

Summary of the treatment for a specific entity of the global tuna atlas

Bastien Grasset^{1,2}, Emmanuel Blondel³, Julien Barde^{1,2}

01 August, 2024

Abstract

This document is aimed to recap the impact on the data of the different treatment of the Global Tuna Atlas. First we present the data created by the GlobalTuna Atlas, as well as the comparison between this data and the rawdata provided by the RFMO's before the global Tuna Atlas treatment. In a second time we will present the process of the GlobalTuna Atlas in order to reference exactly the choices made.

Contents

1	Summary of the final provided data : globalcatchirdlevel15deg1deg	1
1.1	Time coverage	2
1.2	Spatial coverage	3
1.3	Coverage for other dimensions	4
2	Summary of the treatment done on the data (comparison between the Initial data and the data resulting from treatments)	6
2.1	Main differences	6
2.2	Main characteristics of the two datasets	18
3	Analyse of the processing of the data	26
4	Detail of all the steps of treatment of the data	26
4.1	Treatment : Filtering species level 1	27
4.2	Treatment : Harmonising units on IOTC data	38
4.3	Treatment : Harmonising units from IRD conversion factors	44
5	Annexe	51

1 Summary of the final provided data : globalcatchirdlevel15deg1deg

¹Institut de Recherche pour le Développement (IRD), av. Jean Monnet, CS 30171, 34203 Sète cédex, France

²MARBEQ, University of Montpellier, CNRS, Ifremer, IRD, Sète, France

³???

1.1 Time coverage

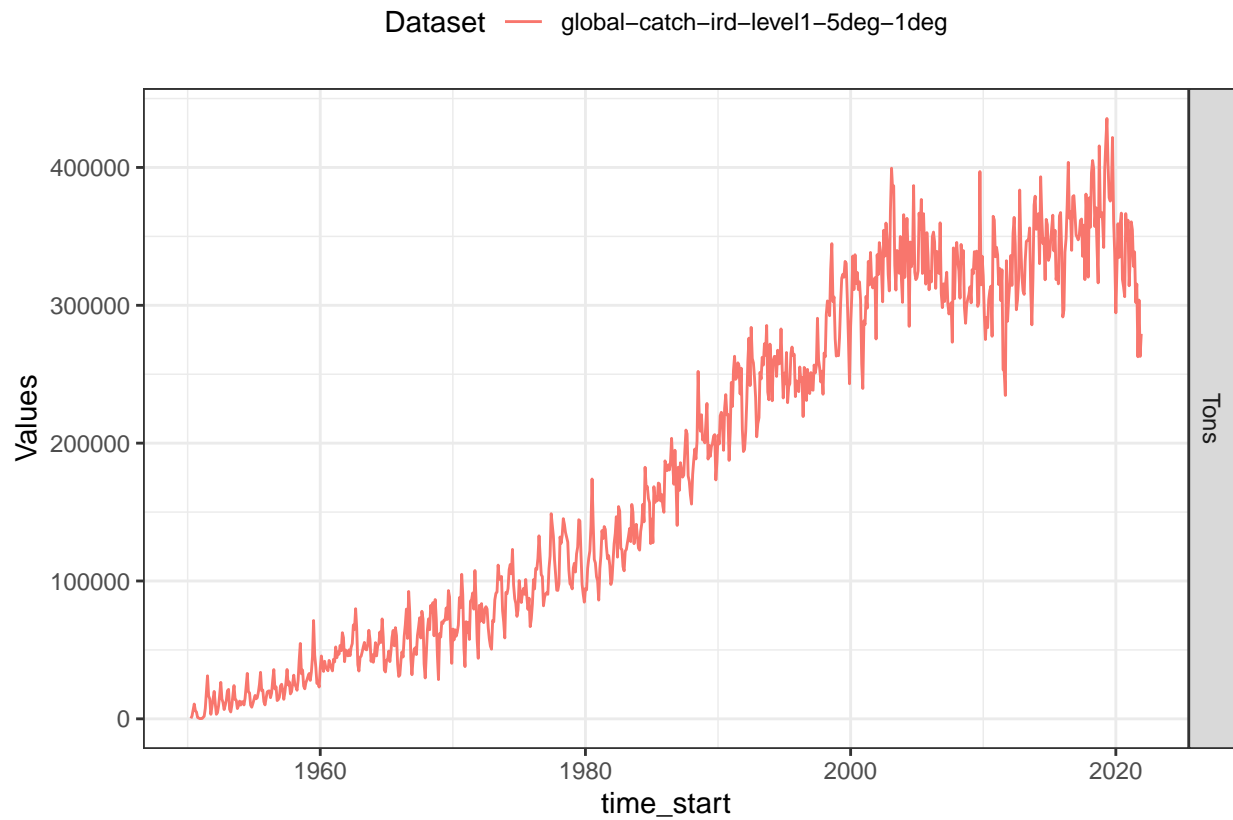


Figure 1: Evolutions of values for the dimension time-start for global-catch-ird-level1-5deg-1deg dataset

1.2 Spatial coverage

We represent spatial coverage, faceted by geographical category. The geographical category depends on the area of the geographic polygon. In this case there are 0 categories which are .

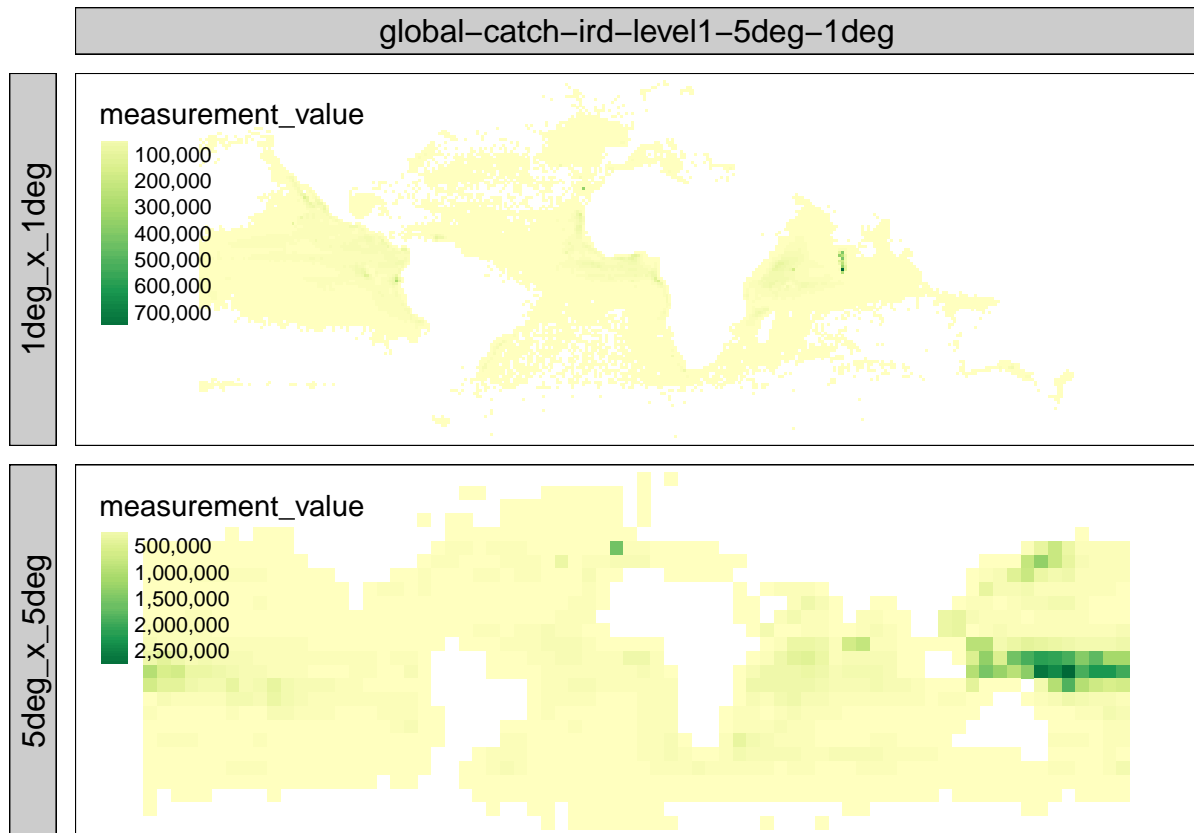
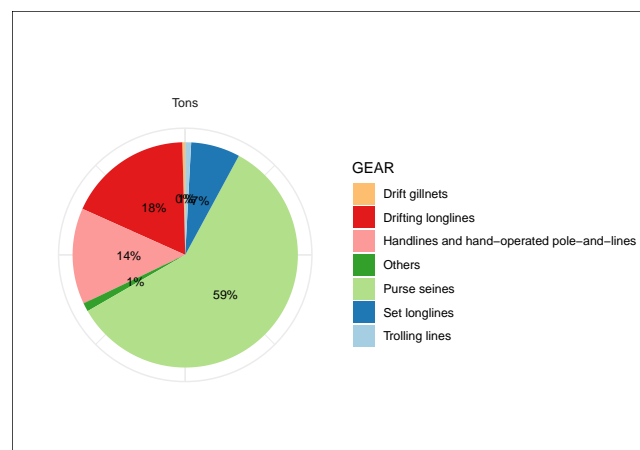
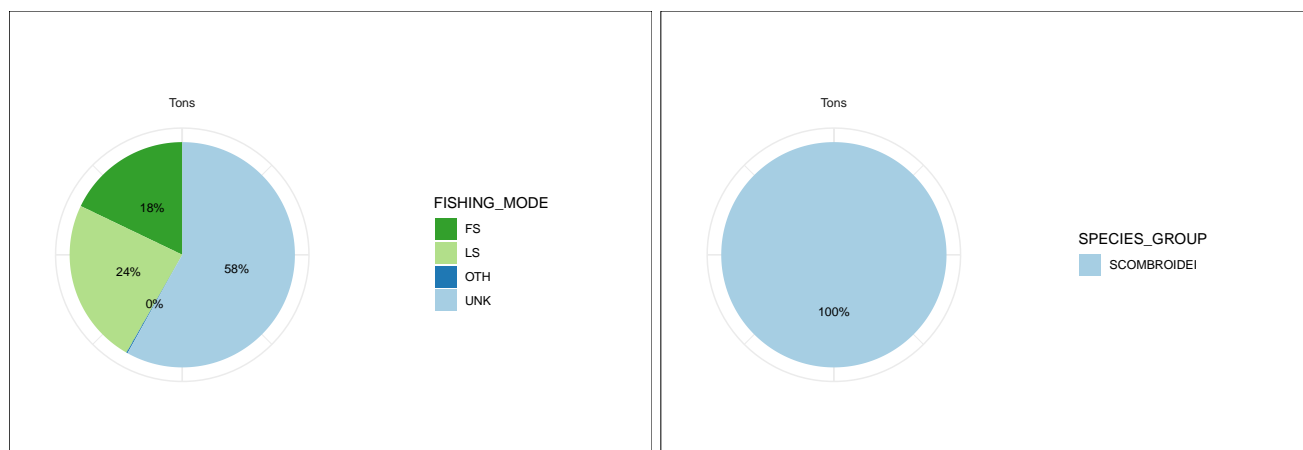
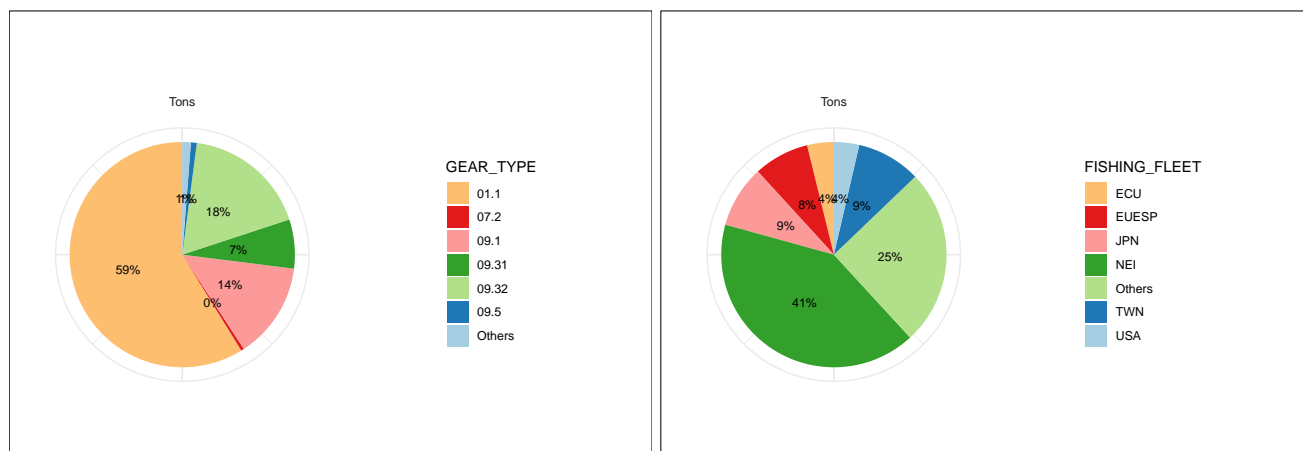
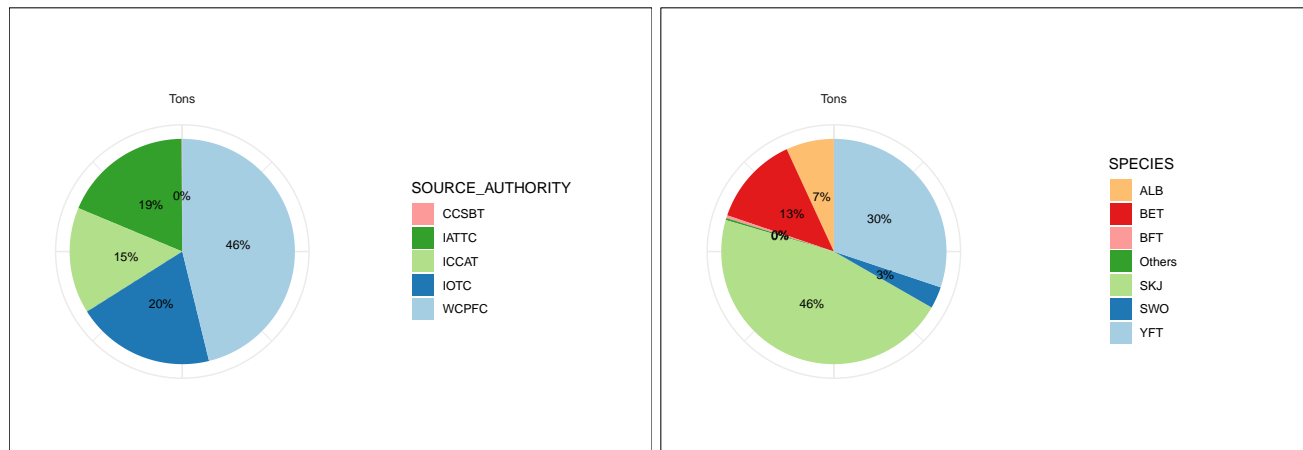


Figure 2: Distribution in value for the unit: Tons

1.3 Coverage for other dimensions

We check the distribution of the value of each dimension and each unit.



