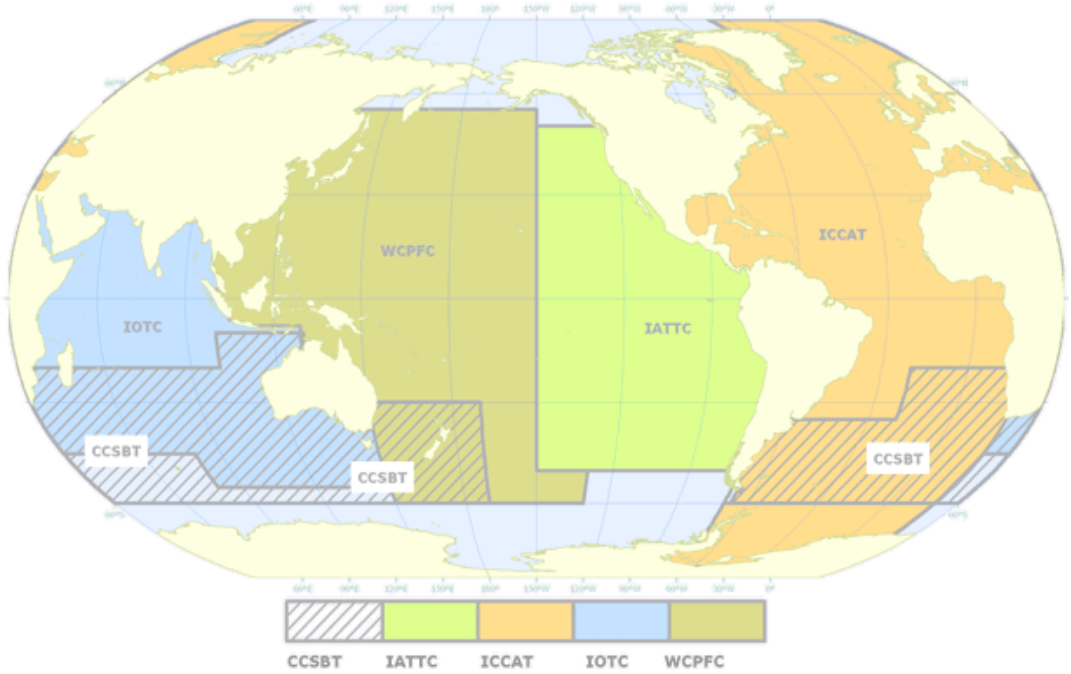

CLAV. The Consolidated List of Authorized Vessel

Monthly Report of the CLAV: October 2017

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Abstract

The main purpose of the CLAV is to make the information, pertaining authorized vessels, available to help fighting and deterring IUU activities.

Efforts by the Secretariats of the five t-RFMOs to consolidate a list of all vessels authorized to fish tuna and tuna-like species go back a while now. A coordinated effort by all five t-RFMOS was expressed already at the 2007 Kobe meeting.

A first consolidated list was created in 2009, a second list in 2010. Since 2011, updates of the CLAV were performed regularly (monthly or bimonthly).

Two workshops, February 2011 and June 2012, on exchange of information and maintenance of the CLAV were convened at FAO HQ. That far the results were just mere snapshots requiring notable (manual) efforts.

Since mid-2014, with the support of the Common Oceans Tuna Project, FAO has been providing the expertise and technical assistance to maintaining the CLAV updated at close-to-real time. This is done by daily communications between each t-RFMO and the CLAV.

The public release of a fully operational CLAV was done on 17th December, 2014. Regular reports of the CLAV status have been produced and disseminated to interested parties since March 2015.

Contents.

1. Introduction.

The Consolidated List of Authorized Vessels (CLAV) aims at integrating the records reported by each t-RFMO into a single list where each authorized vessel is represented uniquely, no matter if it is reported by only one or by all five t-RFMOs. Thus, the terms records and vessels, used distinctly throughout this report represent different figures indeed.

The CLAV work completed with the support of the Common Oceans Tuna Project at FAO is a continuation of efforts initiated previously by the t-RFMOs. The objective of the work was aimed at automating and maintaining regular close-to-real time updates of the consolidated list of all vessels authorized to fish for tunas and tuna-like species by t-RFMO member states.

The results presented here are a consequence of the joint efforts and close collaboration between the t-RFMO´s compliance officials, their database managers, and the CLAV Specialist supported by the Common Oceans Tuna Project at FAO.

