
EFFORT ASSESSMENT

FOREIGN-FLAGGED VESSELS IN

COASTAL STATE EXCLUSIVE

ECONOMIC ZONES

Area of interest (AOI)	Western Indian Ocean
Analysis Period	01Jan2016 – 31Dec2018
Positional Sources	IOTC
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Report Compiled By	Andy Richardson
Quality Control By	Pablo Trueba

Abbreviations

AIS	Automatic Identification System	HOURS	Number of Hours at Sea
AOI	Area of Interest	IOTC	Indian Ocean Tuna Commission
EEZ	Exclusive Economic Zone	SETS	Number of Sets
FDAYS	Number of Fishing days	TRIPS	Number of Trips
FHOURS	Number of Fishing Hours	VMS	Vessel Management System

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1 Executive Summary

This report summarises the results of geospatial mapping of fishing effort as published by IOTC for the period 2016-2018. This was an analysis of activities within the Western Indian Ocean, conducted on behalf of the International Pole and Line Foundation to analyse the areas and periods of fishing operations of foreign-flagged fleets within coastal-state jurisdiction.

Catch and effort data was extracted from the available surface gears dataset in the Indian Ocean at <https://www.iotc.org/data/datasets> and converted into georeferenced 1°x1° data grid cells. Data cells were grouped relative to cell position within EEZs for 6 coastal-states and 1 disputed maritime territory. Annual fleet effort and catch is reported in table form for each coastal-state, along with months per annum where catch and effort were reported.

- **Kenya:** Fishing effort and catch was reported within the EEZ in 2016 and 2017, with an overall increase in the number of months where effort was reported along the EEZ boundary between 2016 (7 months) to 2018 (8 months).
- **Maldives:** Fishing effort and catch was reported within the EEZ in 2016, 2017 and 2018, with an increase in the number of flag-states reporting effort in the EEZ from 2016 (1 flag-state) to 2018 (3 flag-states). There was also an overall increase in the number of months where effort was reported along the EEZ boundary between 2016 (10 months) to 2018 (12 months).
- **Oman:** Fishing effort was reported within the EEZ in 2017, with an overall increase in the number of months where effort was reported along the EEZ boundary between 2017 (2 months) to 2018 (8 months). No fishing effort or catch was reported within the Oman EEZ or along the EEZ boundary in 2016.
- **Somalia:** Fishing effort and catch was reported within the EEZ in 2017 and 2018, with effort and catch also reported along the EEZ boundary in every month from 2016 to 2018.
- **Tanzania:** Effort and catch was reported within the EEZ in 2016, with effort (but zero catch) being reported again inside the EEZ in 2018. Effort and catch were reported along the EEZ boundary in 11 months of 2016 and gain in 2018, with a decrease to 7 months in 2017.
- **Yemen:** Catch and fishing effort was reported within the EEZ in 2017, with an overall increase in the number of months where fishing effort and catch was reported along the EEZ boundary between 2016 (4 months) and 2018 (11 months).
- **Somalia-Kenya disputed maritime territory:** Fishing effort and catch was reported on the boundary of this region for between 9-11 months per annum in the period 2016-2018.

Key recommendations

- It is recommended that coastal-states review fisheries access agreements for the period 2016-2018 against reported catch and effort by flag-states inside EEZs.
- Where access agreements between coastal-states and flag-states were absent for the period 2016-2018, it is recommended that coastal-states request to the flag-states the identity of the vessels that reported these activities (either inside the EEZ or over the boundaries); VMS data, as well as copies of the logbooks.
- Additionally, AIS activity can be reviewed to clarify these vessel's activities for the periods where catch and effort data has been declared within areas of concern.

2 Area of Interest (AOI)

The AOI was the Western Indian Ocean (FAO Major Fishing Area 51), including the EEZs of 6 coastal-states (British Indian Ocean Territory; Republic of Kenya; Republic of the Maldives; Sultanate of Oman; Federal Republic of Somalia; United Republic of Tanzania; Republic of Yemen). The position and extent of these coastal-state EEZs is presented in [Figure 1](#).

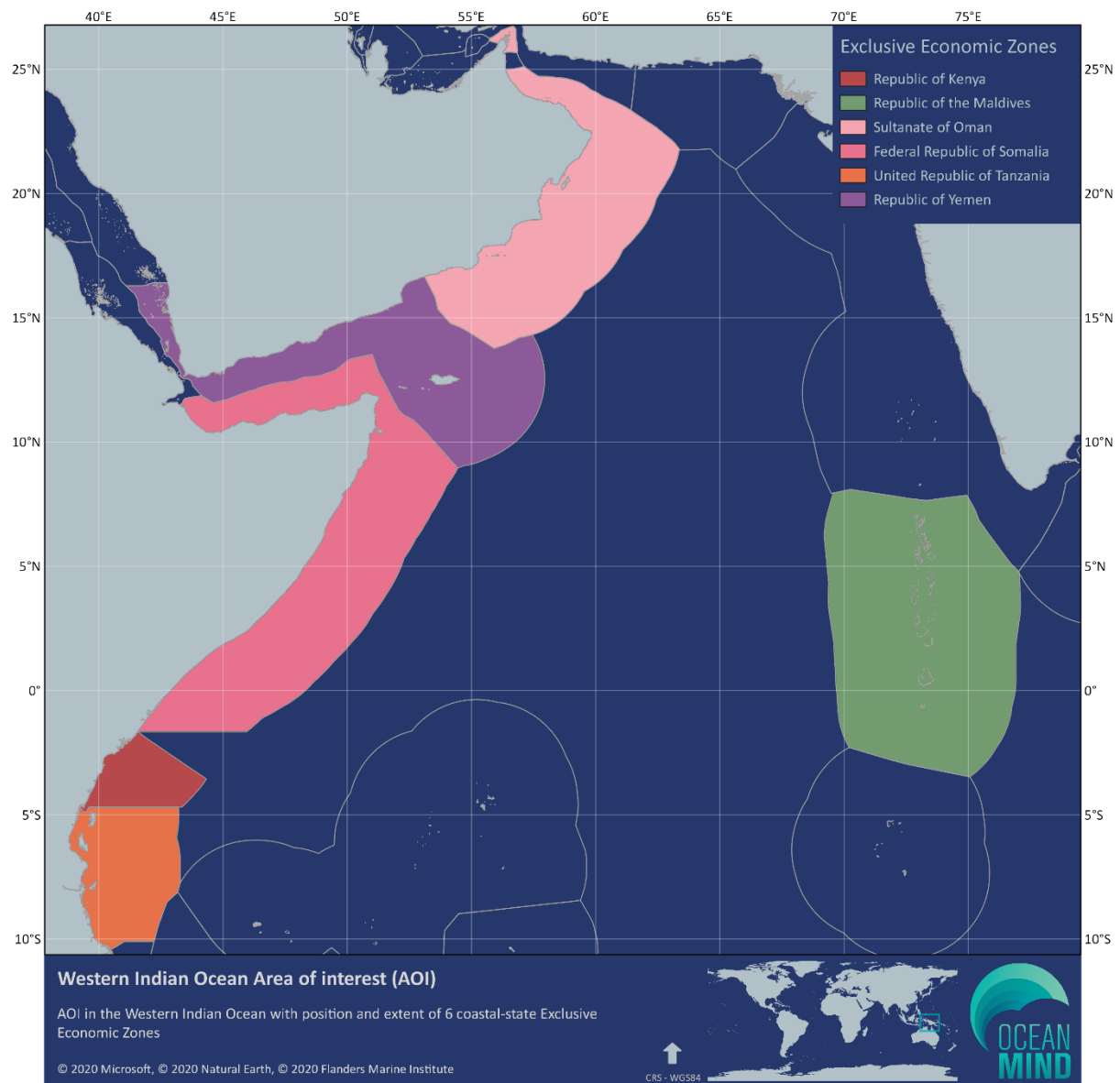


Figure 1: Map of the Western Indian Ocean and coastal-state Exclusive Economic Zones in the presented analysis