(g) (Distribution in value for the dimension: Gear)

Figure 3: Other dimensions

2 Summary of the treatment done on the data (comparison between the Initial data and the data resulting from treatments)

Attention ! In the following document:

- All the differences inferior to 0 corresponds to gain in captures.
- The initial dataset, referred as, dataset 1 is *Initial_data*
- The final dataset, referred as, dataset 2 is *global_catch_ird_level1_5deg_1deg*

2.1 Main differences

Table 1: Summary of the difference between the two datasets

measure- ment__unit	Initial-data	global-catch-ird-level1- 5deg-1deg	Difference	Difference (in %)
Number of fish	1,130,185,274	0	-1,130,185,274	-100.00
Tons	143,214,026	157,229,950	14,015,924	9.79

The strata differences (completely lost or appearing) between the first one and the second one (representing 54 % of the total number of strata) are :

Table 2: Disappearing or appearing strata between Initial-data and global-catch-ird-level1-5deg-1deg

Dimension	measure- ment__unit	Loss / Gain	Precision	Difference in millions
Gear				
	Number of fish			
		Loss		
			Gear not known	-30,788.40
			Midwater pair trawls	-77,506.00
			Gear nei	-182,792.00
			Vertical lines	-183,492.50
			Hooks and lines (nei)	-424,064.00
			Purse seines	-1,531,698.00
			Stationary uncovered pound nets	-4,524,276.00
			Longlines (nei)	-18,767,235.34
			Drift gillnets	-19,224,111.00
			Trolling lines	-54,158,663.20
			Handlines and hand-operated pole-and-lines	-59,381,803.00
			Set longlines	-481,518,090.00
			Drifting longlines	-490,180,754.89
fishing-fleet				
	Number of fish			
		Loss		

Table 2: Disappearing or appearing strata between Initial-data and global-catch-ird-level1-5deg-1deg

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
			ALB	-8.00
			PER	-91.00
			TZA	-237.00
			UKBMU	-329.00
			GTM	-468.00
			HND	-915.00
			BOL	-1,173.00
			NOR	-2,297.00
			CAN	-2,417.00
			EUBGR	-5,934.00
			EUCYP	-8,802.00
			EUGRC	-9,437.00
			THA	-10,014.00
			NIU	-10,417.00
			NIC	-12,160.00
			EUMLT	-13,138.00
			ZAF	-14,839.00
			MUS	-14,954.00
			LBY	-21,663.00
			EUPRT	-24,646.00
			MDG	-34,984.00
			EUITA	-48,003.00
			COL	-48,083.00
			PAN	-53,748.00
			MAR	-71,689.00
			VEN	-89,504.00
			TUN	-120,805.00
			TUV	-124,364.00
			ECU	-240,189.00
			PLW	-255,295.00
			EUIRL	-301,175.00
			MHL	-372,672.00
			URY	-378,907.00
			TON	-406,220.00
			MEX	-545,206.00
			KIR	-638,066.00
			BLZ	-1,106,558.00

Table 2: Disappearing or appearing strata between Initial-data and global-catch-ird-level1-5deg-1deg

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
			PHL	-1,236,219.40
			CIV	-1,432,464.00
			BRA	-1,623,171.00
			CUB	-1,726,567.00
			PNG	-1,980,778.00
			COK	-2,169,342.00
			FSM	-2,524,375.00
			SYC	-3,395,791.19
			NZL	-4,060,331.34
			AUS	-4,235,265.00
			WSM	-4,251,381.00
			SLB	-6,116,110.00
			NEI	-6,999,680.00
			VNM	-12,247,660.00
			EUFRA	-12,812,015.40
			VUT	-15,902,103.00
			FJI	-17,516,405.00
			USA	-18,353,941.00
			IDN	-27,316,751.00
			CHN	-45,961,893.00
			KOR	-82,336,074.00
			EUESP	-133,519,436.00
			TWN	-291,904,691.00
			JPN	-425,573,423.00
fishing-fleet				
	Tons			
		Loss		
			FLK	-1.35
			EUDNK	-2.21
			EUDEU	-28.36
			EUBGR	-242.30
			SUR	-1,702.90
fishing-mode				
	Number of fish			
		Loss		
			UNK	-1,130,185,274.33
gear-type				

Table 2: Disappearing or appearing strata between Initial-data and global-catch-ird-level1-5deg-1deg

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
	Number of fish			
		Loss		
			99.9	-30,788.40
			03.22	-77,506.00
			10.9	-182,792.00
			09.4	-183,492.50
			09.9	-424,064.00
			01.1	-1,531,698.00
			08.1	-4,524,276.00
			09.39	-18,767,235.34
			07.2	-19,224,111.00
			09.5	-54,158,663.20
			09.1	-59,381,803.00
			09.31	-481,518,090.00
			09.32	-490,180,754.89
source- authority				
	Number of fish			
		Loss		
			CCSBT	-18,767,235.34
			IATTC	-150,553,185.00
			IOTC	-213,872,631.99
			ICCAT	-258,596,797.00
			WCPFC	-488,395,425.00
species				
	Number of fish			
		Loss		
			RMB	-2.00
			COM	-32.00
			MSP	-35.00
			SPK	-115.00
			LMA	-260.00
			MAW	-445.00
			BTH	-859.00
			ALV	-1,723.00
			SSM	-2,314.00
			LOT	-6,406.00
			RSK	-8,818.00

Table 2: Disappearing or appearing strata between Initial-data and global-catch-ird-level1-5deg-1deg

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
			KGM	-8,975.00
			PBF	-10,069.00
			SPZ	-10,815.00
			SPL	-11,268.01
			WAH	-14,800.00
			SPN	-39,683.00
			SPF	-55,911.00
			BLF	-110,972.00
			BXQ	-162,340.31
			BON	-164,905.00
			POR	-211,446.00
			OCS	-221,501.44
			THR	-244,257.00
			SMA	-351,213.00
			LTA	-360,128.60
			SSP	-523,285.59
			SAI	-746,581.00
			TUN	-788,682.85
			SFA	-886,796.11
			MAK	-912,911.81
			FAL	-1,224,573.48
			WHM	-1,544,332.80
			SKJ	-2,631,455.20
			BLM	-3,080,647.94
			BFT	-3,514,528.00
			FRI	-4,327,843.00
			BIL	-5,482,449.19
			SKH	-8,727,726.53
			MLS	-14,760,064.43
			BUM	-17,267,361.50
			SBF	-18,767,235.34
			BSH	-20,347,375.72
			SWO	-46,757,599.62
			BET	-227,563,873.75
			YFT	-255,851,811.92
			ALB	-492,478,845.18
species				

Table 2: Disappearing or appearing strata between Initial-data and global-catch-ird-level1-5deg-1deg

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
	Tons			
		Loss		
			CER	-1.24
			SLT	-1.35
			PTH	-3.25
			RMT	-3.55
			SPK	-18.29
			MSP	-26.59
			SPY	-116.46
			BTH	-157.85
			LMA	-175.60
			SSM	-266.04
			RMB	-649.96
			SPL	-868.64
			TUS	-927.71
			SSP	-1,290.78
			SPF	-1,333.45
			ALV	-1,685.62
			SPZ	-2,015.18
			MAN	-3,283.20
			RMM	-4,534.27
			GUT	-6,413.00
			BOP	-6,499.70
			POR	-6,949.83
			MAK	-7,098.93
			FRZ	-8,248.12
			THR	-11,905.92
			KGM	-12,112.44
			SPN	-14,993.35
			BLF	-15,869.57
			RSK	-16,093.67
			BRS	-19,293.57
			OCS	-20,361.23
			MAW	-21,321.47
			WHM	-21,347.60
			WAH	-24,953.43
			SRX	-45,626.92

Table 2: Disappearing or appearing strata between Initial-data and global-catch-ird-level1-5deg-1deg

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
			SAI	-51,800.03
			BIL	-57,073.32
			SMA	-65,632.48
			COM	-66,723.78
			BXQ	-78,063.95
			BKJ	-88,650.99
			BLT	-118,323.81
			FAL	-131,179.66
			BON	-156,235.77
			SFA	-156,513.88
			LTA	-163,459.44
			BLM	-174,423.86
			KGX	-189,779.84
			BZX	-251,061.40
			KAW	-297,372.39
			LOT	-299,009.50
			TUN	-392,923.58
			BSH	-408,584.61
			FRI	-477,890.48
			MLS	-493,722.77
			SKH	-692,616.98
			BUM	-818,234.25
species-group				
	Number of fish			
		Loss		
			MYLIOBATIFORMES	-2.00
			LAMNIFORMES	-1,722,669.81
			PISCES MISCELLANEA	-8,727,726.53
			CARCHARHINIFORMES	-21,864,149.65
			SCOMBROIDEI	-1,097,870,726.33
species-group				
	Tons			
		Loss		
			MYLIOBATIFORMES	-8,470.98
			RAJIFORMES	-45,626.92
			LAMNIFORMES	-93,609.48
			CARCHARHINIFORMES	-594,231.09

Table 2: Disappearing or appearing strata between Initial-data and global-catch-ird-level1-5deg-1deg

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
			PISCES MISCELLANEA	-692,616.98

Table 3: Comparison of number of stratas between the two datasets

	Initial-data	global-catch-ird-level1-5deg- 1deg	Difference
Number of fishing-fleet	115	110	-5
Number of fishing-mode	4	4	0
Number of Gear	27	26	-1
Number of gear-type	27	26	-1
Number of geographic-identifier	11,775	11,612	-163
Number of GRIDTYPE	2	2	0
Number of measurement-unit	2	1	-1
Number of source-authority	5	5	0
Number of species	65	8	-57
Number of species-group	6	1	-5
Number of time-start	856	856	0

2.1.1 Differences in temporal data

Representing the differences in percent for each year.

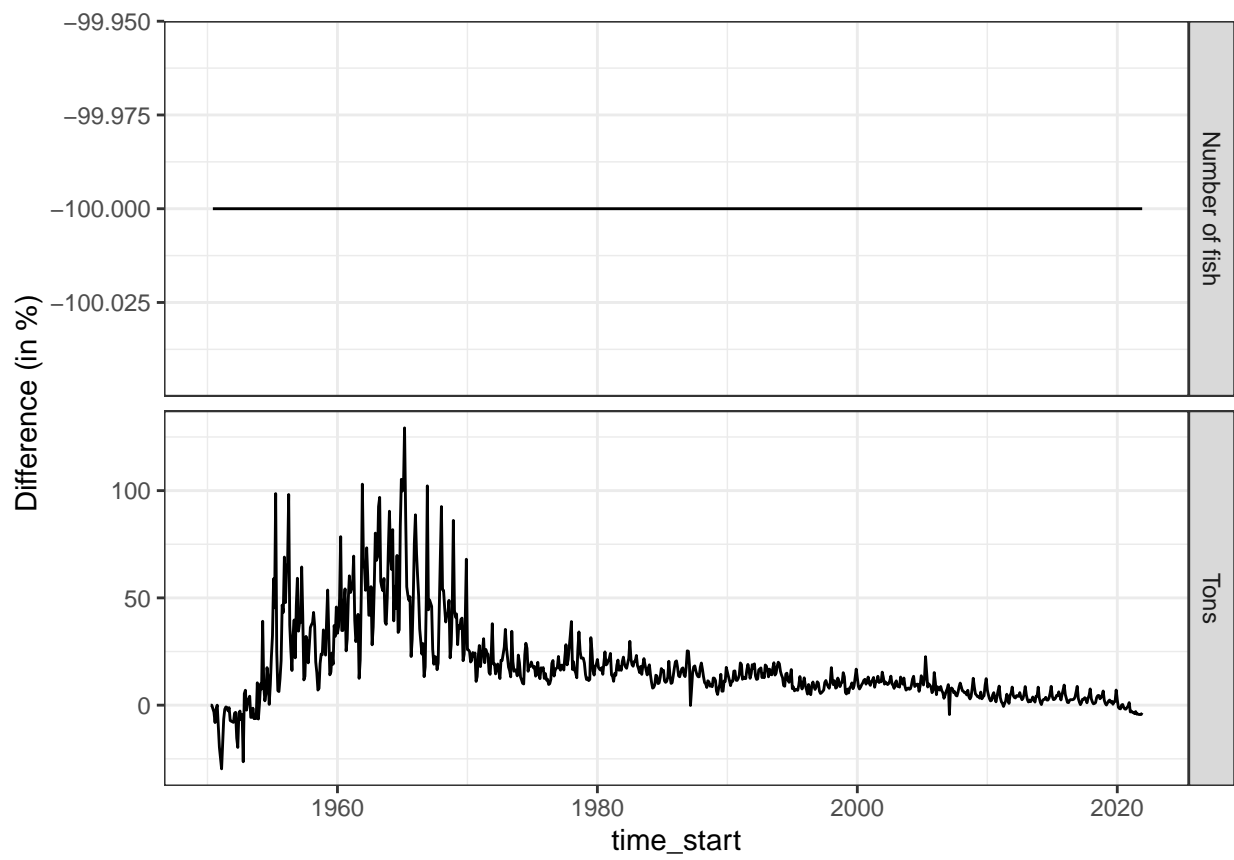
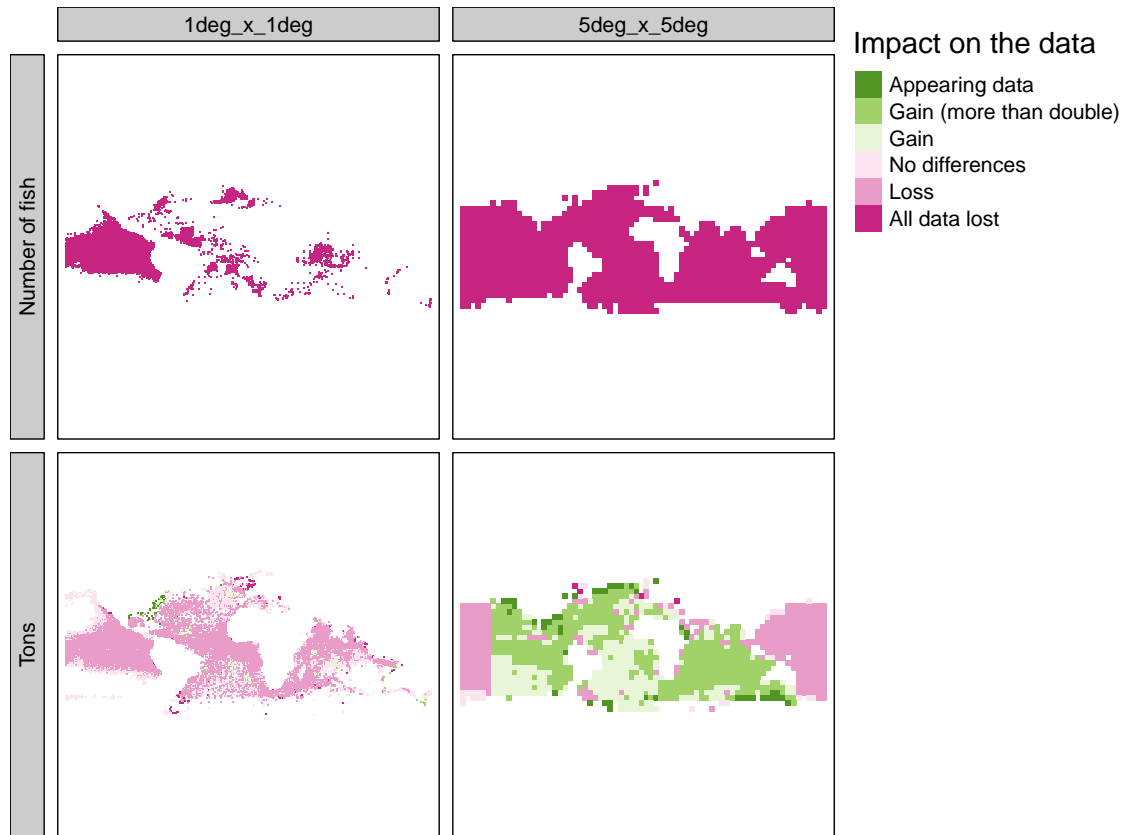


Figure 4: Difference in percent of value for the dimension time-start for Initial-data and global-catch-ird-level1-5deg-1deg dataset

2.1.2 Differences in geographical data

Here is represented for each area the polygons keeping all the initial information, the ones losing a part, and the ones losing all the information.



