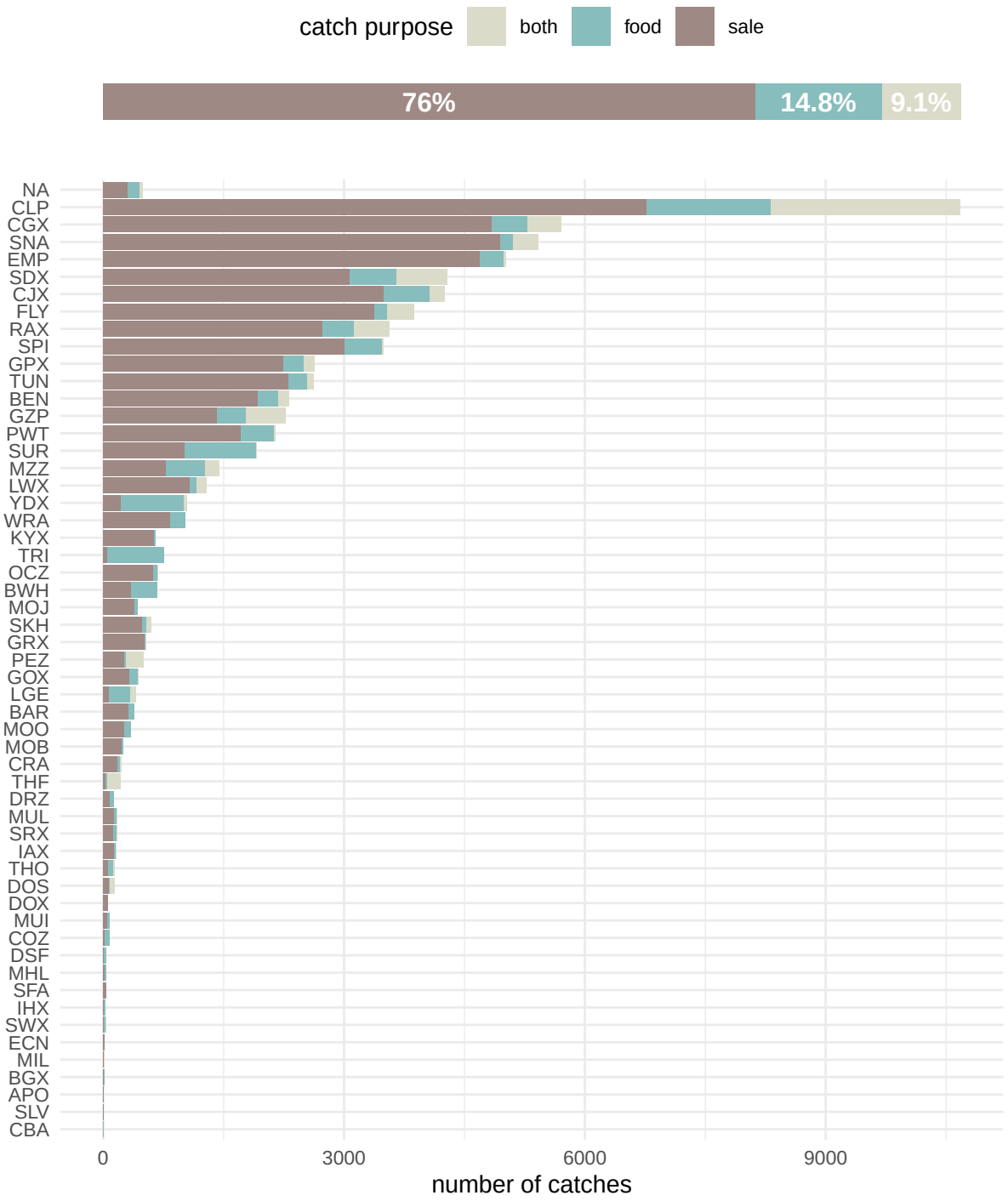

Figure 4.1: Total proportion of catches final usage (top) and usage proportion of each catch ranked by total number of catches (bottom)