3 Methodology

3.1 Catch-effort data

Catch and effort data was extracted from the available surface gears dataset in the Indian Ocean at <https://www.iotc.org/data/datasets/latest/CESurface>. IOTC catch and effort data is made available publicly in a grid system format (*Figure 2*), the spatial information for the catch and effort data being split across major geographic quadrants divided by the Equator (latitude 0°) and the Greenwich parallel (longitude 0°). In order to map the geographical position of catch and effort, 1°x1° grid cells were extrapolated from the corner of the square closest to 0° latitude and 0° longitude, for each latitude (two digits) and longitude (three digits) included in the IOTC grid format. This was performed using custom code in the software R. The geographic distribution of fishing effort and catch was plotted in the software QGIS.

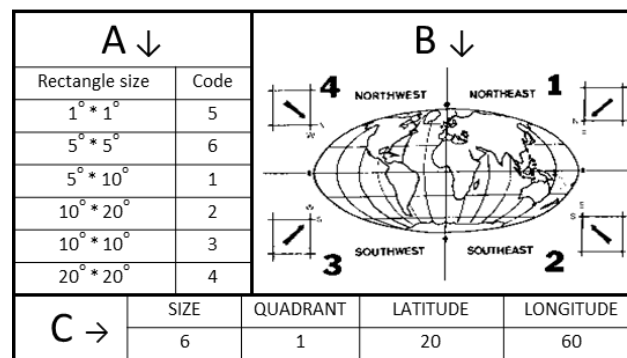


Figure 2: IOTC grid system for catch-effort data, A: Size/resolution of grid cell and codes; B: Major geographic quadrants; C: Formatting of IOTC grid code. Adapted from source:

<https://www.iotc.org/documents/catches-and-effort-reference>

Total catch and effort are presented across all reported gears for each flag state. Total catch and effort reported by vessels where the flag-state was the same as the coastal state was removed from analyses. Months in which fishing effort was reported in individual cells are highlighted and presented in tables for each coastal state (*Table 1*).

Table 1: Reporting table format for each coastal state

Year	A [year]								
Location	B EEZ			EEZ-boundary			EEZ-prospect		
Effort months	J	F	M	J	F	M	J	F	M
	A	C M	J	A	M	D J	A	M	J
	J	A	S	J	A	D S	J	A	S
	O	N	D	O	N	D	O	N	D
Flag State	F Flag-state #1			Flag-state #1			Flag-state #2		
Reported effort	n [+effort-unit]			n [+effort-unit]			n [+effort-unit]		
Total catch (metric tonnes)	n (catch) MT			n (catch) MT			n (catch) MT		
				G Flag-state #2					
				n [+effort-unit]					
				n (catch) MT					

A) Year for which annual totals were calculated.

B) Cell group.

C) Months where effort was reported in any cell situated entirely within EEZ boundaries.

D) Months where effort was reported in any cell situated along EEZ boundary.

E) Months where effort was reported in any cell on an EEZ boundary where cell conformed to controls as described in methodology.

F) Annual effort per flag-state (in **bold**), grouped by effort unit within cell group.

G) Annual total catch weight (metric tonnes) per flag-state within cell group (in **red**). Effort unit definitions are outlined in in the abbreviations table at the beginning of the document.

3.2 Cell Groups

To differentiate the likelihood of fishing effort and catch occurring within the EEZ of coastal states, data cells were classified into three cell groups, based on geographic characteristics:

EEZ cells were categorised as being effort cells which were situated entirely within the boundaries of an individual coastal state EEZ.

EEZ-boundary cells were categorised when any part of an individual cell area spanned an EEZ boundary, either with an adjacent coastal state EEZ or with the high seas.

EEZ-prospect cells are presented as a subset of EEZ-boundary cells if <50% of the cell area lay within the high seas (thus >50% of cell area within the EEZ of one or more coastal states). For a boundary cell to be included in individual coastal state estimations, the individual coastal state EEZ must occupy $\geq 10\%$ of the total cell area. The basis of this control system was as presented in proposal document IOTC-2019-TCAC05-PropA_rev2 ("On the Allocation of Fishing Opportunities for IOTC Species") to the Technical Committee on Allocation Criteria (TCAC), available at https://iotc.org/documents/TCAC/05/PropA_E.

Cell group geospatial position according to EEZ boundaries and extent are presented in **Appendix 1**.

4 Temporal and Spatial Analysis

Geospatial and temporal distribution of foreign-flagged vessel fishing effort with, and adjacent to coastal-state jurisdiction is reported by coastal state.

4.1 Republic of Kenya

Geospatial position of cells with reported fishing effort by foreign-flagged fleets within the Kenya EEZ, and along the EEZ boundary are presented in [Figure 3](#). Annual total effort (by effort unit) and catch (metric tonnes) are presented in [Table 3](#).

Catch and effort estimates are presented separately for the cells associated with the Kenya-Somalia disputed maritime territory (see section [4.7](#)).