2.1.3 The differences for each other dimension

This section details the differences that are observed between the dataframe *Initial_data* and *global_catch_ird_level1_5*

We will look for each dimension the 6 most important differences without presenting the stratas completely appearing or disappearing.

Table 4: Difference between stratas of the two datasets

Dimension	measurement_unit	Loss / Gain	Precision	Values dataset 1	Values dataset 2	Difference (in %)	Difference in value
fishing-fleet							
	Tons						
		Gain					
			CUB	8,754	68,490	682.40	59,736
			JPN	5,895,653	14,032,860	138.02	8,137,207
			URY	23,204	45,568	96.38	22,364
			TWN	8,433,009	14,492,636	71.86	6,059,627
			MDG	1,959	2,770	41.39	811
			TUN	29,584	39,951	35.04	10,367
			Others	28,269,150	31,865,312	12.72	3,596,162
fishing-fleet							
	Tons						
		Loss					
			MYS	330,460	17,904	-94.58	-312,556
			RUS	23,763	2,048	-91.38	-21,714
			THA	423,242	42,393	-89.98	-380,849
			OMN	173,081	24,047	-86.11	-149,034
			PAK	84,496	21,098	-75.03	-63,399
			UKVGB	9	3	-69.42	-6
			Others	99,467,016	96,526,201	-2.96	-2,940,815
fishing-mode							
	Tons						
		Gain					
			UNK	77,101,316	91,315,687	18.44	14,214,372
fishing-mode							
	Tons						
		Loss					
			LS	37,682,271	37,528,784	-0.41	-153,487
			FS	28,171,526	28,126,565	-0.16	-44,961
Gear							
	Tons						

Table 4: Difference between stratas of the two datasets

Dimension	measurement_unit	Loss / Gain	Precision	Values dataset 1	Values dataset 2	Difference (in %)	Difference in value
		Gain					
			Drifting longlines	10,289,022	28,104,890	173.15	17,815,867
			Trolling lines	589,229	1,328,304	125.43	739,074
			Hooks and lines (nei)	40,168	50,850	26.59	10,682
Gear							
	Tons						
		Loss					
			Trawls (nei)	78,832	1	-100.00	-78,831
			Fixed (on stakes) gillnets	265	3	-98.70	-262
			Barriers, fences, weirs, etc,	249	7	-97.26	-242
			Beach seines	36,509	2,723	-92.54	-33,786
			Lift nets (nei)	1,406	149	-89.42	-1,257
			Gear not known	39,274	8,291	-78.89	-30,983
			Others	132,139,071	127,734,732	-3.33	-4,404,339
gear-type							
	Tons						
		Gain					
			09.32	10,289,022	28,104,890	173.15	17,815,867
			09.5	589,229	1,328,304	125.43	739,074
			09.9	40,168	50,850	26.59	10,682
gear-type							
	Tons						
		Loss					
			03.9	78,832	1	-100.00	-78,831
			07.4	265	3	-98.70	-262
			08.5	249	7	-97.26	-242
			02.1	36,509	2,723	-92.54	-33,786
			05.9	1,406	149	-89.42	-1,257
			99.9	39,274	8,291	-78.89	-30,983
			Others	132,139,071	127,734,732	-3.33	-4,404,339
source-authority							
	Tons						

Table 4: Difference between stratas of the two datasets

Dimension	measurement_unit	Loss / Gain	Precision	Values dataset 1	Values dataset 2	Difference (in %)	Difference in value
		Gain					
			IOTC	24,254,117	31,221,864	28.73	6,967,747
			ICCAT	19,884,899	23,983,176	20.61	4,098,277
			IATTC	25,242,674	29,224,945	15.78	3,982,271
source-authority							
	Tons						
		Loss					
			WCPFC	73,640,093	72,607,721	-1.40	-1,032,372
species							
	Tons						
		Gain					
			SWO	2,369,523	4,924,908	107.84	2,555,384
			BET	12,325,732	20,315,009	64.82	7,989,278
			ALB	6,883,507	10,815,886	57.13	3,932,379
			BFT	426,799	636,423	49.12	209,624
			YFT	42,181,805	47,398,401	12.37	5,216,595
			SKJ	72,657,190	72,675,578	0.03	18,388
species-group							
	Tons						
		Gain					
			SCOM-BROIDEI	141,779,470	157,229,950	10.90	15,450,479

2.2 Main characteristics of the two datasets

2.2.1 Time coverage

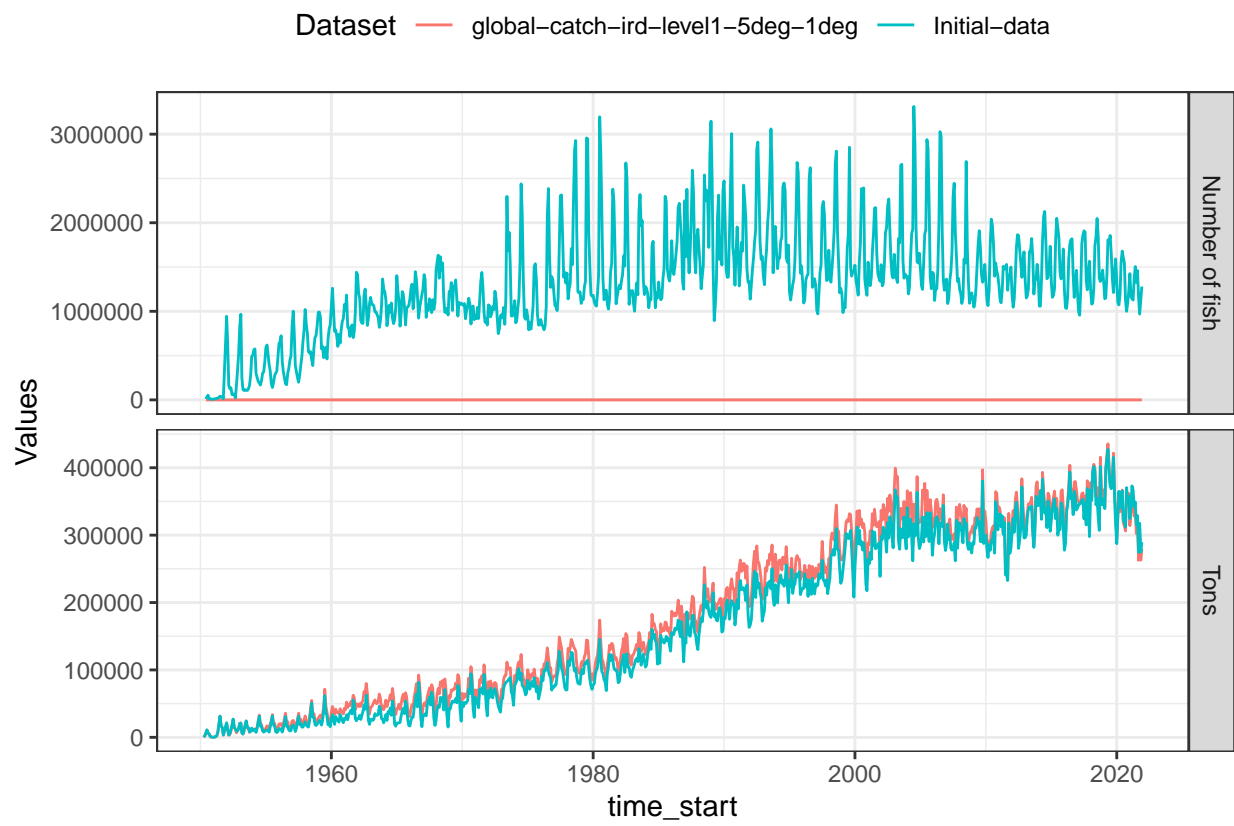


Figure 5: Evolutions of values for the dimension time-start for Initial-data and global-catch-ird-level1-5deg-1deg dataset

2.2.2 Spatial coverage

We represent spatial coverage, faceted by geographical category. The geographical category depends on the area of the geographic polygon. In this case there are 2 categories which are 1deg_x_1deg ; 5deg_x_5deg.

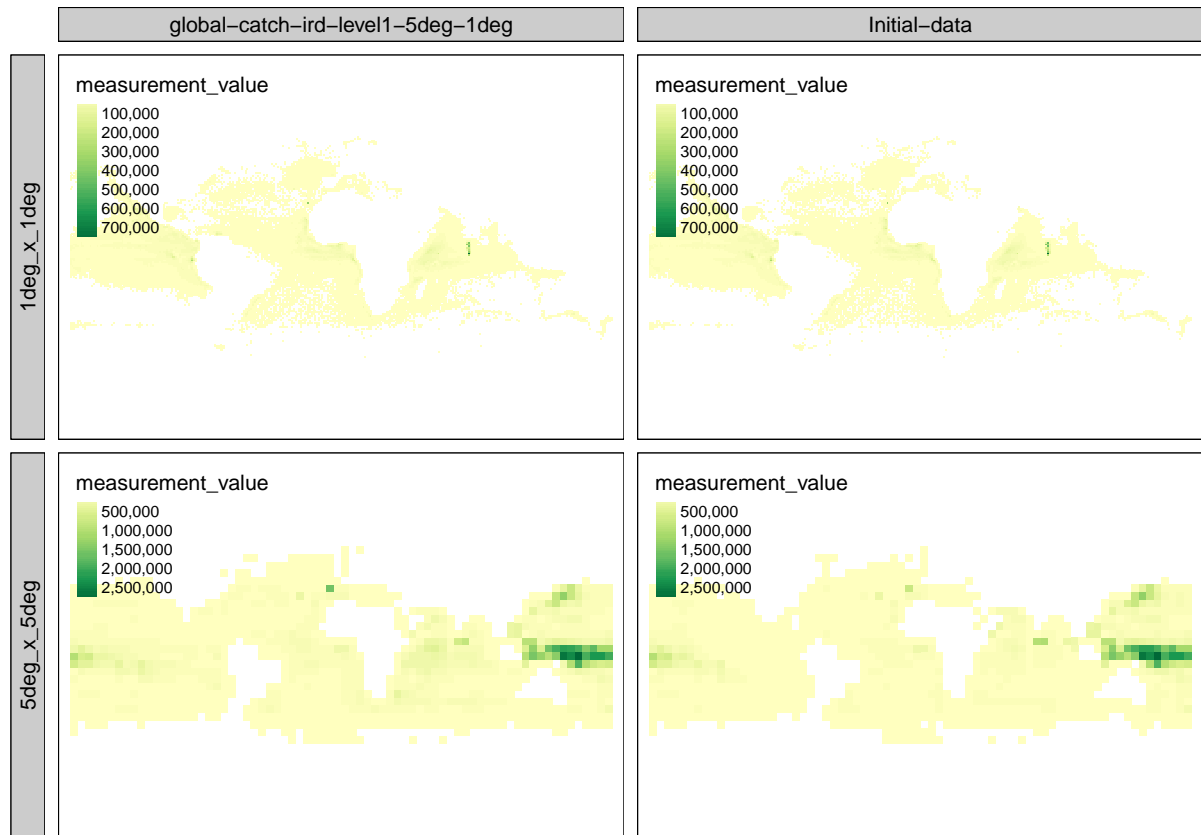


Figure 6: Distribution in value for the unit: Tons

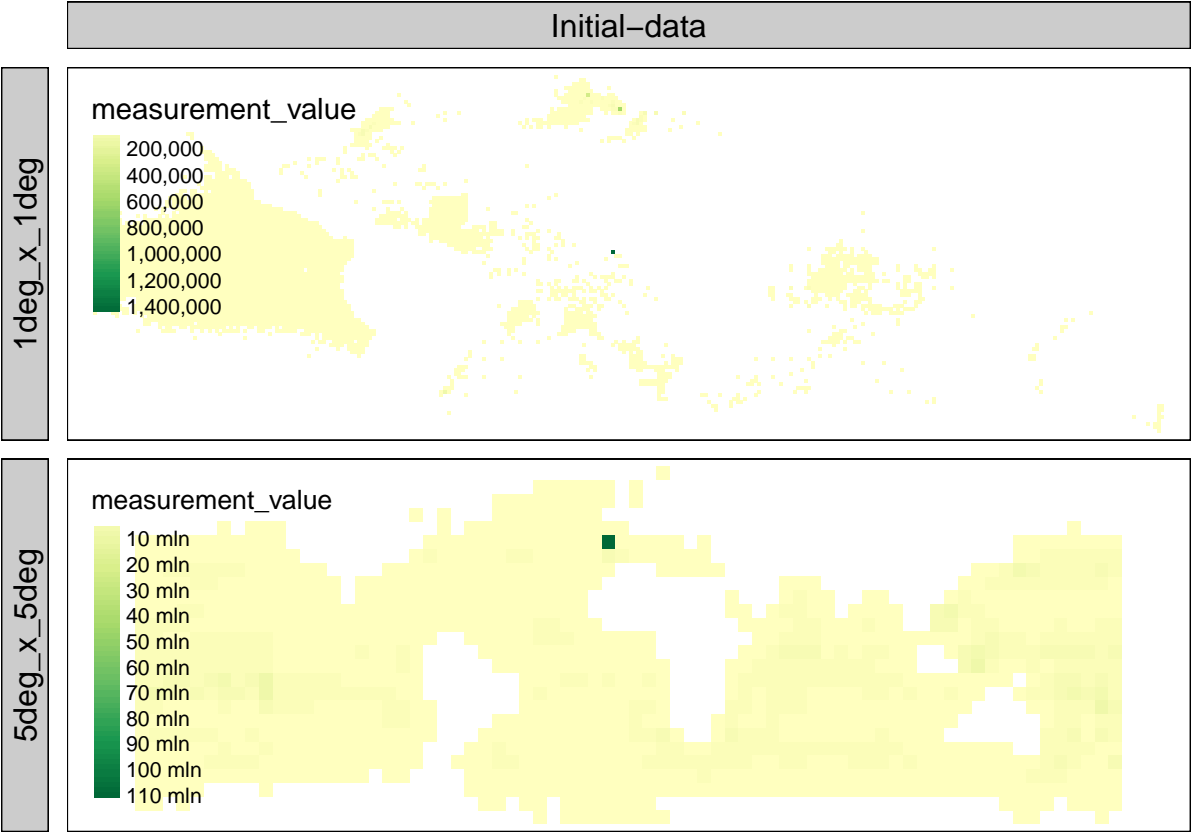


Figure 7: Distribution in value for the unit: Number of fish

2.2.3 Coverage for other dimensions

We check the distribution of the value of each dimension and each unit.