The Common Oceans Tuna Project´s support, aimed at maintaining the CLAV operational and updated at close-to-real time, was recently extended for an additional six-month period (October 2017 to March 2018).

The current maintenance work aims at cleaning up (e.g., *editing*, *deleting*) the CLAV database from accumulated erroneous and spurious entries from the past, in addition to the regular maintenance tasks (e.g., *matching*, *linking*, *merging*).

The CLAV maintenance work is carried out with *ad-hoc* tools developed purposely to:

i) identifying and resolving duplicates within the CLAV (*matching and linking* redundant records across the t-RFMOs);
ii) identifying and resolving redundancies within the CLAV of records reported by each of the t-RFMOs (*merging* records within a given t-RFMO to retain history);
iii) clearing legacy records (remaining from historical consolidations) no longer existing at the t-RFMOs databases (*deletions*); and
iv) cleaning-up accumulated errors from the past by acting directly on individual attributes from vessel records in the CLAV database (*editing*).

Inconsistencies and errors detected in the course of the regular maintenance and ongoing analyses of the CLAV are communicated immediately to the respective t-RFMO. However, corrections will take time until they show up at the CLAV as the t-RFMOs need to raise the issues to the corresponding responsible flag, which in turn will take some time to respond.

[3] In the report that follows, both tables and figures containing the same information are presented in some instances. This duplicity is intended on purpose as a way to providing both, an idea of the numbers involved as well as a visual, more intuitive, representation of their magnitudes.

It is expected that once the support provided by the Common Oceans Tuna Project to maintaining the CLAV ends (March 2018), the five t-RFMOs owners of the CLAV would assume the CLAV operation and maintenance, on some agreed-upon operational scheme.

Responses, from the t-RFMO´s compliance officials and/or database managers, regarding the usefulness of the CLAV unanimously indicated that *maintaining the CLAV is a worthwhile effort, and that the additional time and efforts dedicated to resolve issues detected by the CLAV ultimately resulted in data quality improvements to the benefit of both the t-RFMOs themselves and the flag members.*

2. Maintenance performed to keep the CLAV updated at close to real time.

The maintenance tasks needed to keep the CLAV updated at close-to-real-time are shown in **Table 1** below. The process starts with the daily updates performed automatically by uploading the data from each t-RFMO to the CLAV. Some control of key attributes (such as unacceptable IMO numbers, non-chronological date sequences for previous flags and previous names) at upload are applied to prevent the introduction of non-compliant information. If something like that occurs, the uploader automatically sends an error message to the t-RFMO´s data provider indicating the nature of the issue.

Once the upload to the CLAV is successfully completed and the data have been updated, the detection of duplicates begins. Matching of newly updated records against those already uploaded to the CLAV allows detecting redundancies that are resolved in two ways. If the duplicates are among different t-RFMOs the action performed will be linking them and assigning all of them the same TUVI (Tuna Unique Vessel Identifier). If, on the other hand, the duplicates are from the same t-RFMO they will be merged, adding the information from the oldest record to the newest one, whose TUVI will prevail. Thus, with this action the historical elements of the vessel are preserved. The detection of an intra t-RFMO duplicate is communicated immediately to the corresponding Organization, before applying any merging to the records stored in the CLAV; merging will be performed only upon confirmation from the compliance official or database manager from the source.

In the early stages of the CLAV maintenance, up to April 2016, the tasks of deleting some records, and matching, linking and merging duplicates were performed. There was then a period (May – September 2016) without CLAV maintenance due to lack of support. The maintenance was resumed in October 2016, adding to the main former tasks (*matching*, *linking* and *merging*) the cleaning-up of accumulated errors and spurious entries in the CLAV database. Thus, editing and deletion of individual attributes were added tasks aimed at contributing a cleaner and more reliable CLAV, including its historical elements.

An *ad-hoc* console, which allows for the remote access to, and modification of, the CLAV database records, was developed, and is in use to complete these added maintenance tasks, complementing the other tools designed to maintaining the CLAV. The category indicated as *Other editing and deletions*, includes the modification of erroneous attributes such as vessel type and gear type. Coordinated efforts were started lately between ICCAT and CLAV to closely aligning the CLAV with the original information in the ICCAT database. That explains

the rather large number of maintenance actions performed through August to October 2017 (**Table 1**).