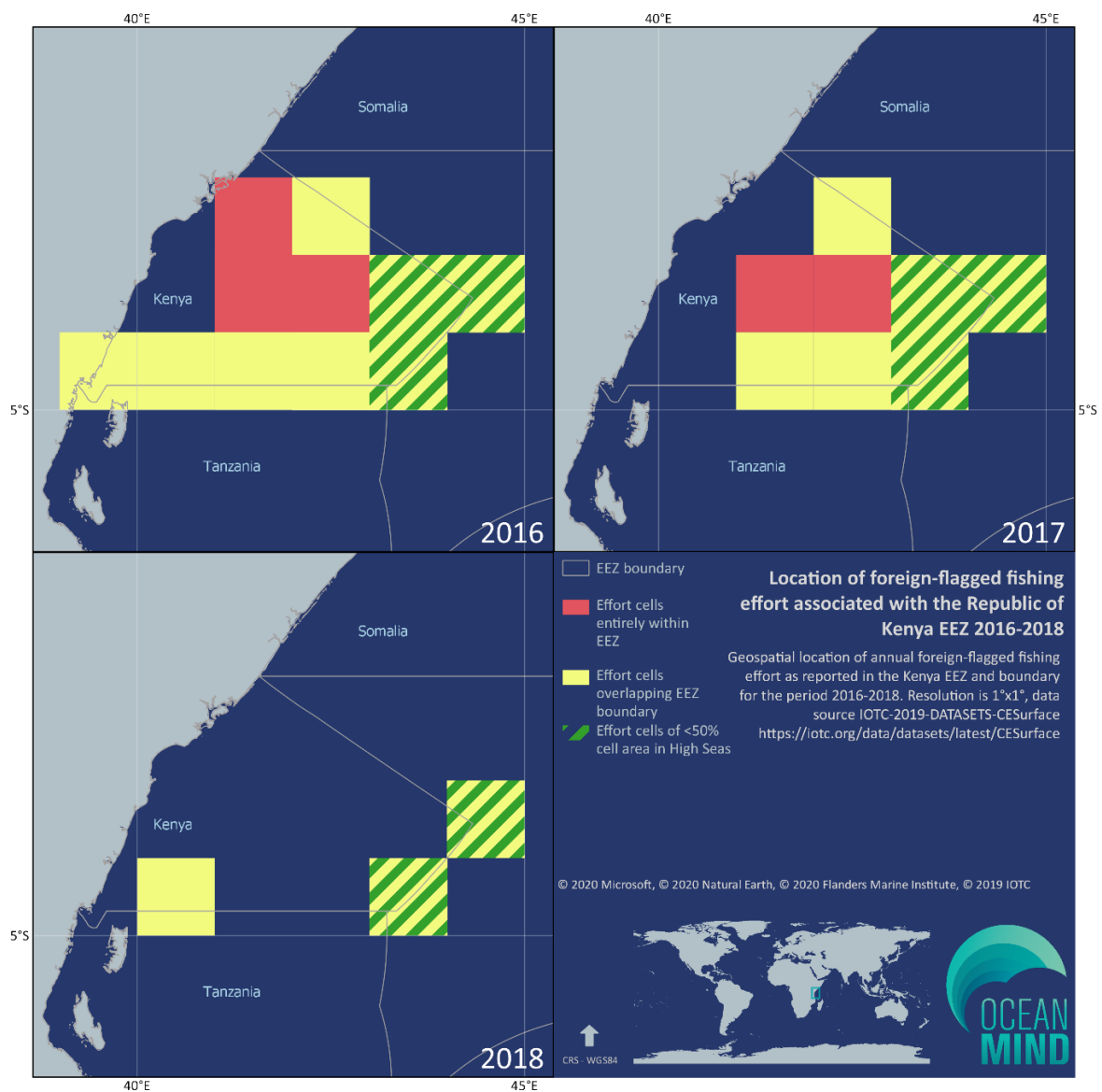


Figure 3: Location of foreign-flagged fishing effort associated with the Kenya EEZ for the period 2016-2018

Table 3: Annual total effort (effort unit) and catch (metric tonnes) reported by foreign-flagged fleets within and along the boundary of the Kenya EEZ for the period 2016-2018

Year	2016									2017									2018								
Location	EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect		
Effort months	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M
	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J
	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S
	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D
Flag State	EU,France			EU,France			EU,France			EU,Spain			EU,France			EU,France						EU,France			EU,France		
Reported effort	11.9 FHOURS			131.2 FHOURS			89.2 FHOURS			6.2 FHOURS			102.6 FHOURS			102.6 FHOURS						5.58 FHOURS			5.58 FHOURS		
Total catch (metric tonnes)	0 MT			134.86 MT			91.07 MT			36.93 MT			134.02 MT			134.02 MT						88.63 MT			88.63 MT		
	EU,Spain			EU,Spain			EU,Spain			Seychelles			EU,Spain			EU,Spain						EU,Spain			EU,Spain		
	59.8 FHOURS			467.8 FHOURS			385.1 FHOURS			1.94 FDAYS			109 FHOURS			103 FHOURS						167.75 FHOURS			159.75 FHOURS		
	209.82 MT			1,321.32 MT			1,047.33 MT			95.02 MT			1,079.89 MT			1,065.53 MT						1,249.61 MT			1,212.28 MT		
	Seychelles			Mauritius			Mauritius						Mauritius			Mauritius						Seychelles			Seychelles		
	5.41 FDAYS			5 SETS			5 SETS						3 SETS			3 SETS						7.5 FDAYS			7.5 FDAYS		
	522.31 MT			118.61 MT			118.61 MT						29.68 MT			29.68 MT						258.52 MT			258.52 MT		
	South Korea			Seychelles			Seychelles						Seychelles			Seychelles						South Korea			South Korea		
	45.33 FDAYS			45.33 FDAYS			37.1 FDAYS						7.07 FDAYS			3.06 FDAYS						1 SET			1 SET		
	6 SETS			1,249.07 MT			1,009.02 MT						465.82 MT			155.75 MT						10 MT			10 MT		
	168 MT			South Korea			South Korea																				
				4 SETS			1 SET																				
				107 MT			20 MT																				

4.2 Republic of the Maldives

Geospatial position of cells with reported fishing effort by foreign-flagged fleets within the Maldives EEZ, and along the EEZ boundary are presented in [Figure 4](#). Annual total effort (by effort unit) and catch (metric tonnes) are presented in [Table 4](#).