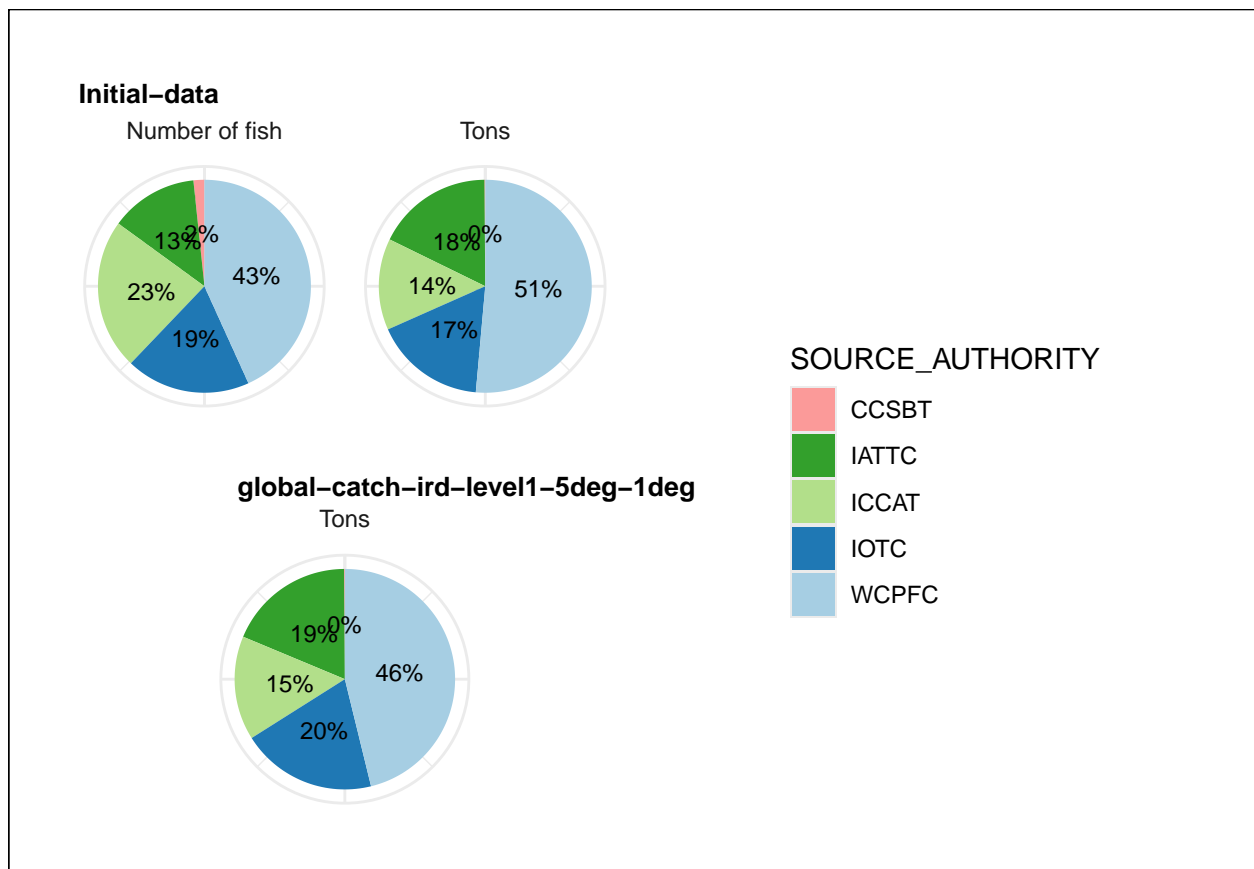


Figure 8: Distribution in value for the dimension: source.authority

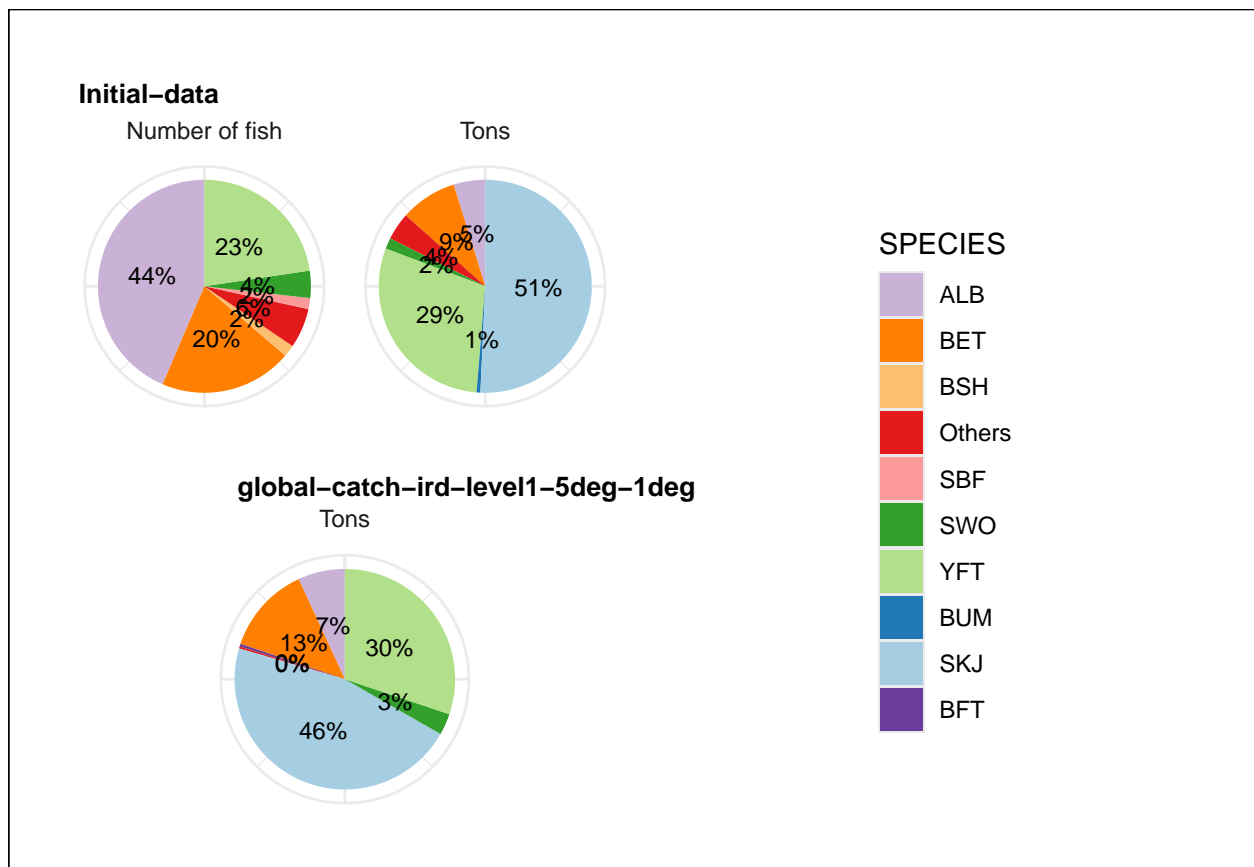


Figure 9: Distribution in value for the dimension: species

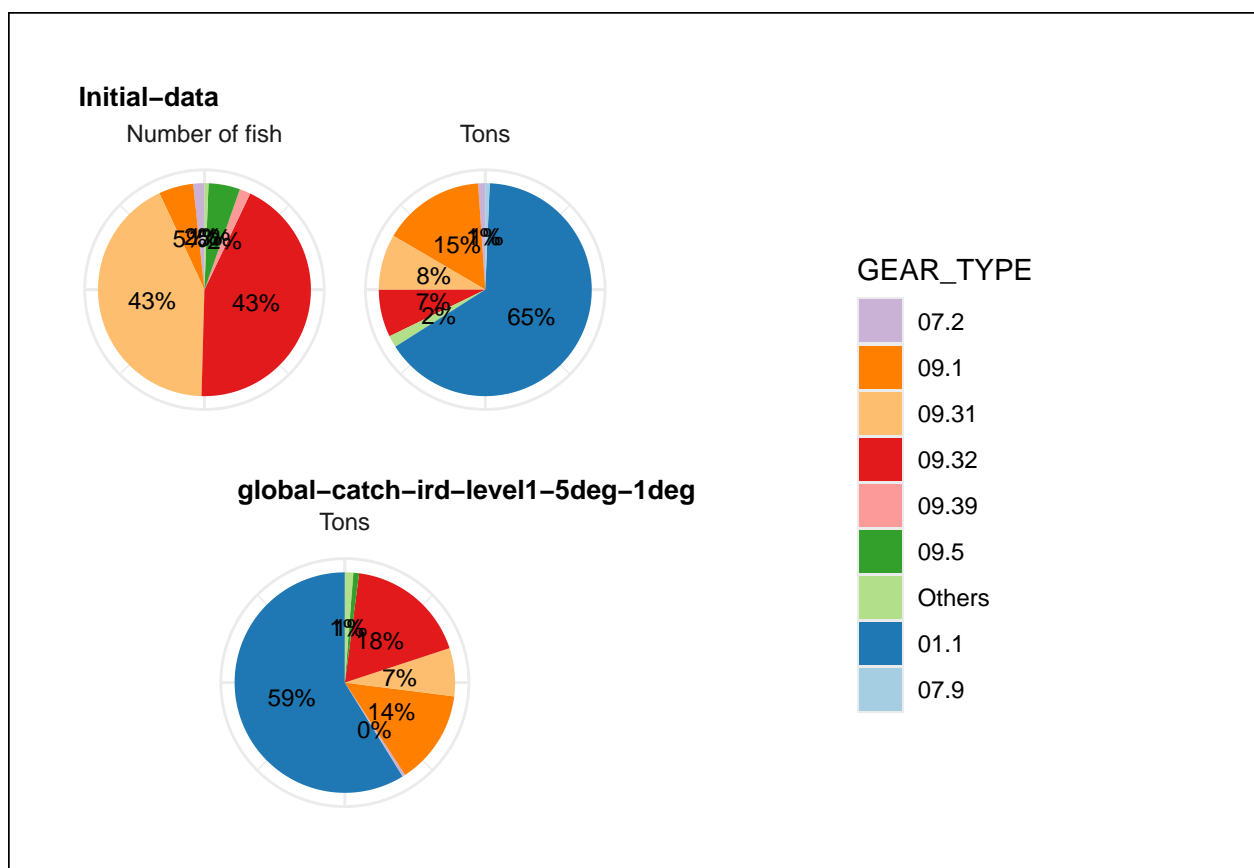


Figure 10: Distribution in value for the dimension: gear.type

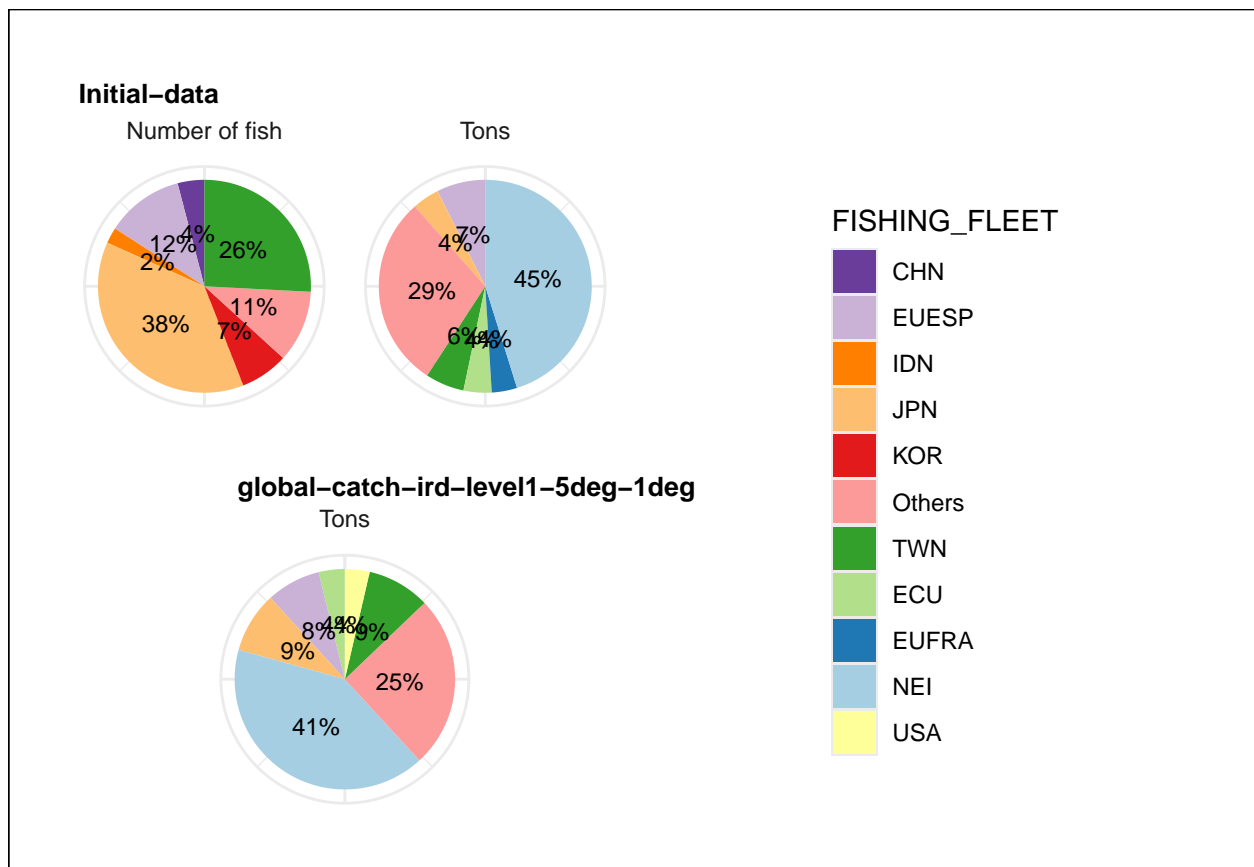


Figure 11: Distribution in value for the dimension: fishing.fleet

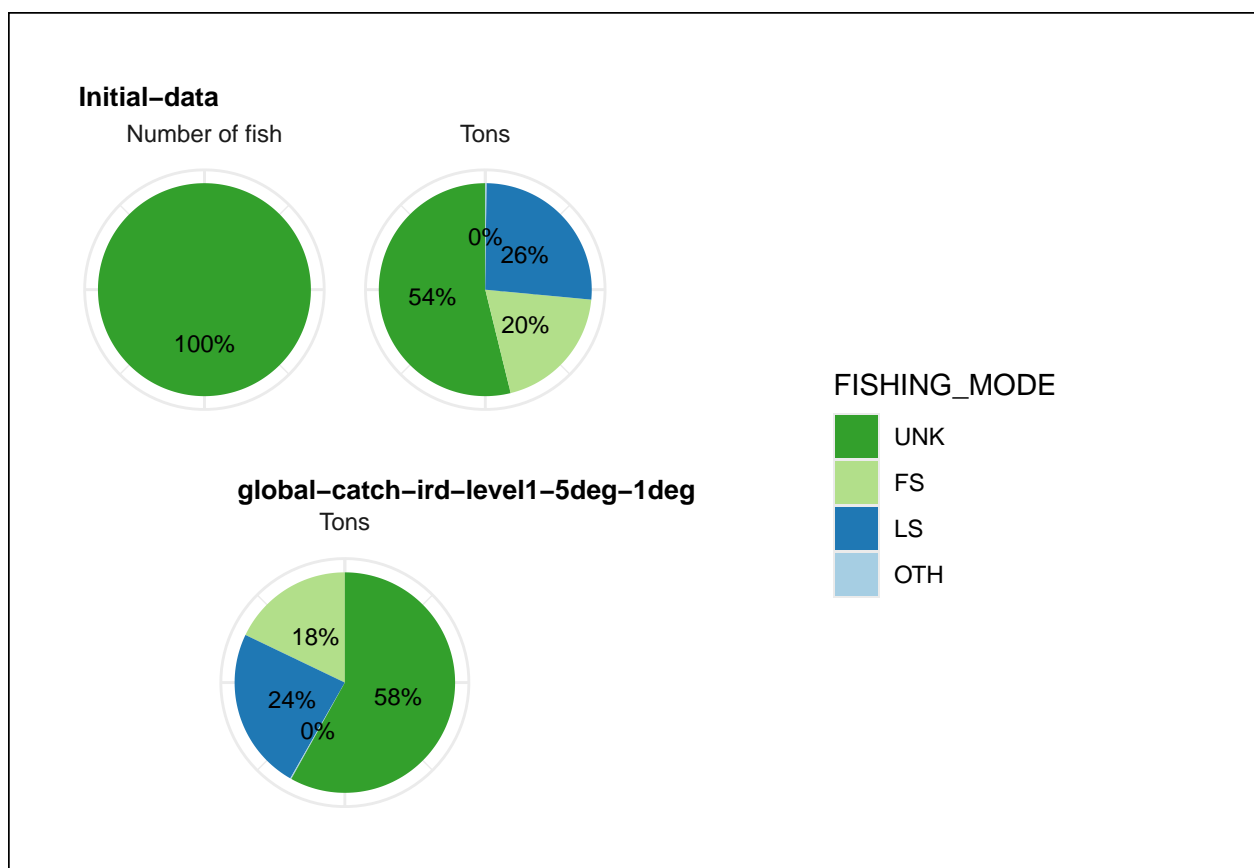


Figure 12: Distribution in value for the dimension: fishing.mode

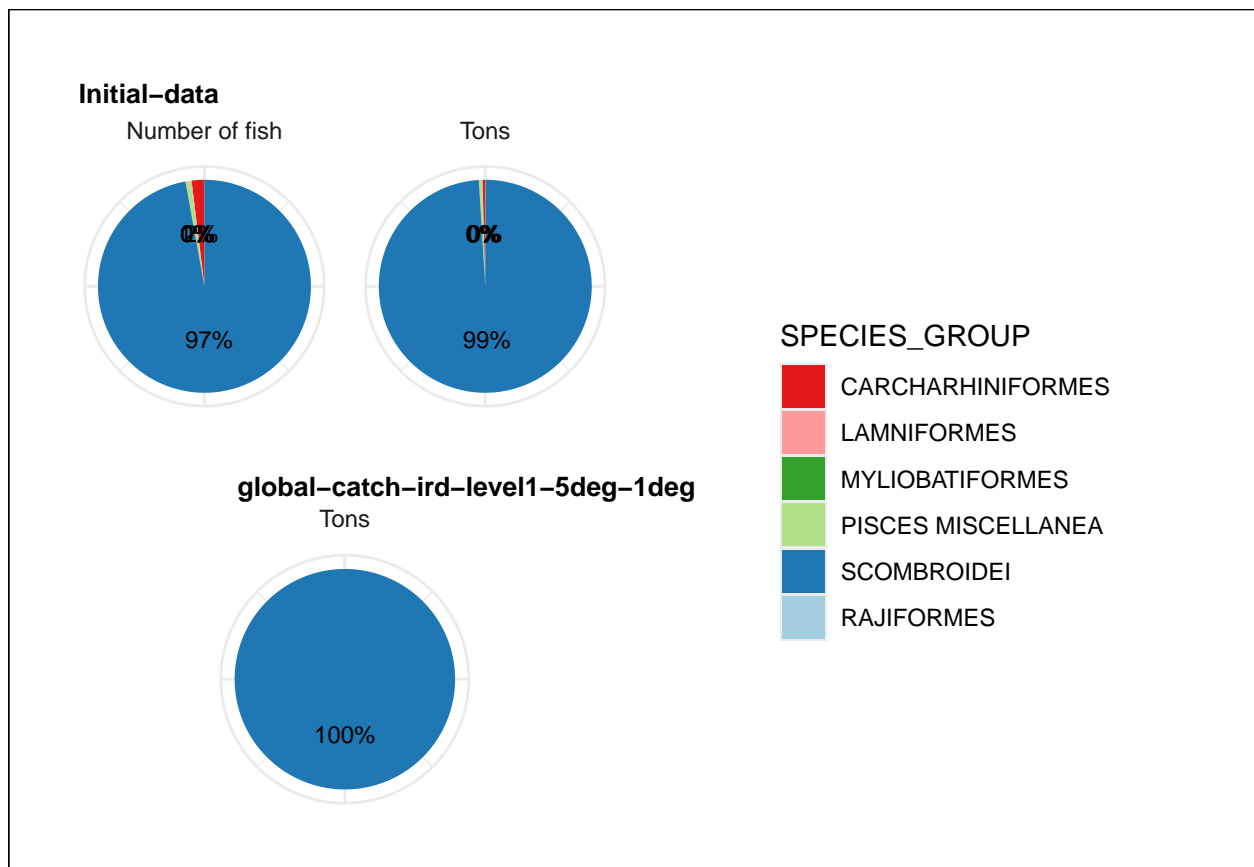


Figure 13: Distribution in value for the dimension: species.group

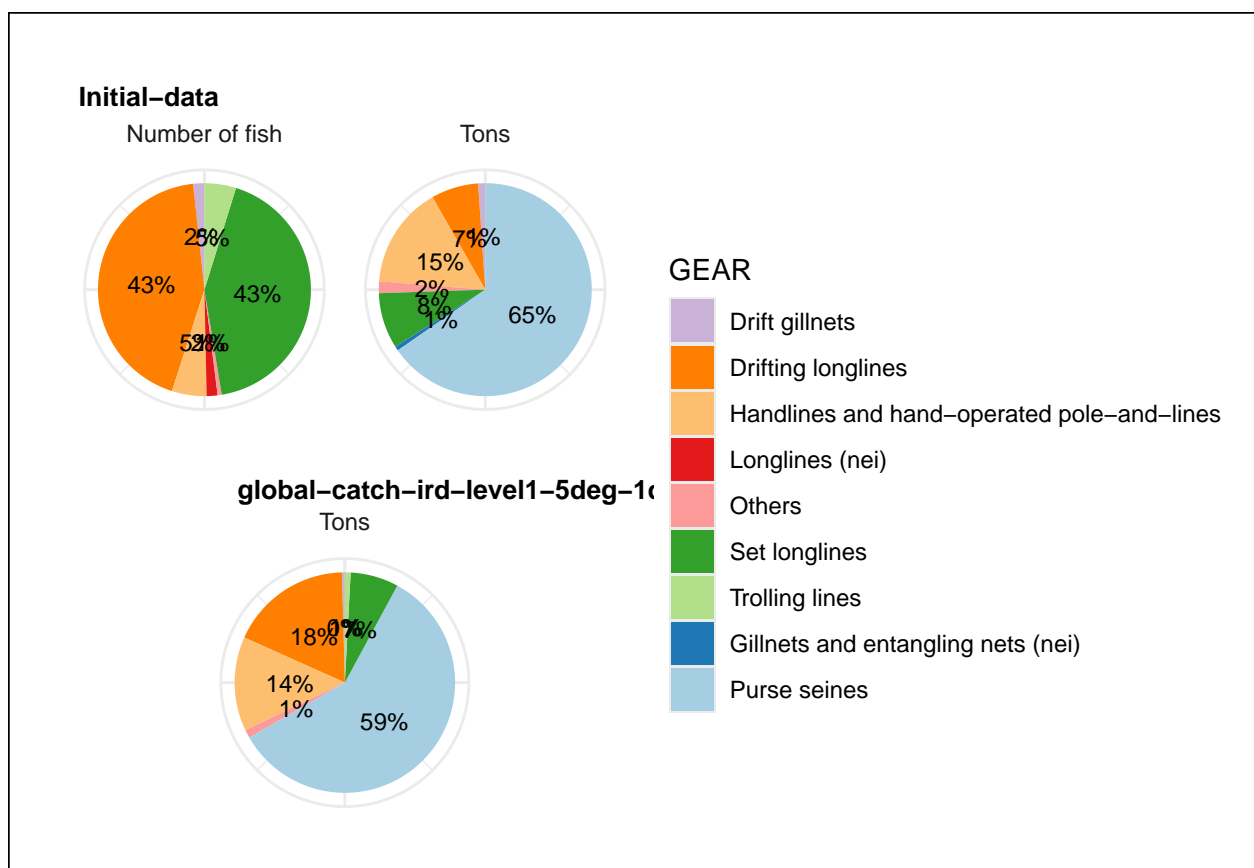


Figure 14: Distribution in value for the dimension: Gear

3 Analyse of the processing of the data

The following table recap all the treatment done on the data provided by tRFMOs.