Table 1. Maintenance tasks performed to keep the CLAV updated at close to real time, March 2015 to October 2017.

Maintenance actions	Mar'15	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan'16	Feb
Deleted records	7	8	6	9	16	30	6					1
Matching and Linking	623	246	145	472	241	96	69	18	158	25	76	19
Matching and Merging	32	27	16	92	31	23	39	81	38	38	32	56
Editing and Deleting attributes												
Names												
Identifiers												
Flags												
IMO												
IRCS												
NRN												
Physical dimensions												
Tonnage												
Authorizations												
Registrations												
Other editing and deletions												
Communications with t-RFMOs	27	15	29	18	37	25	4	49	7	11	19	7
Total actions performed	**689**	**296**	**196**	**591**	**325**	**174**	**118**	**148**	**203**	**74**	**127**	**83**

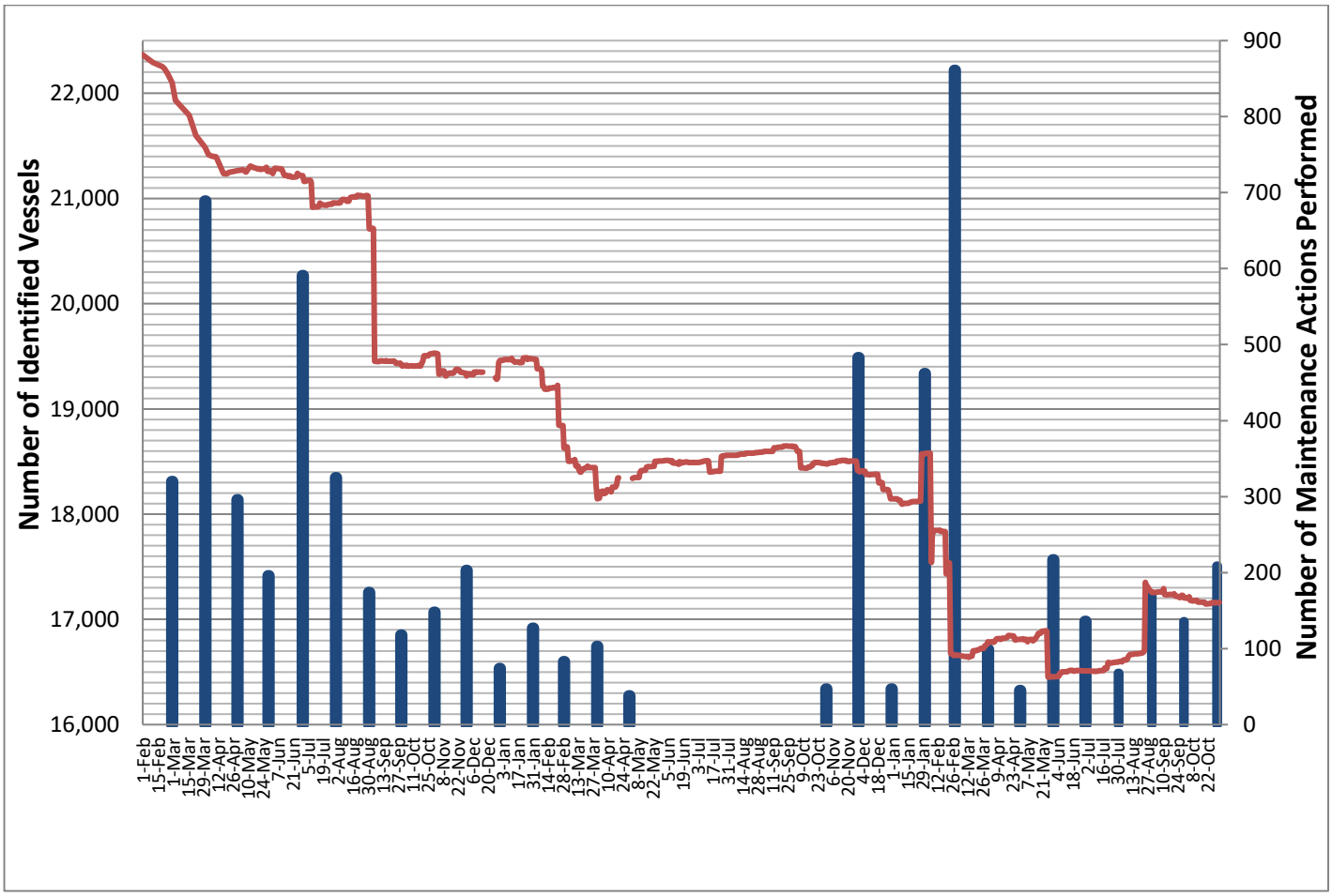
Maintenance actions	Mar'16	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan'17	Feb
Deleted records								1	1		1	
Matching and Linking	15	7						32	10	4	47	22
Matching and Merging	63	16						6	130	29	68	22
Editing and Deleting attributes												
Names									8			12
Identifiers									6		4	14
Flags									2		1	
IMO									47	1	1	11
IRCS									230		316	694
NRN												
Physical dimensions												12
Tonnage												9
Authorizations												11
Registrations									2		1	7
Other editing and deletions												13
Communications with t-RFMOs	25	15						9	48	13	24	34
Total actions performed	**103**	**38**	**0**	**0**	**0**	**0**	**0**	**47**	**483**	**47**	**462**	**861**