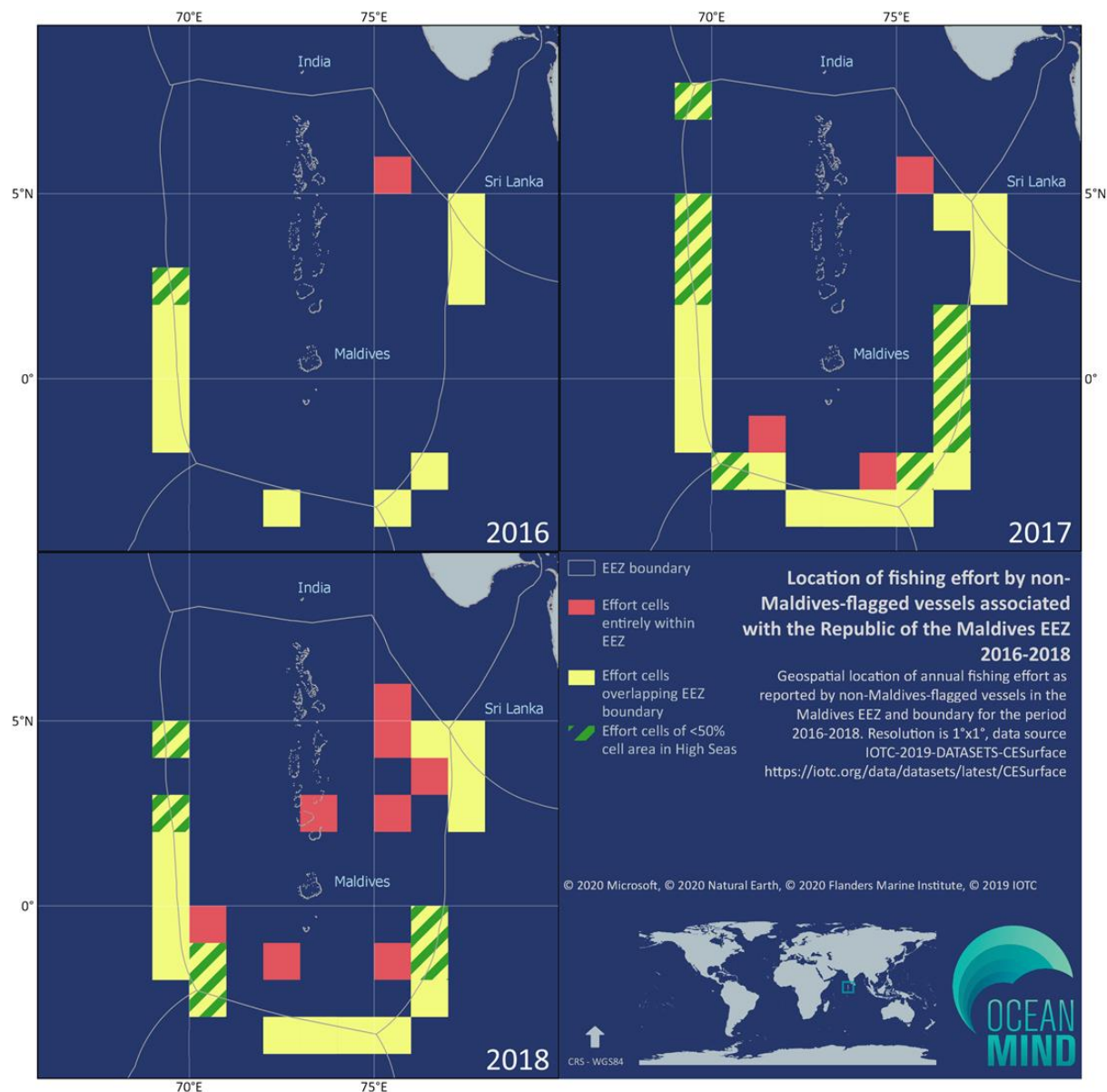


Figure 4: Location of foreign-flagged fishing effort associated with the Maldives EEZ for the period 2016-2018

Table 4: Annual total effort (effort unit) and catch (metric tonnes) reported by foreign-flagged fleets within and along the boundary of the Maldives EEZ for the period 2016-2018

Year	2016									2017									2018								
Location	EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect		
Effort months	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M
	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J
	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S
	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D
Flag State	Sri Lanka			EU,France			EU,France			Seychelles			EU,France			EU,France			EU,France			EU,France			EU,France		
Reported effort	1,358 TRIPS			24.2 FHOURS			12 FHOURS			2 FDAYS			400.1 FHOURS			311.4 FHOURS			1.85 FDAYS			29.21 FDAYS			5.62 FDAYS		
Total catch (metric tonnes)	2,232.9 MT			167.85 MT			48.73 MT			0 MT			120 HOURS			24 HOURS			0 MT			988.46 MT			370.91 MT		
				EU,Spain			EU,Spain			Sri Lanka			718.98 MT			567.99 MT			Seychelles			EU,Spain			EU,Spain		
				96.5 FHOURS			23.9 FHOURS			860 TRIPS			351.6 FHOURS			180.8 FHOURS			2.02 FDAYS			148.2 FHOURS			17.65 FHOURS		
				239.57 MT			15.63 MT			293 MT			731.83 MT			314.32 MT			0 MT			901.54 MT			69.57 MT		
				Mauritius			Mauritius						Mauritius			Mauritius			Sri Lanka			Japan			Japan		
				3 SETS			2 SETS						13 SETS			4 SETS			7651 TRIPS			2 SETS			1 SET		
				57.25 MT			57.25 MT						351.77 MT			99.3 MT			1176.5 MT			40 MT			15 MT		
				Seychelles			Seychelles						Seychelles			Seychelles						Mauritius			Mauritius		
				13.12 FDAYS			1.52 FDAYS						18.78 FDAYS			7.37 FDAYS						2 SETS			2 SETS		
				681.74 MT			31.79 MT						558.95 MT			217.6 MT						116.14 MT			116.14 MT		
				South Korea			South Korea						South Korea			South Korea						Seychelles			Seychelles		
				8 SETS			3 SETS						4 SETS			1 SET						24.69 FDAYS			2.31 FDAYS		
				165 MT			55 MT						70 MT			15 MT						1,157.46 MT			256.59 MT		
				Sri Lanka									Sri Lanka			Sri Lanka						South Korea			South Korea		
				123 SETS									98 TRIPS			2 TRIPS						3 SETS			2 SETS		
				35 MT									63.3 MT			34 MT						25 MT			10 MT		
																						Sri Lanka					
																						98 TRIPS					
																						58.4 MT					

4.3 Sultanate of Oman

Geospatial position of cells with reported fishing effort by foreign-flagged fleets within the Oman EEZ, and along the EEZ boundary are presented in [Figure 5](#). Annual total effort (by effort unit) and catch (metric tonnes) are presented in [Table 5](#).

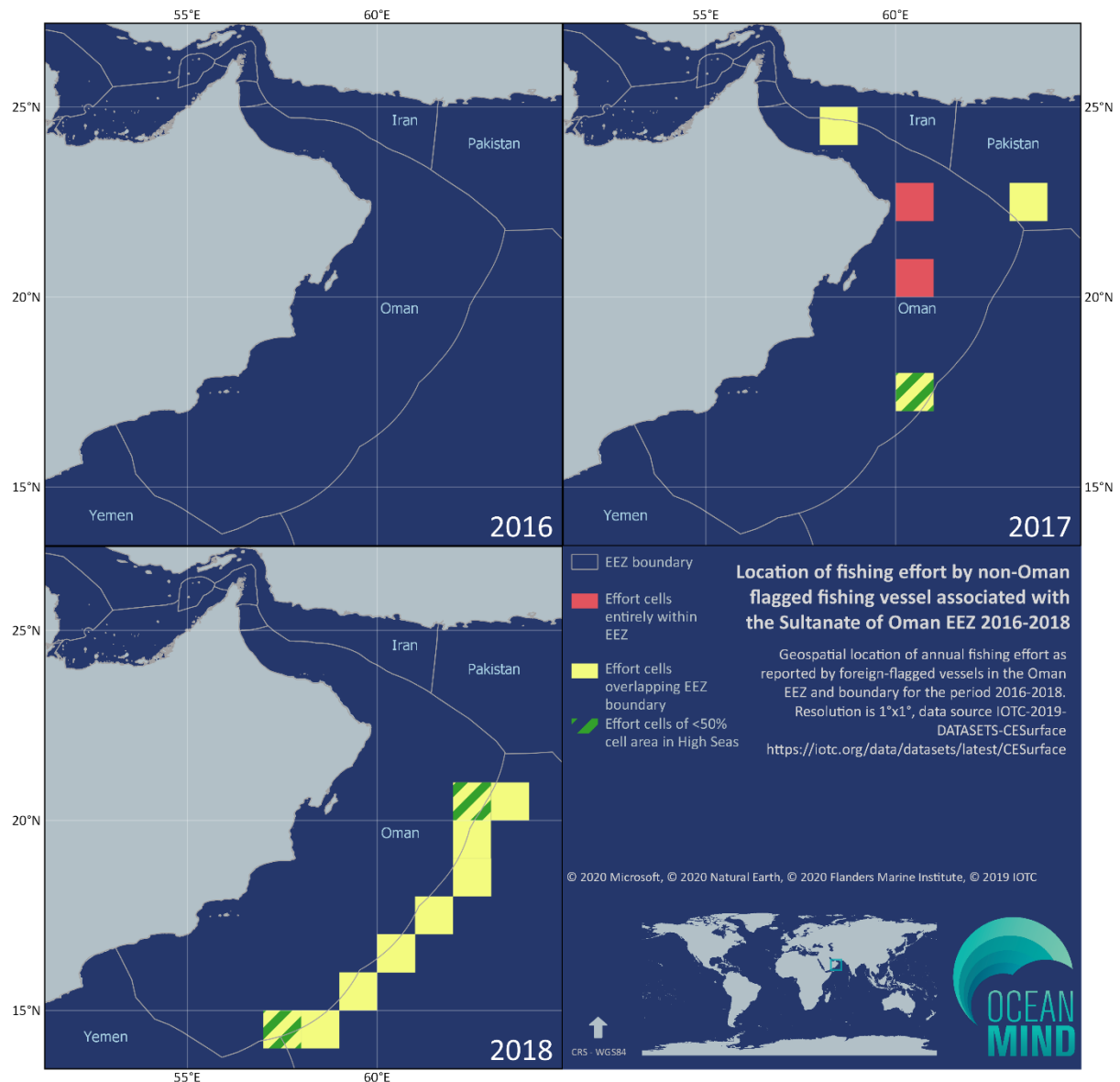


Figure 7: Location of foreign-flagged fishing effort associated with the Oman EEZ for the period 2016-2018