Table 5: Evolution of captures in tons and number of fish during the process

Step	Millions of tons	Millions of fish	Difference (in % of tons)	Difference (in % of fish)	Percentage of nominal	Step number
Level0Firms-Dataset	143.21	1,130.19	0.00	0.00	59.6	1
Filtering species level 1	137.31	1,047.58	-4.12	-7.31	57.2	2
Removing NOMT and converting MTNO in MT	137.31	1,047.58	0.00	0.00	57.2	3
Harmonising units on IOTC data	147.21	863.39	7.21	-17.58	61.3	4
Harmonising units from IRD conversion factors	157.23	0.00	6.81	-100.00	65.5	5

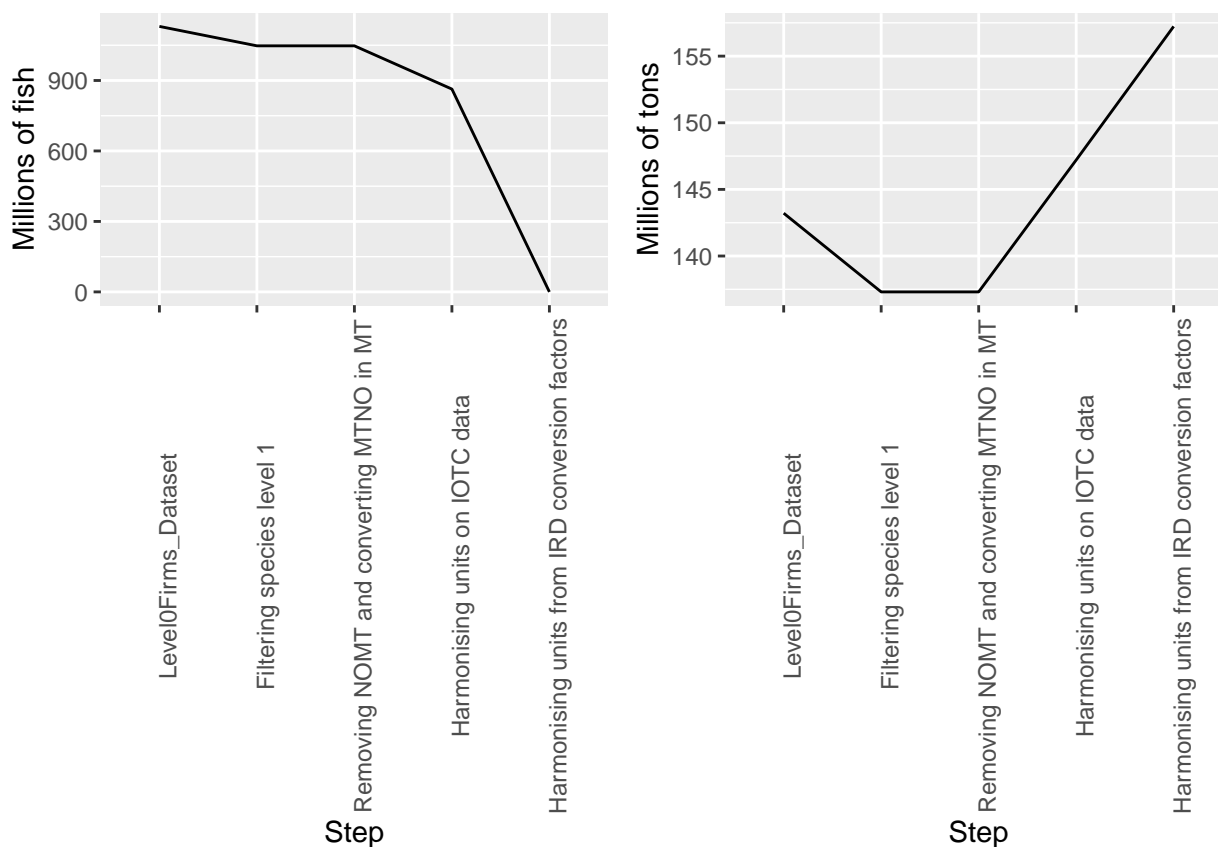


Figure 15: Evolution of captures in tons and number of fish during the process

4 Detail of all the steps of treatment of the data

For each treatment on the data, we provide a summary of what has been added, removed or transformed. This allows to see where major changes occurs for specific data needs.