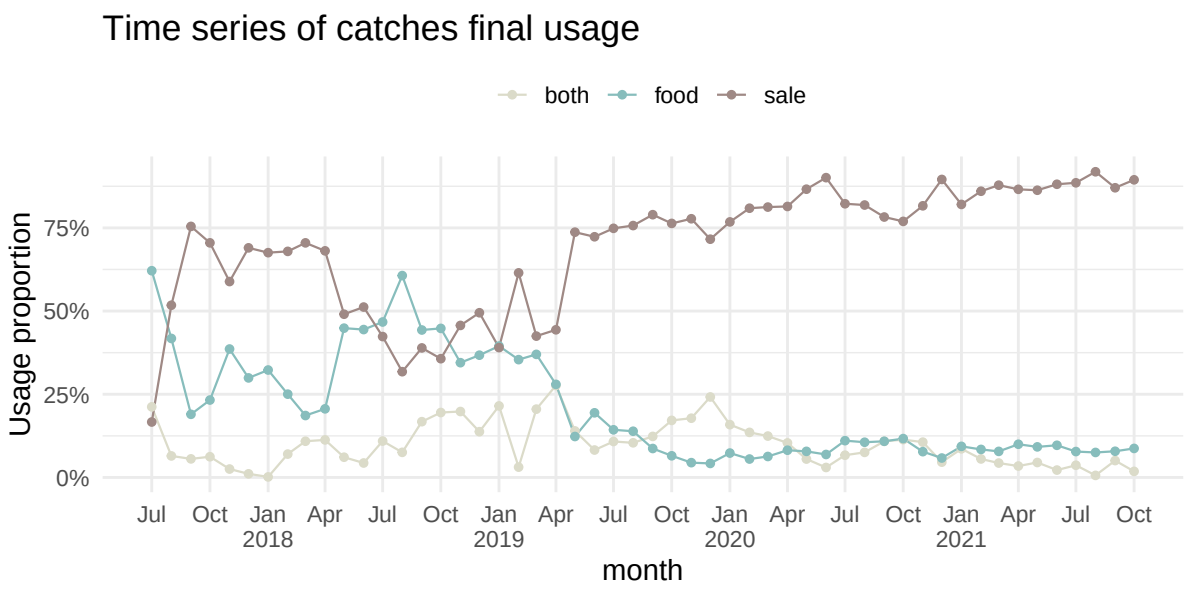

Figure 4.2: Interannual proportion catches final usage

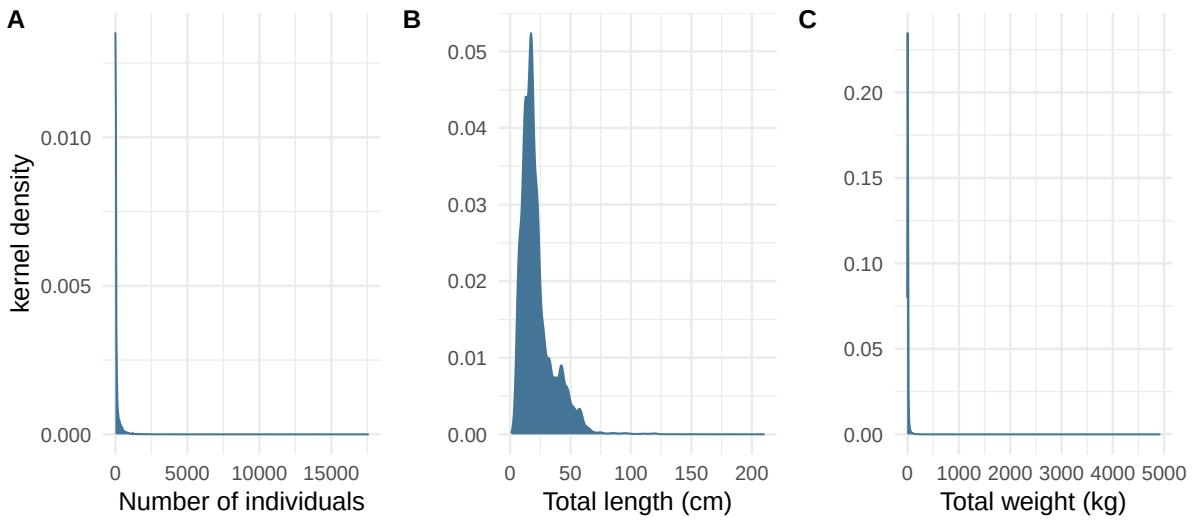

Figure 4.3: Main catches descriptors. Distribution of the number of individuals (A), their length (B) and weigth (C) considering all the catches.