Table 5: Annual total effort (effort unit) and catch (metric tonnes) reported by foreign-flagged fleets within and along the boundary of the Oman EEZ for the period 2016-2018

Year	2016									2017									2018								
Location	EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect		
Effort months	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M
	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J
	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S
	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D
Flag State Reported effort Total catch (metric tonnes)										Seychelles 1.9 FDAYS 0 MT			Mauritius 1 SET 55.69 MT Seychelles 1.9 FDAYS 0 MT			Seychelles 0.96 FDAYS 0 MT						EU,Spain 201.39 FHOURS 1,898.72 MT Seychelles 2.12 FDAYS 164.14 MT			EU,Spain 24.5 FHOURS 107.42 MT		

4.4 Federal Republic of Somalia

Geospatial position of cells with reported fishing effort by foreign-flagged fleets within the Somalia EEZ, and along the EEZ boundary are presented in [Figure 6](#). Annual total effort (by effort unit) and catch (metric tonnes) are presented in [Table 6](#).

Catch and effort estimates are presented separately for the cells associated with the Somalia-Kenya disputed maritime territory (see section [4.7](#))

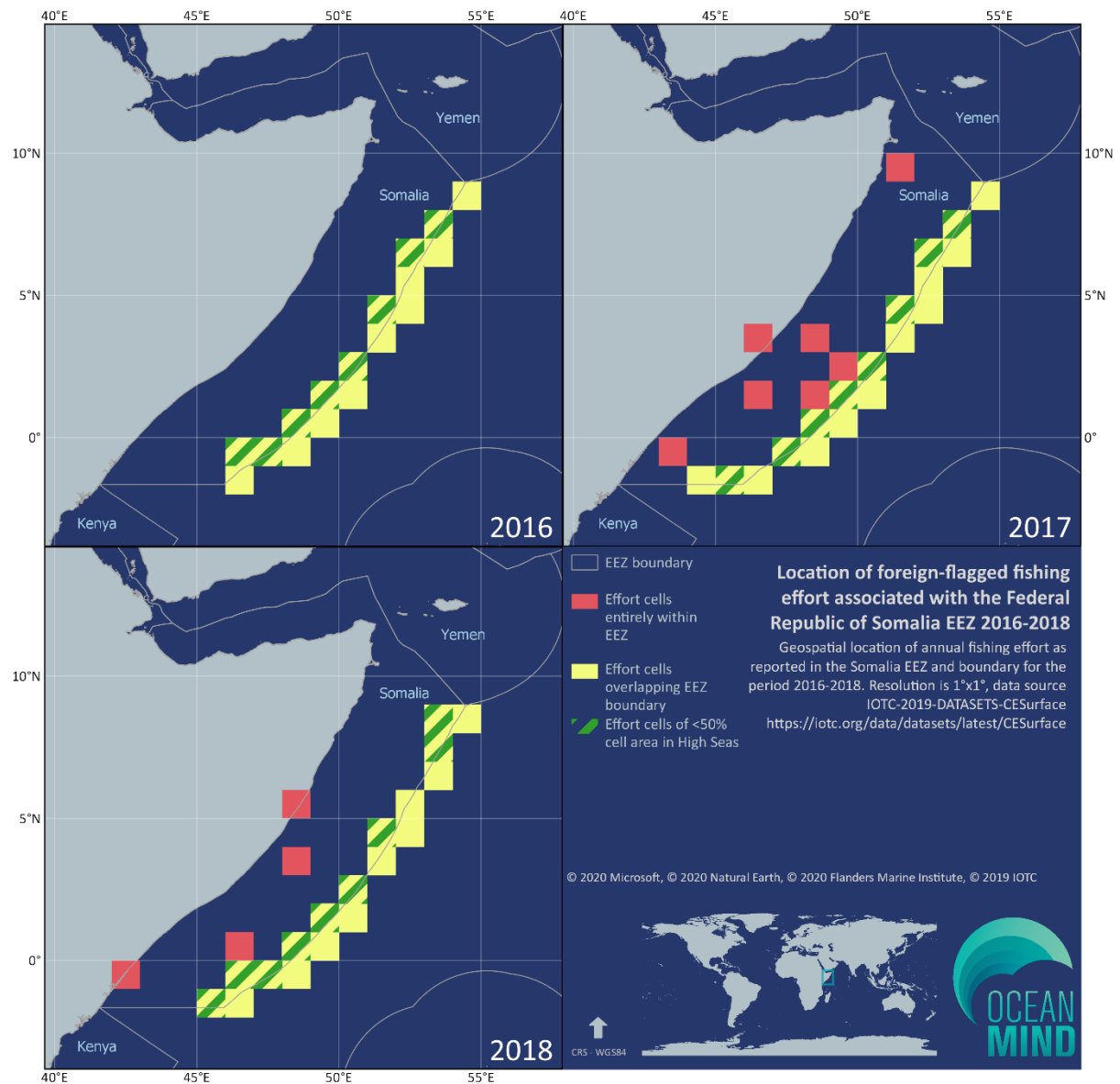


Figure 6: Location of foreign-flagged fishing effort associated with the Somalia EEZ for the period 2016-2018

Table 6: Annual total effort (effort unit) and catch (metric tonnes) reported by foreign-flagged fleets within and along the boundary of the Somalia EEZ for the period 2016-2018

Year	2016									2017									2018								
Location	EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect		
Effort months	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M
	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J
	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S
	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D
Flag State Reported effort Total catch (metric tonnes)				EU,France 625.4 FHOURS 1,793.84 MT			EU,France 178.2 FHOURS 411.28 MT			EU,France 12.1 FHOURS 0 MT			EU,France 926.7 FHOURS 24 HOURS 595.71 MT			EU,France 211 FHOURS 0 MT			EU,France 1.87 FDAYS			EU,France 39.89 DAYS			EU,France 5.11 DAYS		
				EU,Spain 1,409.9 FHOURS 5,035.06 MT			EU,Spain 232 FHOURS 622.95 MT			EU,Spain 54.7 FHOURS 239.36 MT			EU,Spain 2,705.3 FHOURS 13,428.65 MT			EU,Spain 440.9 FHOURS 2,895.93 MT			EU,Spain 10.1 FHOURS 94.55 MT			EU,Spain 3480.2 FHOURS 22,601.26 MT			EU,Spain 925.18 FHOURS 5,785.71 MT		
				Mauritius 1 SET 35.78 MT			Seychelles 27.47 FDAYS 869.68 MT			Mauritius 7 SETS 16.69 MT			Mauritius 26 SETS 762 MT			Mauritius 12 SETS 414.93 MT						Mauritius 12 SETS 367.42 MT			Mauritius 4 SETS 130.70 MT		
				Seychelles 147.53 FDAYS 5,136.29 MT			South Korea 2 SETS 100 MT						Seychelles 220.68 FDAYS 11,724.43 MT			Seychelles 54.82 FDAYS 3,448.15 MT						Seychelles 183.35 FDAYS 11,167.44 MT			Seychelles 53.32 FDAYS 3,545.44 MT		
				South Korea 10 SETS 215 MT									South Korea 31 SETS 840 MT			South Korea 8 SETS 135 MT						South Korea 22 SETS 716 MT			South Korea 5 SETS 143 MT		

4.5 United Republic of Tanzania

Geospatial position of cells with reported fishing effort by foreign-flagged fleets within the Tanzania EEZ, and along the EEZ boundary are presented in [Figure 7](#). Annual total effort (by effort unit) and catch (metric tonnes) are presented in [Table 7](#).