4.1 Treatment : Filtering species level 1

Attention ! In the following document:

- All the differences inferior to 0 corresponds to gain in captures.
- The initial dataset, referred as, dataset 1 is *Level0Firms_Dataset*
- The final dataset, referred as, dataset 2 is *Filtering species level 1*

Table 6: Summary of the difference between the two datasets

measure- ment__unit	Level0Firms- Dataset	Filtering species level 1	Difference	Difference (in %)
Number of fish	1,130,185,274	1,047,575,418	-82,609,856	-7.31
Tons	143,214,026	137,308,301	-5,905,725	-4.12

The strata differences (completely lost or appearing) between the first one and the second one (representing 30 % of the total number of strata) are :

Table 7: Disappearing or appearing strata between Level0Firms-Dataset and Filtering species level 1

Dimension	measure- ment__unit	Loss / Gain	Precision	Difference in millions
fishing-fleet				
	Number of fish			
		Loss		
			PER	-91.00
			GTM	-468.00
			HND	-915.00
			BOL	-1,173.00
			EUBGR	-5,934.00
			NIC	-12,160.00
			COL	-48,083.00
			PAN	-53,748.00
			ECU	-240,189.00
fishing-fleet				
	Tons			
		Loss		
			FLK	-1.35
			EUDNK	-2.21
			EUDEU	-28.36
			EUBGR	-242.30
			SUR	-1,702.90
species				
	Number of fish			

Table 7: Disappearing or appearing strata between Level0Firms-Dataset and Filtering species level 1

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
		Loss		
			RMB	-2.00
			COM	-32.00
			MSP	-35.00
			SPK	-115.00
			LMA	-260.00
			MAW	-445.00
			BTH	-859.00
			ALV	-1,723.00
			SSM	-2,314.00
			LOT	-6,406.00
			RSK	-8,818.00
			KGM	-8,975.00
			SPZ	-10,815.00
			SPL	-11,268.01
			WAH	-14,800.00
			SPN	-39,683.00
			SPF	-55,911.00
			BLF	-110,972.00
			BXQ	-162,340.31
			BON	-164,905.00
			POR	-211,446.00
			OCS	-221,501.44
			THR	-244,257.00
			SMA	-351,213.00
			LTA	-360,128.60
			SSP	-523,285.59
			SAI	-746,581.00
			TUN	-788,682.85
			SFA	-886,796.11
			MAK	-912,911.81
			FAL	-1,224,573.48
			WHM	-1,544,332.80
			BLM	-3,080,647.94
			FRI	-4,327,843.00
			BIL	-5,482,449.19
			SKH	-8,727,726.53

Table 7: Disappearing or appearing strata between Level0Firms-Dataset and Filtering species level 1

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
			MLS	-14,760,064.43
			BUM	-17,267,361.50
			BSH	-20,347,375.72
species				
	Tons			
		Loss		
			CER	-1.24
			SLT	-1.35
			PTH	-3.25
			RMT	-3.55
			SPK	-18.29
			MSP	-26.59
			SPY	-116.46
			BTH	-157.85
			LMA	-175.60
			SSM	-266.04
			RMB	-649.96
			SPL	-868.64
			TUS	-927.71
			SSP	-1,290.78
			SPF	-1,333.45
			ALV	-1,685.62
			SPZ	-2,015.18
			MAN	-3,283.20
			RMM	-4,534.27
			GUT	-6,413.00
			BOP	-6,499.70
			POR	-6,949.83
			MAK	-7,098.93
			FRZ	-8,248.12
			THR	-11,905.92
			KGM	-12,112.44
			SPN	-14,993.35
			BLF	-15,869.57
			RSK	-16,093.67
			BRS	-19,293.57
			OCS	-20,361.23

Table 7: Disappearing or appearing strata between Level0Firms-Dataset and Filtering species level 1

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
			MAW	-21,321.47
			WHM	-21,347.60
			WAH	-24,953.43
			SRX	-45,626.92
			SAI	-51,800.03
			BIL	-57,073.32
			SMA	-65,632.48
			COM	-66,723.78
			BXQ	-78,063.95
			BKJ	-88,650.99
			BLT	-118,323.81
			FAL	-131,179.66
			BON	-156,235.77
			SFA	-156,513.88
			LTA	-163,459.44
			BLM	-174,423.86
			KGX	-189,779.84
			BZX	-251,061.40
			KAW	-297,372.39
			LOT	-299,009.50
			TUN	-392,923.58
			BSH	-408,584.61
			FRI	-477,890.48
			MLS	-493,722.77
			SKH	-692,616.98
			BUM	-818,234.25
species-group				
	Number of fish			
		Loss		
			MYLIOBATIFORMES	-2.00
			LAMNIFORMES	-1,722,669.81
			PISCES MISCELLANEA	-8,727,726.53
			CARCHARHINI- FORMES	-21,864,149.65
species-group				
	Tons			
		Loss		

Table 7: Disappearing or appearing strata between Level0Firms-Dataset and Filtering species level 1

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
			MYLIOBATIFORMES	-8,470.98
			RAJIFORMES	-45,626.92
			LAMNIFORMES	-93,609.48
			CARCHARHINI- FORMES	-594,231.09
			PISCES MISCELLANEA	-692,616.98

Table 8: Comparison of number of stratas between the two datasets

	Level0Firms-Dataset	Filtering species level 1	Difference
Number of fishing-fleet	115	110	-5
Number of fishing-mode	4	4	0
Number of Gear	27	27	0
Number of gear-type	27	27	0
Number of geographic-identifier	11,775	11,646	-129
Number of GRIDTYPE	2	2	0
Number of measurement-unit	2	2	0
Number of source-authority	5	5	0
Number of species	65	8	-57
Number of species-group	6	1	-5
Number of time-start	856	856	0

4.1.1 Differences in temporal data

Representing the differences in percent for each year.

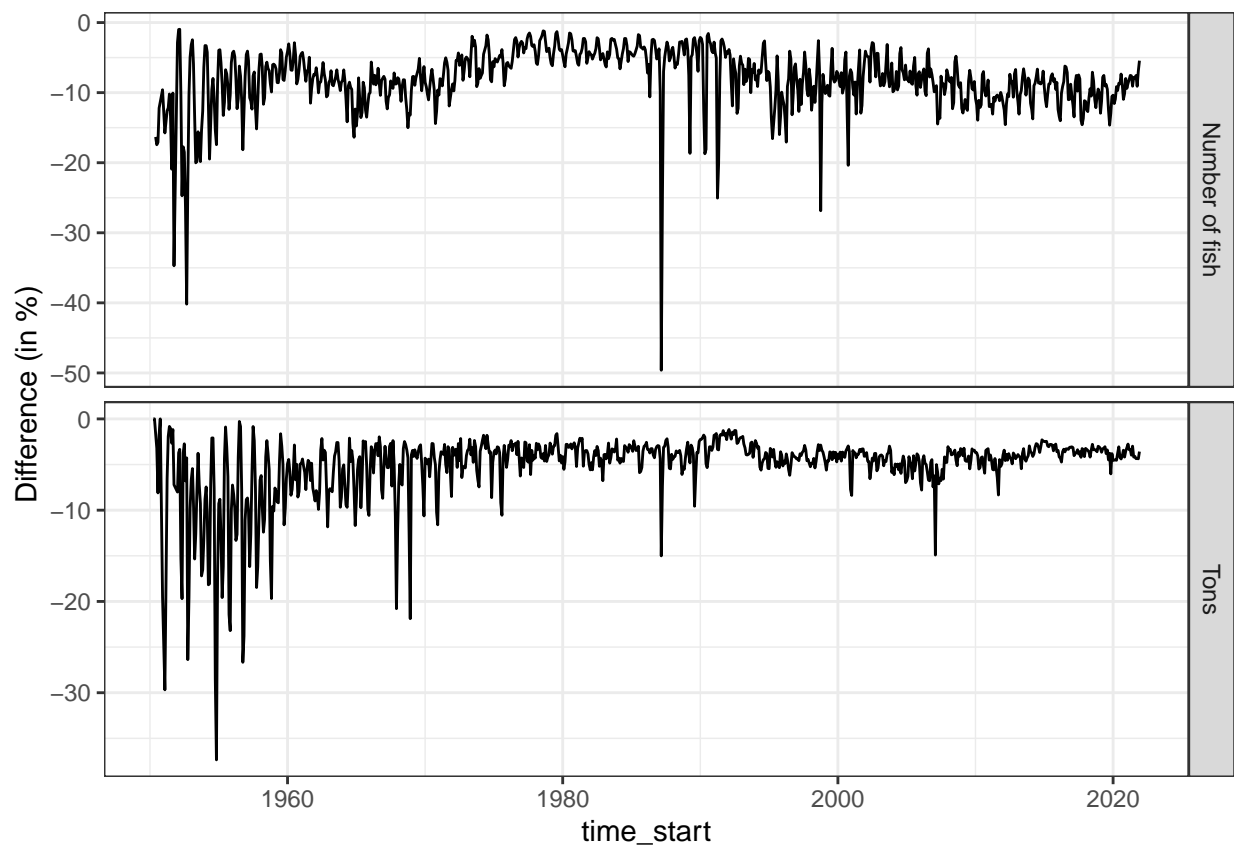
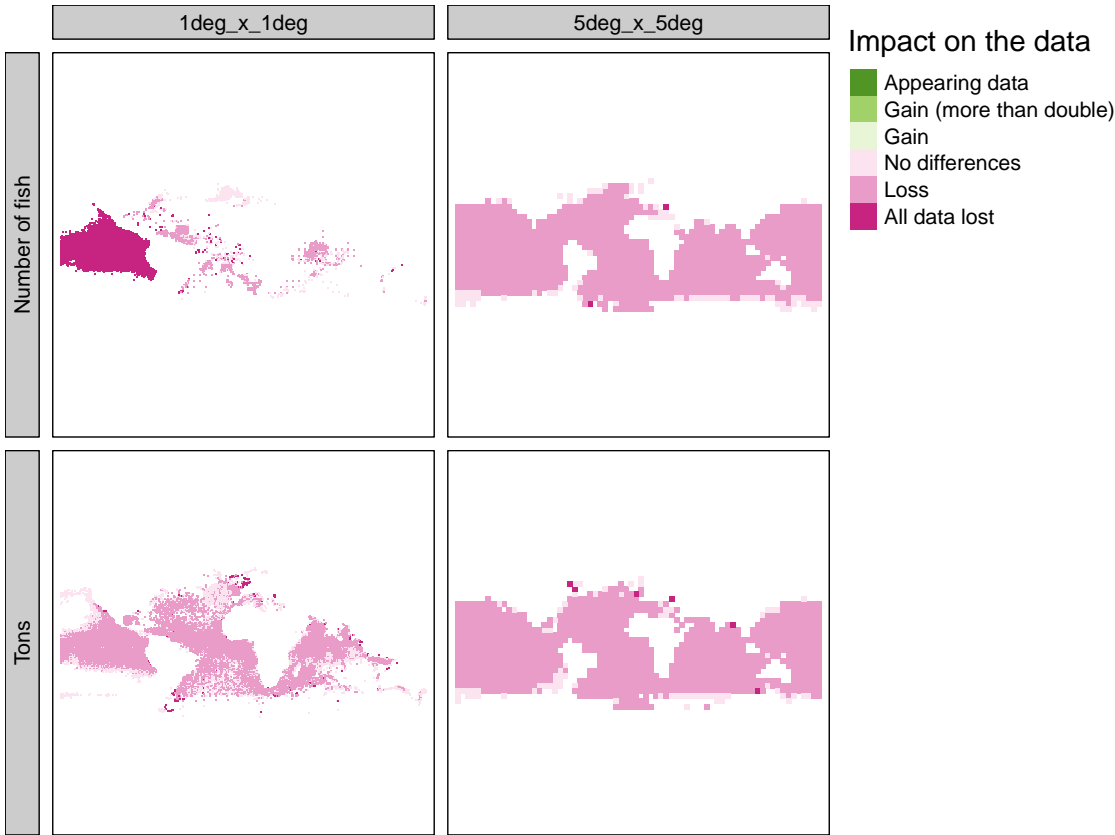


Figure 16: Difference in percent of value for the dimension time-start for Level0Firms-Dataset and Filtering species level 1 dataset

4.1.2 Differences in geographical data

Here is represented for each area the polygons keeping all the initial information, the ones losing a part, and the ones losing all the information.



4.1.3 The differences for each other dimension

This section details the differences that are observed between the dataframe *Level0Firms_Dataset* and *Filtering species level 1*.

We will look for each dimension the 6 most important differences without presenting the stratas completely appearing or disappearing.

Table 9: Difference between stratas of the two datasets

Dimension	measurement_unit	Loss / Gain	Precision	Values dataset 1	Values dataset 2	Difference (in %)	Difference in value
fishing-fleet							
	Number of fish						
		Loss					
			MEX	545,206	48,002	-91.20	-497,204
			VEN	89,504	34,335	-61.64	-55,169
			BLZ	1,106,558	522,147	-52.81	-584,411
			EUPRT	24,646	12,276	-50.19	-12,370
			BRA	1,623,171	896,644	-44.76	-726,527
			CIV	1,432,464	904,962	-36.82	-527,502
			Others	1,124,020,922	1,044,177,010	-7.10	-79,843,912
fishing-fleet							
	Tons						
		Loss					
			MYS	330,460	17,904	-94.58	-312,556
			RUS	23,763	2,048	-91.38	-21,714
			THA	423,242	42,051	-90.06	-381,191
			OMN	173,081	24,047	-86.11	-149,034
			PAK	84,496	21,098	-75.03	-63,399
			UKVGB	9	3	-69.42	-6
			Others	142,083,362	137,107,515	-3.50	-4,975,846
fishing-mode							
	Number of fish						
		Loss					
			UNK	1,130,185,274	1,047,575,418	-7.31	-82,609,856
fishing-mode							
	Tons						
		Loss					
			UNK	77,101,316	71,394,039	-7.40	-5,707,277

Table 9: Difference between stratas of the two datasets

Dimension	measurement_unit	Loss / Gain	Precision	Values dataset 1	Values dataset 2	Difference (in %)	Difference in value
			LS	37,682,271	37,528,784	-0.41	-153,487
			FS	28,171,526	28,126,565	-0.16	-44,961
Gear							
	Number of fish						
		Loss					
			Stationary uncovered pound nets	4,524,276	186,893	-95.87	-4,337,383
			Purse seines	1,531,698	839,989	-45.16	-691,709
			Hooks and lines (nei)	424,064	265,744	-37.33	-158,320
			Gear not known	30,788	26,107	-15.20	-4,681
			Drift gillnets	19,224,111	16,350,093	-14.95	-2,874,018
			Vertical lines	183,492	164,076	-10.58	-19,417
			Others	1,085,316,817	1,010,792,489	-6.87	-74,524,328
Gear							
	Tons						
		Loss					
			Trawls (nei)	78,832	1	-100.00	-78,831
			Fixed (on stakes) gillnets	265	3	-98.70	-262
			Barriers, fences, weirs, etc,	249	7	-97.26	-242
			Beach seines	36,509	2,723	-92.54	-33,786
			Lift nets (nei)	1,406	149	-89.42	-1,257
			Gear not known	39,274	8,291	-78.89	-30,983
			Others	143,057,491	137,297,127	-4.03	-5,760,364
gear-type							
	Number of fish						
		Loss					
			08.1	4,524,276	186,893	-95.87	-4,337,383
			01.1	1,531,698	839,989	-45.16	-691,709
			09.9	424,064	265,744	-37.33	-158,320
			99.9	30,788	26,107	-15.20	-4,681
			07.2	19,224,111	16,350,093	-14.95	-2,874,018