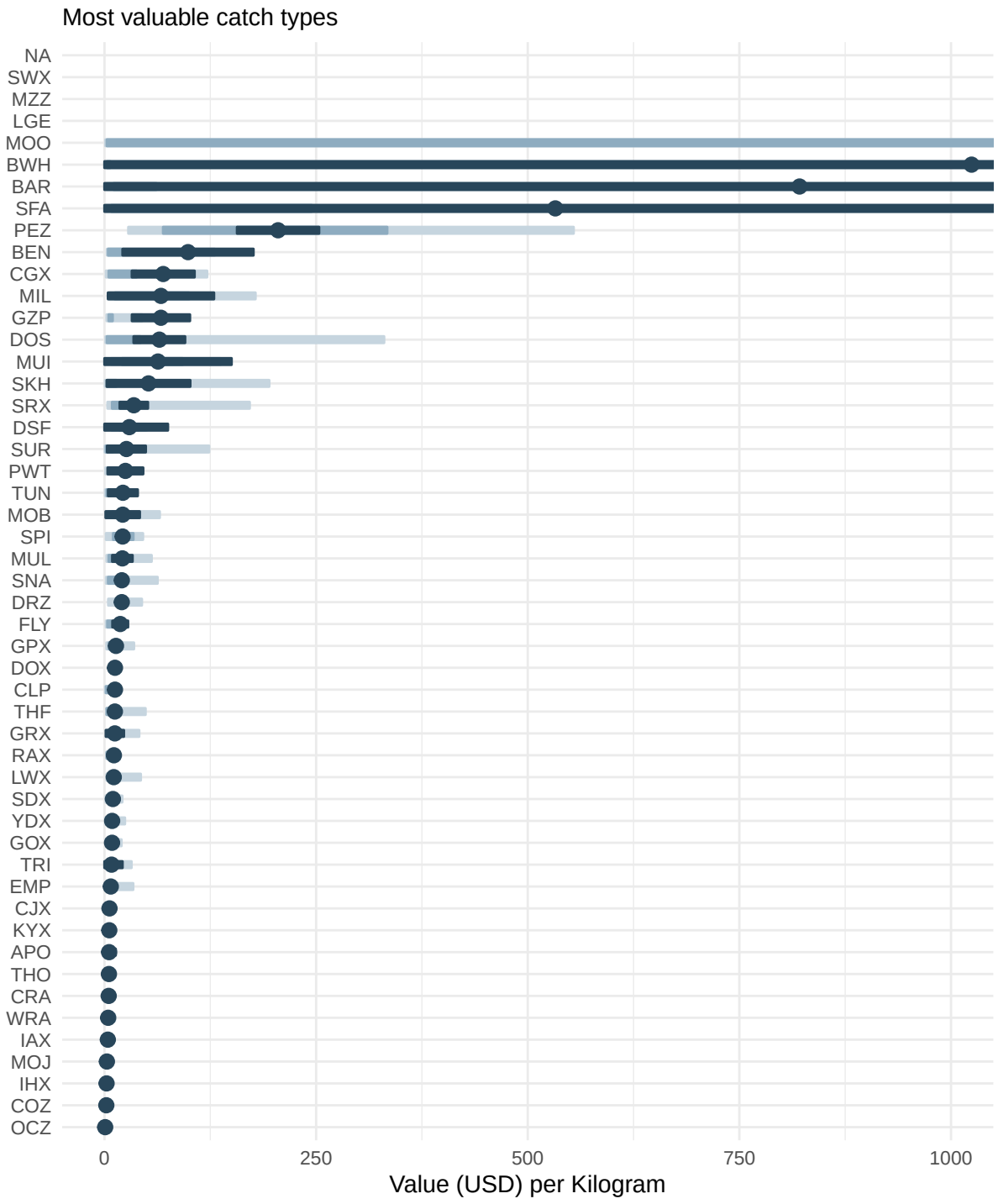

Figure 4.4: Catches ranked by average value (USD). The darkest shade in each bar represent the 95 confidence interval for average, other shades indicate the 5th and the 25th, and the 75th and 95th going from left to right respectively.