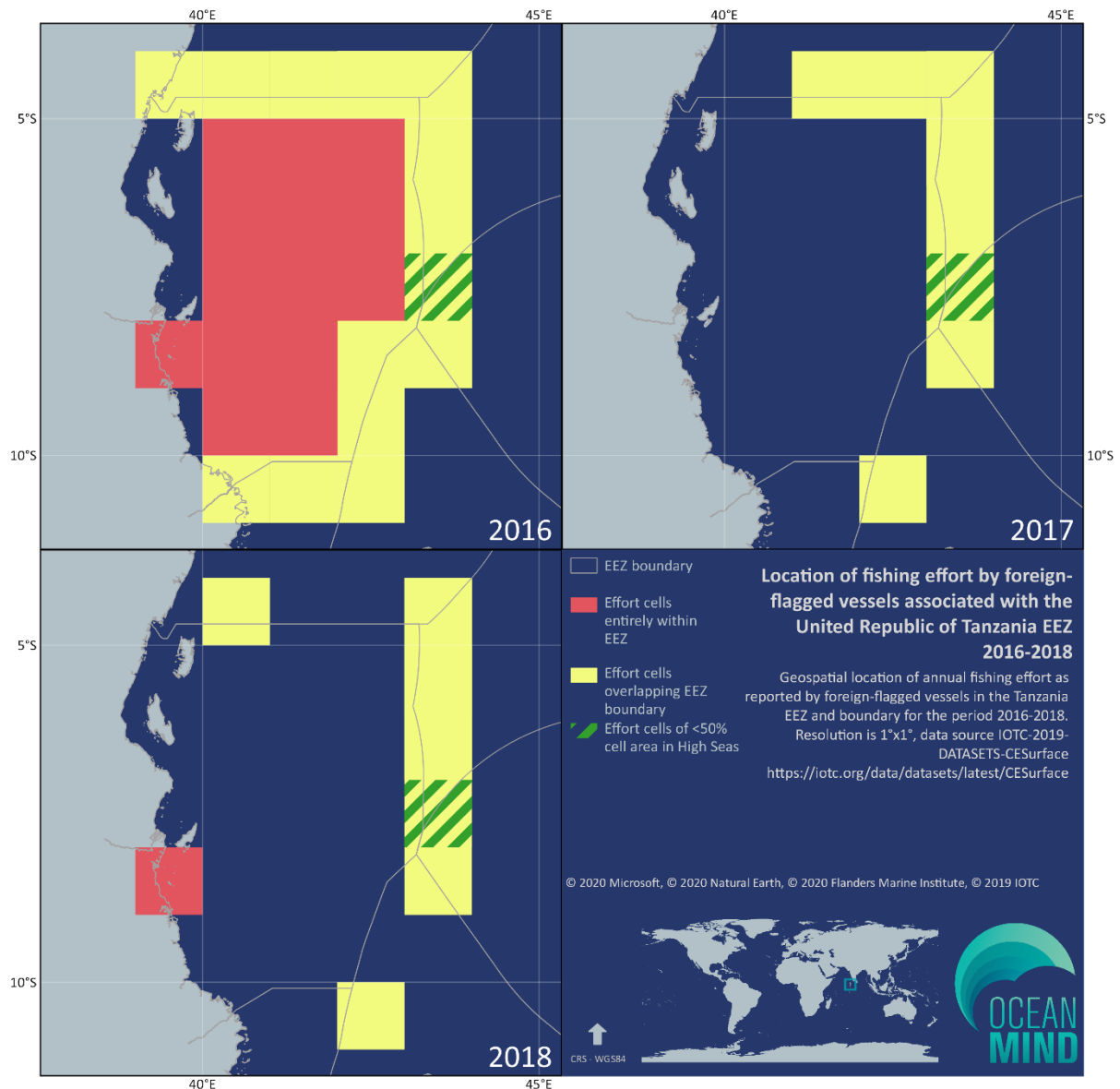


Figure 7: Location of foreign-flagged fishing effort associated with the Tanzania EEZ for the period 2016-2018

Table 7: Annual total effort (effort unit) and catch (metric tonnes) reported by foreign-flagged fleets within and along the boundary of the Tanzania EEZ for the period 2016-2018

Year	2016									2017									2018								
Location	EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect		
Effort months	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M
	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J
	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S
	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D
Flag State	EU,France			EU,France			EU,France						EU,France			EU,France			EU,France			EU,France			EU,France		
Reported effort	558.3 F HOUR			923.9 F HOURS			114.1 F HOURS						72.5 F HOURS			11.7 F HOURS			0.95 F DAYS			10.65 F DAYS			0.92 F DAYS		
Total catch (metric tonnes)	1,045.44 MT			1,468.8 MT			74.51 MT						55.87 MT			15.3 MT			0 MT			81.21 MT			0 MT		
	EU,Spain			EU,Spain			EU,Spain						EU,Spain			Mauritius						EU,Spain			EU,Spain		
	673.3 F HOUR			1,261.2 F HOURS			71.6 F HOURS						23.8 F HOURS			3 SETS						278.1 F HOURS			29.41 F HOURS		
	2,139.83 MT			4,544.74 MT			60.85 MT						13.13 MT			51.04 MT						1,579.19 MT			302.1 MT		
	Mauritius			Mauritius			Mauritius						Mauritius									Mauritius					
	15 SETS			20 SETS			3 SETS						8 SETS									14 SETS					
	408.25 MT			323.09 MT			89.98 MT						113.2 MT									669.88 MT					
	Seychelles			Seychelles			Seychelles						Seychelles									Seychelles					
	46.16 F DAYS			95.47 F DAYS			7.74 F DAYS						14.17 F DAYS									17.73 F DAYS					
	1,425.4 MT			2,760.84 MT			56.59 MT						1,056.17 MT									494.75 MT					
	South Korea			South Korea			South Korea						South Korea														
	60 SETS			23 SETS			3 SETS						1 SET														
	1,116 MT			413 MT			41 MT						95 MT														

4.6 Republic of Yemen

Geospatial position of cells with reported fishing effort by foreign-flagged fleets within the Yemen EEZ, and along the EEZ boundary are presented in [Figure 8](#). Annual total effort (by effort unit) and catch (metric tonnes) are presented in [Table 8](#).