Table 9: Difference between stratas of the two datasets

Dimension	measurement_unit	Loss / Gain	Precision	Values dataset 1	Values dataset 2	Difference (in %)	Difference in value
			09.4	183,492	164,076	-10.58	-19,417
			Others	1,085,316,817	1,010,792,489	-6.87	-74,524,328
gear-type							
	Tons						
		Loss					
			03.9	78,832	1	-100.00	-78,831
			07.4	265	3	-98.70	-262
			08.5	249	7	-97.26	-242
			02.1	36,509	2,723	-92.54	-33,786
			05.9	1,406	149	-89.42	-1,257
			99.9	39,274	8,291	-78.89	-30,983
			Others	143,057,491	137,297,127	-4.03	-5,760,364
source-authority							
	Number of fish						
		Loss					
			IATTC	150,553,185	134,023,655	-10.98	-16,529,530
			IOTC	213,872,632	195,320,940	-8.67	-18,551,692
			WCPFC	488,395,425	453,265,009	-7.19	-35,130,416
			ICCAT	258,596,797	246,198,579	-4.79	-12,398,218
source-authority							
	Tons						
		Loss					
			IOTC	24,254,117	21,313,111	-12.13	-2,941,006
			ICCAT	19,884,899	18,537,588	-6.78	-1,347,310
			IATTC	25,242,674	24,657,638	-2.32	-585,037
			WCPFC	73,640,093	72,607,721	-1.40	-1,032,372
species-group							
	Number of fish						
		Loss					
			SCOMBROIDEI	1,097,870,726	1,047,575,418	-4.58	-50,295,308
species-group							
	Tons						
		Loss					

Table 9: Difference between stratas of the two datasets

Dimension	measurement_unit	Loss / Gain	Precision	Values dataset 1	Values dataset 2	Difference (in %)	Difference in value
			SCOMBROIDEI	141,779,470	137,308,301	-3.15	-4,471,169

4.2 Treatment : Harmonising units on IOTC data

Attention ! In the following document:

- *All the differences inferior to 0 corresponds to gain in captures.*
- *The initial dataset, referred as, dataset 1 is Removing NOMT and converting MTNO in MT*
- *The final dataset, referred as, dataset 2 is Harmonising units on IOTC data*

Table 10: Summary of the difference between the two datasets

measure- ment_unit	Removing NOMT and converting MTNO in MT	Harmonising units on IOTC data	Differ- ence	Difference (in %)
Number of fish	1,047,575,418	863,390,288	-184,185,130	-17.58
Tons	137,308,301	147,205,408	9,897,106	7.21

No stratum is gained nor lost

Table 11: Comparison of number of stratas between the two datasets

	Removing NOMT and converting MTNO in MT	Harmonising units on IOTC data	Differ- ence
Number of fishing-fleet	110	110	0
Number of fishing-mode	4	4	0
Number of Gear	27	27	0
Number of gear-type	27	27	0
Number of geographic-identifier	11,646	11,646	0
Number of GRIDTYPE	2	2	0
Number of measurement-unit	2	2	0
Number of source-authority	5	5	0
Number of species	8	8	0
Number of species-group	1	1	0
Number of time-start	856	856	0

4.2.1 Differences in temporal data

Representing the differences in percent for each year.

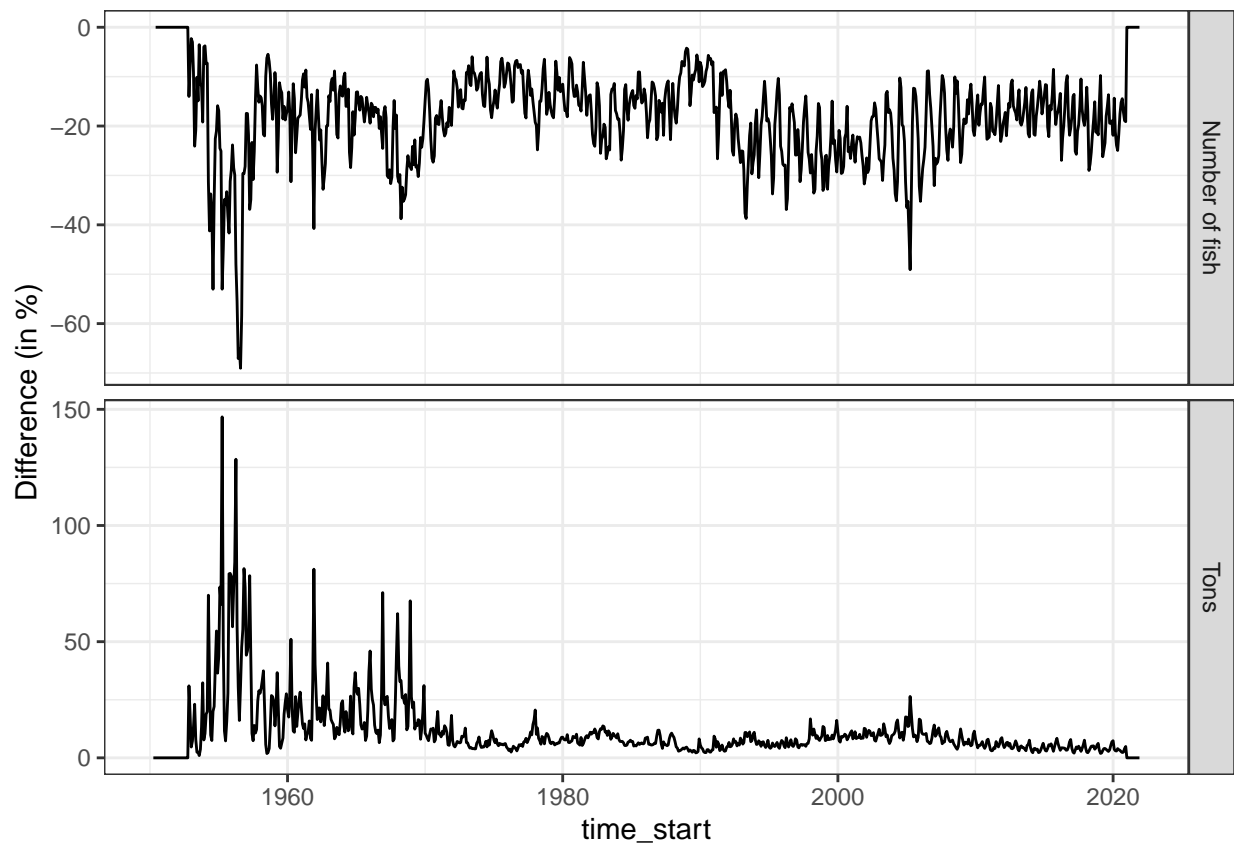
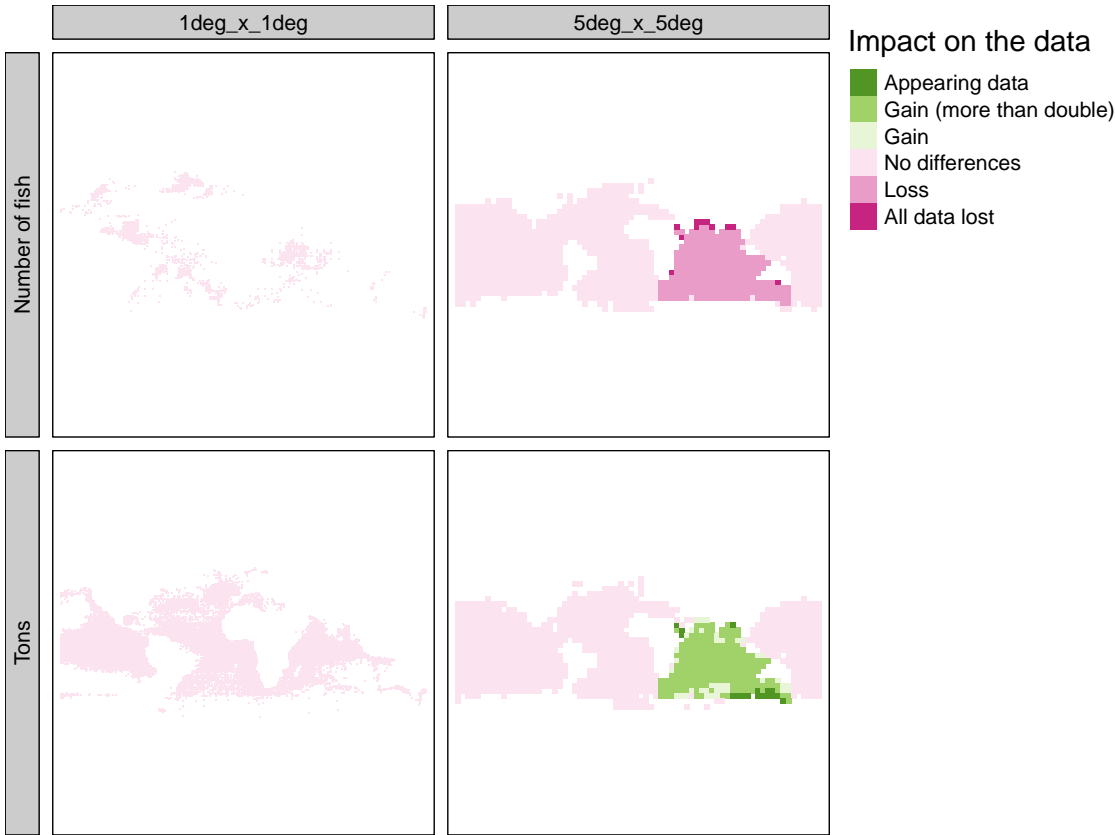


Figure 17: Difference in percent of value for the dimension time-start for Removing NOMT and converting MTNO in MT and Harmonising units on IOTC data dataset

4.2.2 Differences in geographical data

Here is represented for each area the polygons keeping all the initial information, the ones losing a part, and the ones losing all the information.



4.2.3 The differences for each other dimension

This section details the differences that are observed between the dataframe *Removing NOMT and converting MTNO in MT* and *Harmonising units on IOTC data*.

We will look for each dimension the 6 most important differences without presenting the stratas completely appearing or disappearing.

Table 12: Difference between stratas of the two datasets

Dimension	measure- ment_unit	Loss / Gain	Precision	Values dataset 1	Values dataset 2	Difference (in %)	Difference in value
fishing-fleet							
	Number of fish						
		Loss					
			SYC	3,114,055	518,962	-83.33	-2,595,093
			MUS	14,566	2,916	-79.98	-11,650
			MDG	25,779	6,741	-73.85	-19,038
			TWN	272,036,673	169,754,142	-37.60	-102,282,531
			PHL	1,174,232	956,725	-18.52	-217,507
			JPN	385,907,739	322,221,834	-16.50	-63,685,905
			Others	267,165,052	251,791,647	-5.75	-15,373,406
fishing-fleet							
	Tons						
		Gain					
			MDG	1,503	2,770	84.29	1,267
			TWN	7,586,333	13,133,128	73.12	5,546,795
			JPN	5,292,935	8,373,383	58.20	3,080,448
			KOR	2,175,194	2,681,947	23.30	506,753
			PHL	86,717	104,190	20.15	17,473
			CHN	1,274,270	1,524,344	19.62	250,074
			Others	18,470,474	18,964,771	2.68	494,297
fishing- mode							
	Number of fish						
		Loss					
			UNK	1,047,575,418	863,390,288	-17.58	-184,185,130
fishing- mode							
	Tons						
		Gain					
			UNK	71,394,039	81,291,145	13.86	9,897,106
Gear							

Table 12: Difference between stratas of the two datasets

Dimension	measurement_unit	Loss / Gain	Precision	Values dataset 1	Values dataset 2	Difference (in %)	Difference in value
	Number of fish						
		Loss					
			Drifting longlines	450,797,592	266,612,701	-40.86	-184,184,891
			Drift gillnets	16,350,093	16,349,854	0.00	-239
Gear							
	Tons						
		Gain					
			Drifting longlines	9,034,074	18,931,175	109.55	9,897,100
			Drift gillnets	663,780	663,786	0.00	6
gear-type							
	Number of fish						
		Loss					
			09.32	450,797,592	266,612,701	-40.86	-184,184,891
			07.2	16,350,093	16,349,854	0.00	-239
gear-type							
	Tons						
		Gain					
			09.32	9,034,074	18,931,175	109.55	9,897,100
			07.2	663,780	663,786	0.00	6
source-authority							
	Number of fish						
		Loss					
			IOTC	195,320,940	11,135,810	-94.30	-184,185,130
source-authority							
	Tons						
		Gain					
			IOTC	21,313,111	31,210,217	46.44	9,897,106
species							
	Number of fish						
		Loss					
			SKJ	2,631,455	1,980,505	-24.74	-650,950

Table 12: Difference between stratas of the two datasets

Dimension	measurement_unit	Loss / Gain	Precision	Values dataset 1	Values dataset 2	Difference (in %)	Difference in value
			YFT	255,851,812	197,474,720	-22.82	-58,377,092
			BET	227,563,874	177,143,285	-22.16	-50,420,588
			SWO	46,757,600	38,357,344	-17.97	-8,400,256
			ALB	492,478,845	426,142,602	-13.47	-66,336,243
species							
	Tons						
		Gain					
			SWO	2,369,523	3,241,407	36.80	871,883
			BET	12,325,732	16,217,722	31.58	3,891,990
			ALB	6,883,507	8,489,243	23.33	1,605,736
			YFT	42,181,805	45,697,712	8.34	3,515,907
			SKJ	72,657,190	72,668,780	0.02	11,590
species-group							
	Number of fish						
		Loss					
			SCOM-BROIDEI	1,047,575,418	863,390,288	-17.58	-184,185,130
species-group							
	Tons						
		Gain					
			SCOM-BROIDEI	137,308,301	147,205,408	7.21	9,897,106

4.3 Treatment : Harmonising units from IRD conversion factors

Attention ! In the following document:

- All the differences inferior to 0 corresponds to gain in captures.
- The initial dataset, referred as, dataset 1 is Harmonising units on IOTC data
- The final dataset, referred as, dataset 2 is Harmonising units from IRD conversion factors

Table 13: Summary of the difference between the two datasets

measure- ment__unit	Harmonising units on IOTC data	Harmonising units from IRD conversion factors	Differ- ence	Difference (in %)
Number of fish	863,390,288	0	-863,390,288	-100.00
Tons	147,205,408	157,229,950	10,024,542	6.81

The strata differences (completely lost or appearing) between the first one and the second one (representing 34 % of the total number of strata) are :

Table 14: Disappearing or appearing strata between Harmonising units on IOTC data and Harmonising units from IRD conversion factors

Dimension	measure- ment__unit	Loss / Gain	Precision	Difference in millions
Gear				
	Number of fish			
		Loss		
			Gear not known	-26,107.4
			Midwater pair trawls	-77,447.0
			Vertical lines	-164,075.5
			Gear nei	-182,792.0
			Stationary uncovered pound nets	-186,893.0
			Hooks and lines (nei)	-265,744.0
			Purse seines	-839,989.0
			Drift gillnets	-16,349,854.0
			Longlines (nei)	-18,767,235.3
			Trolling lines	-54,152,295.2
			Handlines and hand-operated pole-and-lines	-59,381,801.0
			Drifting longlines	-266,612,700.7
			Set longlines	-446,383,354.0
fishing-fleet				
	Number of fish			
		Loss		
			ALB	-8.0
			TZA	-205.0

Table 14: Disappearing or appearing strata between Harmonising units on IOTC data and Harmonising units from IRD conversion factors

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
			UKBMU	-285.0
			NOR	-2,297.0
			CAN	-2,417.0
			MUS	-2,916.0
			MDG	-6,741.0
			EUCYP	-8,802.0
			THA	-9,372.0
			EUGRC	-9,437.0
			NIU	-10,411.0
			EUPRT	-12,276.0
			EUMLT	-13,067.0
			ZAF	-14,839.0
			LBY	-21,663.0
			VEN	-34,335.0
			MEX	-48,002.0
			EUITA	-48,003.0
			MAR	-71,689.0
			TUV	-120,628.0
			TUN	-120,805.0
			PLW	-215,410.0
			EUIRL	-301,175.0
			MHL	-327,913.0
			URY	-378,907.0
			TON	-393,919.0
			SYC	-518,962.2
			BLZ	-522,147.0
			KIR	-621,740.0
			BRA	-896,644.0
			CIV	-904,962.0
			PHL	-956,725.0
			CUB	-1,373,496.0
			PNG	-1,939,390.0
			COK	-2,130,432.0
			FSM	-2,339,472.0
			NZL	-2,794,651.3
			AUS	-3,581,126.0
			WSM	-4,208,998.0

Table 14: Disappearing or appearing strata between Harmonising units on IOTC data and Harmonising units from IRD conversion factors

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
			SLB	-6,003,975.0
			NEI	-6,924,966.0
			EUFRA	-11,868,921.6
			VNM	-11,993,404.0
			USA	-14,881,406.0
			VUT	-15,371,602.0
			FJI	-17,040,817.0
			IDN	-26,023,354.0
			CHN	-40,304,938.0
			KOR	-68,682,351.0
			EUESP	-127,354,310.0
			TWN	-169,754,142.0
			JPN	-322,221,834.0
fishing-mode				
	Number of fish			
		Loss		
			UNK	-863,390,288.1
gear-type				
	Number of fish			
		Loss		
			99.9	-26,107.4
			03.22	-77,447.0
			09.4	-164,075.5
			10.9	-182,792.0
			08.1	-186,893.0
			09.9	-265,744.0
			01.1	-839,989.0
			07.2	-16,349,854.0
			09.39	-18,767,235.3
			09.5	-54,152,295.2
			09.1	-59,381,801.0
			09.32	-266,612,700.7
			09.31	-446,383,354.0
source- authority				
	Number of fish			
		Loss		

Table 14: Disappearing or appearing strata between Harmonising units on IOTC data and Harmonising units from IRD conversion factors

Dimension	measure- ment_unit	Loss / Gain	Precision	Difference in millions
			IOTC	-11,135,810.2
			CCSBT	-18,767,235.3
			IATTC	-134,023,655.0
			ICCAT	-246,198,578.6
			WCPFC	-453,265,009.0
species				
	Number of fish			
		Loss		
			PBF	-10,069.0
			SKJ	-1,980,505.0
			BFT	-3,514,528.0
			SBF	-18,767,235.3
			SWO	-38,357,343.5
			BET	-177,143,285.4
			YFT	-197,474,719.7
			ALB	-426,142,602.1
species-group				
	Number of fish			
		Loss		
			SCOMBROIDEI	-863,390,288.1

Table 15: Comparison of number of stratas between the two datasets

	Harmonising units on IOTC data	Harmonising units from IRD conversion factors	Differ- ence
Number of fishing-fleet	110	110	0
Number of fishing-mode	4	4	0
Number of Gear	27	26	-1
Number of gear-type	27	26	-1
Number of geographic-identifier	11,646	11,612	-34
Number of GRIDTYPE	2	2	0
Number of measurement-unit	2	1	-1
Number of source-authority	5	5	0
Number of species	8	8	0
Number of species-group	1	1	0

Table 15: Comparison of number of stratas between the two datasets

	Harmonising units on IOTC data	Harmonising units from IRD conversion factors	Difference
Number of time-start	856	856	0

4.3.1 Differences in temporal data

Representing the differences in percent for each year.

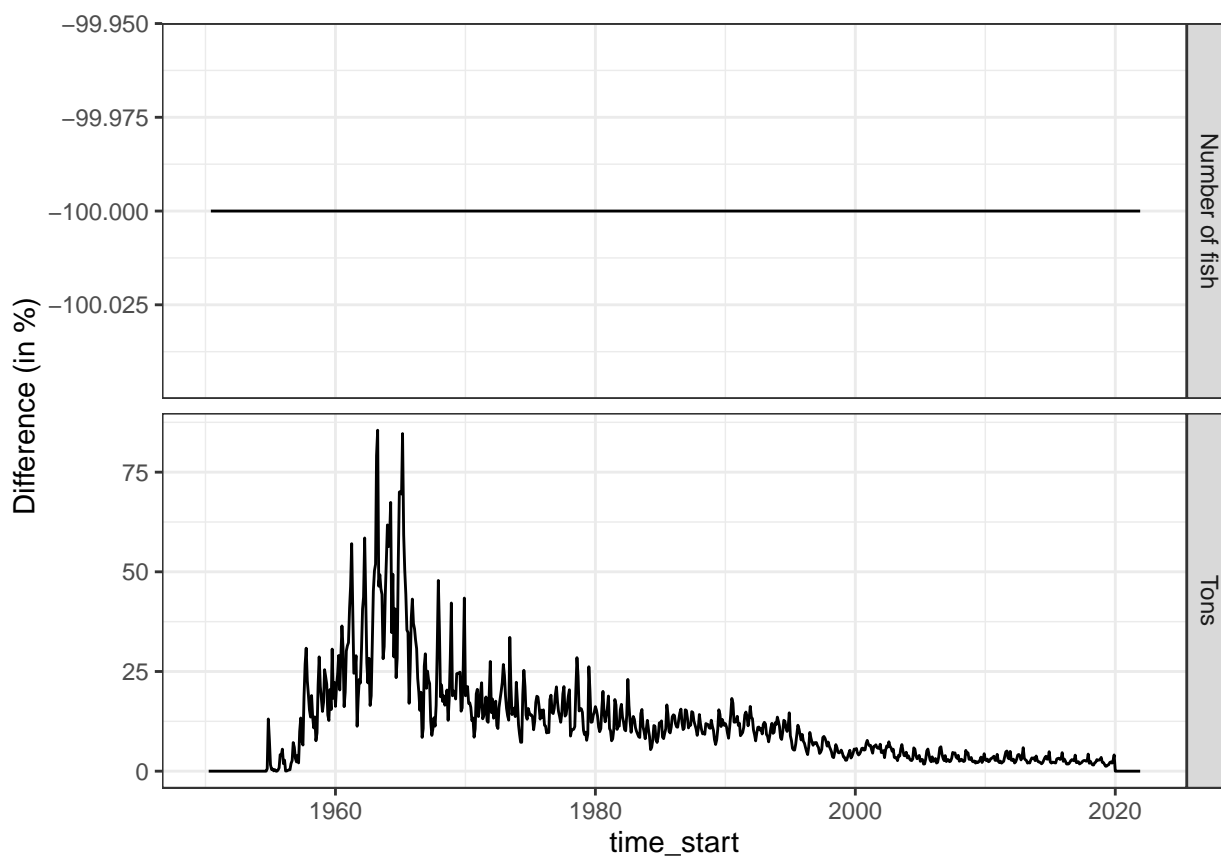
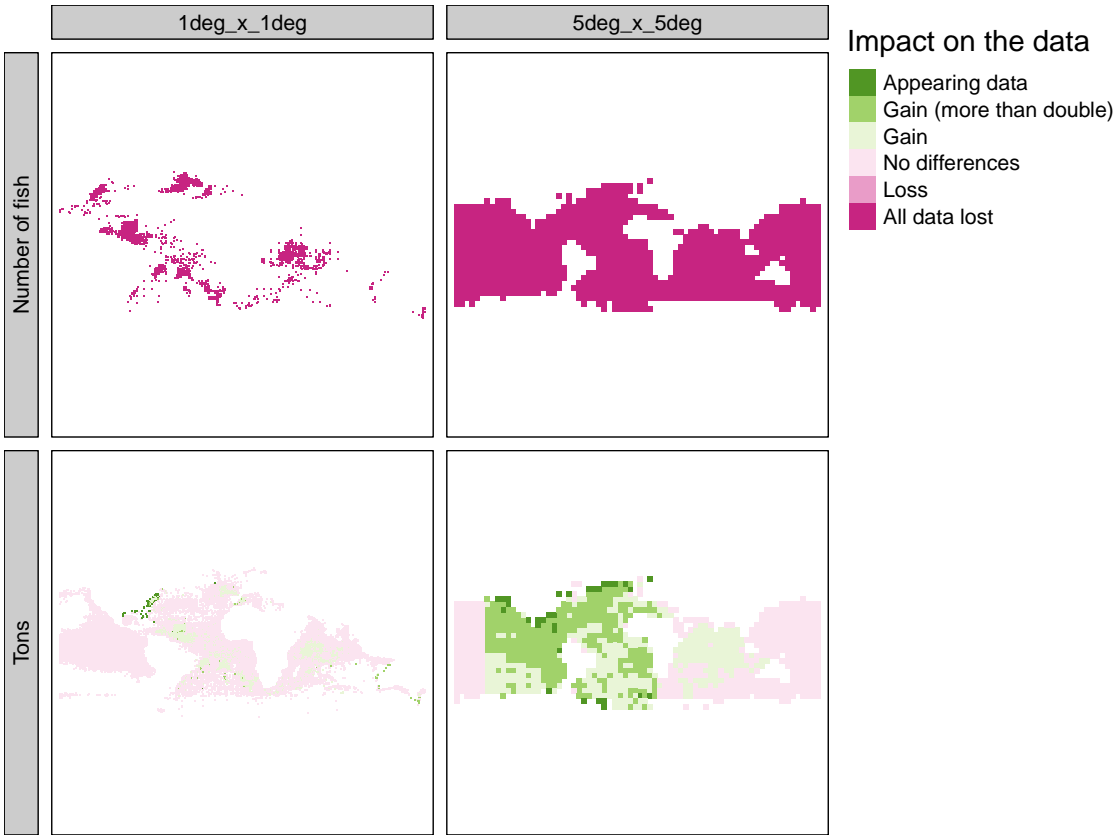


Figure 18: Difference in percent of value for the dimension time-start for Harmonising units on IOTC data and Harmonising units from IRD conversion factors dataset

4.3.2 Differences in geographical data

Here is represented for each area the polygons keeping all the initial information, the ones losing a part, and the ones losing all the information.



4.3.3 The differences for each other dimension

This section details the differences that are observed between the dataframe *Harmonising units on IOTC data* and *Harmonising units from IRD conversion factors*.

We will look for each dimension the 6 most important differences without presenting the stratas completely appearing or disappearing.

Table 16: Difference between stratas of the two datasets

Dimension	measurement_unit	Loss / Gain	Precision	Values dataset 1	Values dataset 2	Difference (in %)	Difference in value
fishing-fleet							
	Tons						
		Gain					
			CUB	7,359	68,490	830.67	61,131
			URY	20,725	45,568	119.87	24,843
			JPN	8,373,383	14,032,860	67.59	5,659,477
			TUN	29,584	39,951	35.04	10,367
			EUMLT	8,257	9,950	20.49	1,692
			UKBMU	91	109	19.69	18
			Others	116,077,089	120,344,104	3.68	4,267,014
fishing-mode							
	Tons						
		Gain					
			UNK	81,291,145	91,315,687	12.33	10,024,542
Gear							
	Tons						
		Gain					
			Trolling lines	499,674	1,328,304	165.83	828,630
			Drifting longlines	18,931,175	28,104,890	48.46	9,173,715
			Hooks and lines (nei)	36,671	50,850	38.67	14,180
			Vertical lines	65,146	70,659	8.46	5,513
			Set longlines	11,086,150	11,088,655	0.02	2,505
gear-type							
	Tons						
		Gain					
			09.5	499,674	1,328,304	165.83	828,630
			09.32	18,931,175	28,104,890	48.46	9,173,715
			09.9	36,671	50,850	38.67	14,180
			09.4	65,146	70,659	8.46	5,513
			09.31	11,086,150	11,088,655	0.02	2,505

Table 16: Difference between stratas of the two datasets

Dimension	measurement_unit	Loss / Gain	Precision	Values dataset 1	Values dataset 2	Difference (in %)	Difference in value
source-authority							
	Tons						
		Gain					
			ICCAT	18,537,588	23,983,176	29.38	5,445,588
			IATTC	24,657,638	29,224,945	18.52	4,567,307
			IOTC	31,210,217	31,221,864	0.04	11,647
species							
	Tons						
		Gain					
			SWO	3,241,407	4,924,908	51.94	1,683,501
			BFT	426,799	636,423	49.12	209,624
			ALB	8,489,243	10,815,886	27.41	2,326,643
			BET	16,217,722	20,315,009	25.26	4,097,287
			YFT	45,697,712	47,398,401	3.72	1,700,688
			SKJ	72,668,780	72,675,578	0.01	6,799
species-group							
	Tons						
		Gain					
			SCOM-BROIDEI	147,205,408	157,229,950	6.81	10,024,542

5 Annexe

Table 17: Review of all the impact and purpose of every the treatment done flexible

Treatment	Explanation	Functions
Level0Firms-Dataset	NA	NA
Filtering species level 1	NA	NA
Removing NOMT and converting MTNO in MT	NA	NA
Harmonising units on IOTC data	As a new conversion factor dataset has been provided by IOTC we use the following dataset data/IOTC-conv-fact-mapped.csv which can be found in the associated metadata	NA

Table 17: Review of all the impact and purpose of every the treatment done flextable

Treatment	Explanation	Functions
Harmonis- ing units from IRD conversion factors	NA	unit- conversion- csv- conversion- factor-url