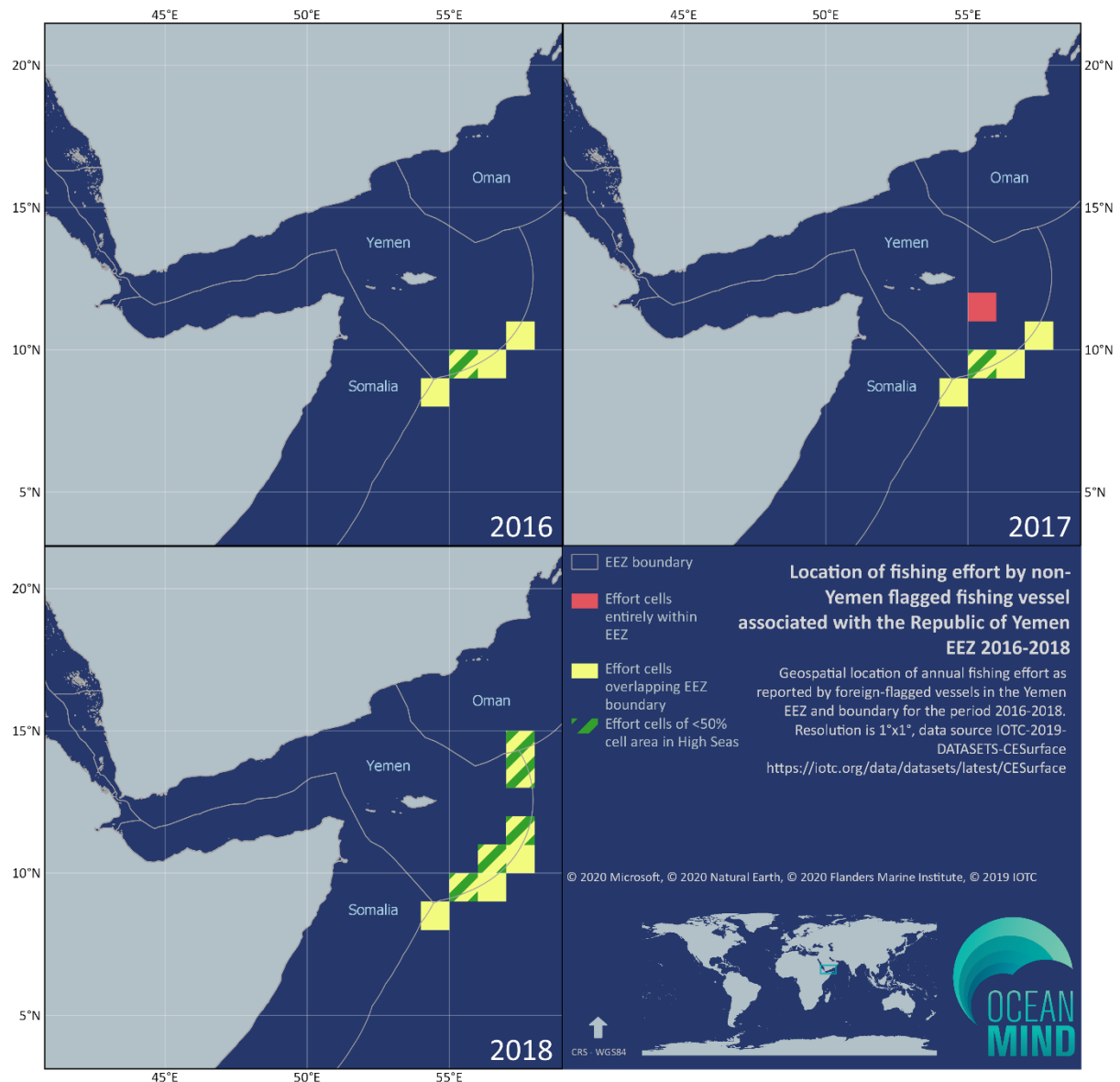


Figure 8: Location of foreign-flagged fishing effort associated with the Yemen EEZ for the period 2016-2018

Table 8: Annual total effort (effort unit) and catch (metric tonnes) reported by foreign-flagged fleets within and along the boundary of the Yemen EEZ for the period 2016-2018

Year	2016									2017									2018								
Location	EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect		
Effort months	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M
	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J
	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S
	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D
Flag State				EU,Spain			EU,Spain			Mauritius			EU,France			Seychelles						EU,France			EU,France		
Reported effort				71.4 FHOURS			24.1 FHOURS			2 SETS			35.7 FHOURS			0.96 FDAYS						9.53 FDAYS			4.4 FDAYS		
Total catch (metric tonnes)				61.5 MT			15.58 MT			109.53 MT			33.61 MT			0 MT						350.6 MT			144.14 MT		
													EU,Spain									EU,Spain			EU,Spain		
													54.6 FHOURS									789.97 FHOURS			196.44 FHOURS		
													59.62 MT									5,117.93 MT			1,585.98 MT		
													Mauritius									Seychelles			Seychelles		
													2 SETS									11 FDAYS			2.02 FDAYS		
													24.13 MT									952.43 MT			33.91MT		
													Seychelles														
													8.65 FDAYS														
													437.4 MT														

4.7 Somalia-Kenya disputed maritime territory

Geospatial position of cells with reported fishing effort by foreign-flagged fleets associated with the disputed maritime territory between the Federal Republic of Somalia and the Republic of Kenya are presented in [Figure 9](#). Annual total effort (by effort unit) and catch (metric tonnes) are presented in [Table 9](#). The boundaries for the disputed maritime territory between the Federal Republic of Somalia and the Republic of Kenya have been defined using the median-line and do not represent the claims of any individual nation.

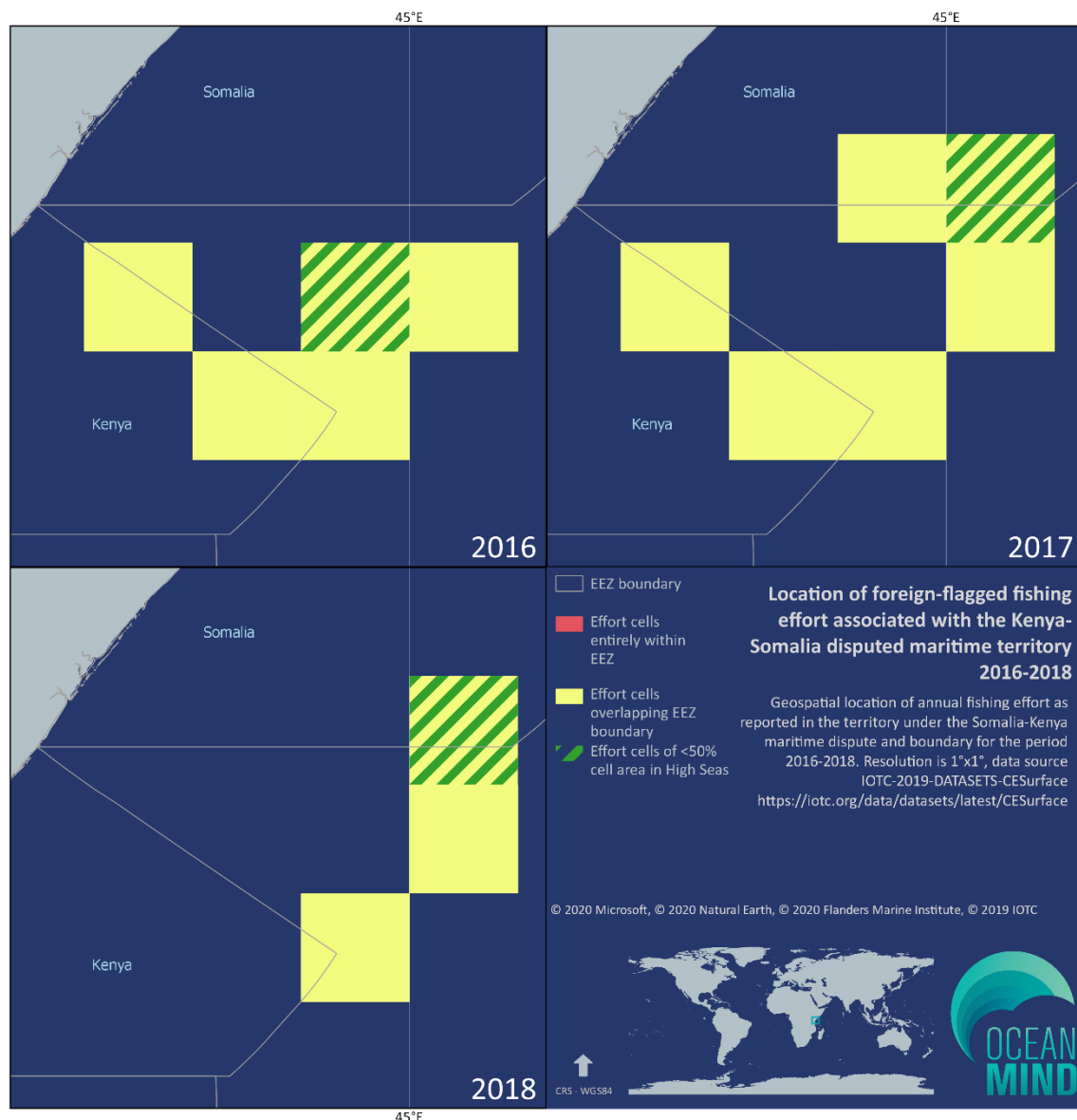


Figure 9: Location of foreign-flagged fishing effort associated with the Kenya-Somalia disputed maritime territory for the period 2016-2018

Table 9: Annual total effort (effort unit) and catch (metric tonnes) reported by foreign-flagged fleets in the Somalia-Kenya disputed maritime territory for the period 2016-2018

Year	2016									2017									2018								
Location	EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect			EEZ			EEZ-boundary			EEZ-prospect		
Effort months	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M
	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J	A	M	J
	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S	J	A	S
	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D	O	N	D
Flag State				EU,France			Seychelles						EU,France			EU,France						EU,France			EU,France		
Reported effort				80 FHOURS			2.65 FDAYS						101.5 FHOURS			12.1 FHOURS						10.77 FDAYS			0.93 FDAYS		
Total catch (metric tonnes)				67.3 MT			60.27 MT						163.21 MT			0 MT						194.18 MT			71.18 MT		
				EU,Spain									EU,Spain			Seychelles						EU,Spain					
				272.4 FHOURS									151.5 FHOURS			0.54 FDAYS						211.86 FHOURS					
				617.45 MT									1314.58 MT			123.11 MT						1,424.76 MT					
				Seychelles									Mauritius									Mauritius					
				23.41 FDAYS									1 SET									2 SETS					
				1,040.65 MT									15.77 MT									93.12 MT					
				South Korea									Seychelles									Seychelles					
				2 SETS									13.04 FDAYS									9.05 FDAYS					
				43 MT									653.12 MT									538.55 MT					
													South Korea									South Korea					
													3 SETS									1 SET					
													110 MT									10 MT					

5 Appendix 1

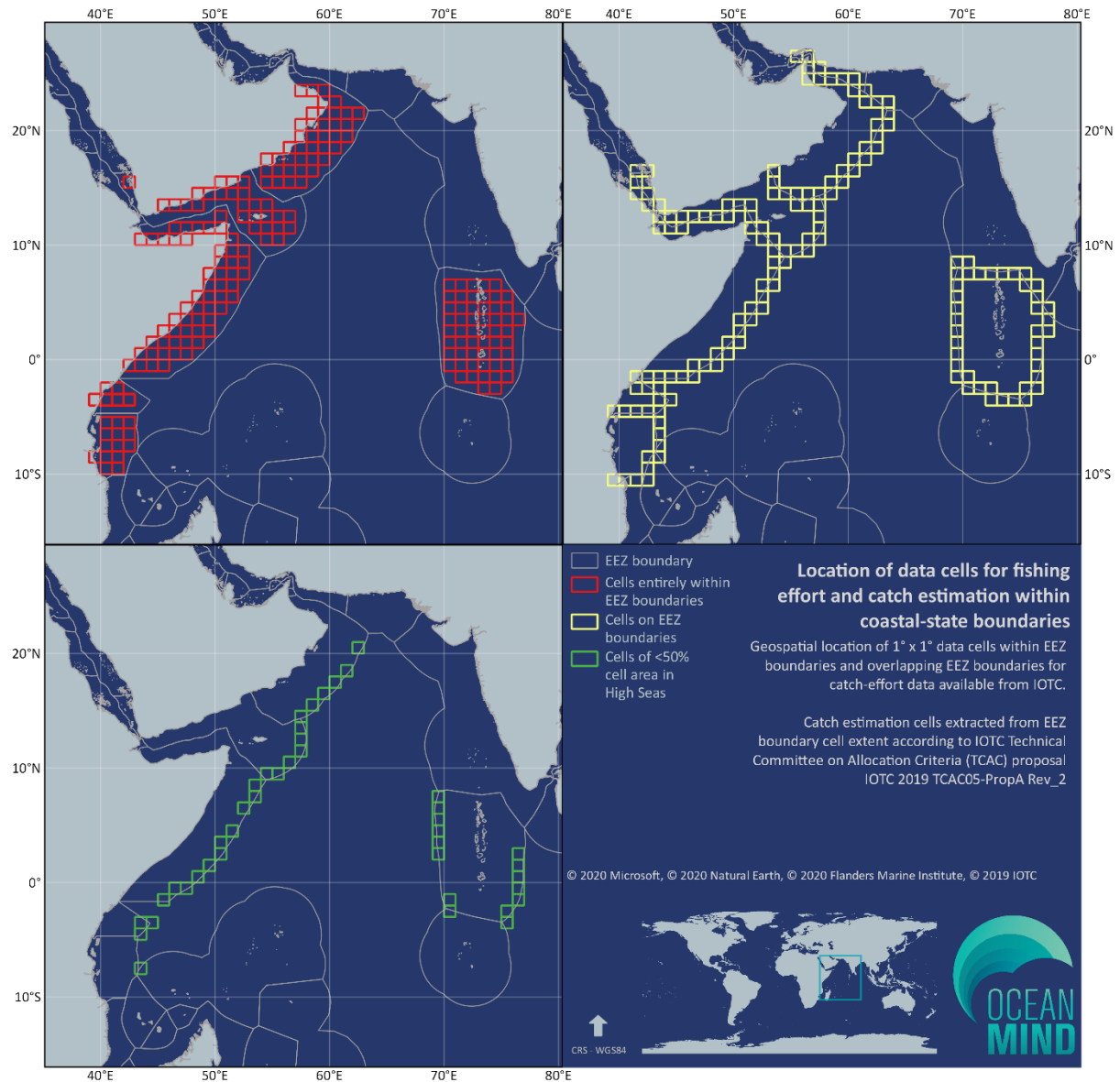


Figure A1: Geospatial location of data cells for fishing effort and catch estimation within and along coastal-state boundaries 2016-2018