Maintenance actions	Mar'17	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan'18	Feb
Deleted records				2	1			2				
Matching and Linking	1	13	57	9	18	2	37	7				
Matching and Merging	28	18	27	32	33	56	57	34				
Editing and Deleting attributes												
Names	1		3	11			4	12				
Identifiers	3	1		3		2		18				
Flags				1			8	9				
IMO	7	2	43	11	3	4	7	21				
IRCS	5		67	50	2		4	9				
NRN								5				
Physical dimensions	1			3			4	13				
Tonnage	3		2	4				14				
Authorizations	10			1	1	96	4	32				
Registrations	2		1	3			2	12				
Other editing and deletions	2						3	14				
Communications with t-RFMOs	36	11	17	8	11	12	6	9				
Total actions performed	**99**	**45**	**217**	**136**	**68**	**172**	**136**	**209**	**0**	**0**	**0**	**0**

3. Authorized vessels identified by TUVIs.

The evolution of the number of vessels identified uniquely by TUVIs during the period when the CLAV has been automatically updated from the five t-RFMOs, February 1, 2015 to October 31, 2017 is illustrated below (**Figure 1**).

Figure 1. Number of vessels identified by TUVI in the CLAV (*solid line*), and summary of the number of maintenance actions performed monthly (*solid bars*) from February 1, 2015 to October 31, 2017.



There were 17,158 authorized vessels at the end of October 2017, a decrease of 46 vessels with respect to the 17,204 authorized vessels at the end of September. The decreases through August to October 2017 being primarily the result of the coordinated efforts to align the CLAV with the original information stored in the ICCAT database. Several ICCAT records, which were no longer authorized or were redundant, have failed to update to the CLAV opportunely. Those discrepancies are being jointly tackled and solved, resulting in a reduction of the number of authorized vessels (**Figure 1**, **Table 3**) and records (**Table 2**, **Figure 2**) in the CLAV database.

The maintenance actions (mostly linking, merging and deleting of records) performed initially (February - October 2015) had an important impact in reducing the number of authorized vessels stored in the CLAV database. The period in which there was no maintenance (May to September 2016) experimented a slight increase of the number of authorized vessels. Once the

maintenance was resumed in October 2016, the number of authorized vessels dropped due to the linking and merging of duplicate records accumulated during the unmaintained period (**Figure 1**).

Later on, from October 2016 onwards, the maintenance actions have been oriented primarily to cleaning-up historical accumulated errors in the CLAV database (editing and deleting of erroneous attributes). Several significant reductions of the number of vessels through this period resulted from termination of their authorizations. Such is the case of 1,200 Indonesian vessels at IOTC in early February 2017, about 300 USA vessels at ICCAT by mid- February, about 450 Philippine and 370 Indonesian vessels at WCPFC in late February, and 440 USA vessels from IATTC at the end of May.

As of late, the sharp decreases of the number of authorized vessels responded primarily to some drastic reductions of the number of authorized vessels at some of the t-RFMOs, in particular ICCAT, IOTC, WCPFC, and IATTC (**Table 2, Figure 2**, below).

However, the notorious increase observed in August 2017 was due primarily to the addition of 649 small-scale Chilean vessels to IATTC, as Chile joined the Commission as a Cooperating Non Member.

4. Authorized records in the CLAV.

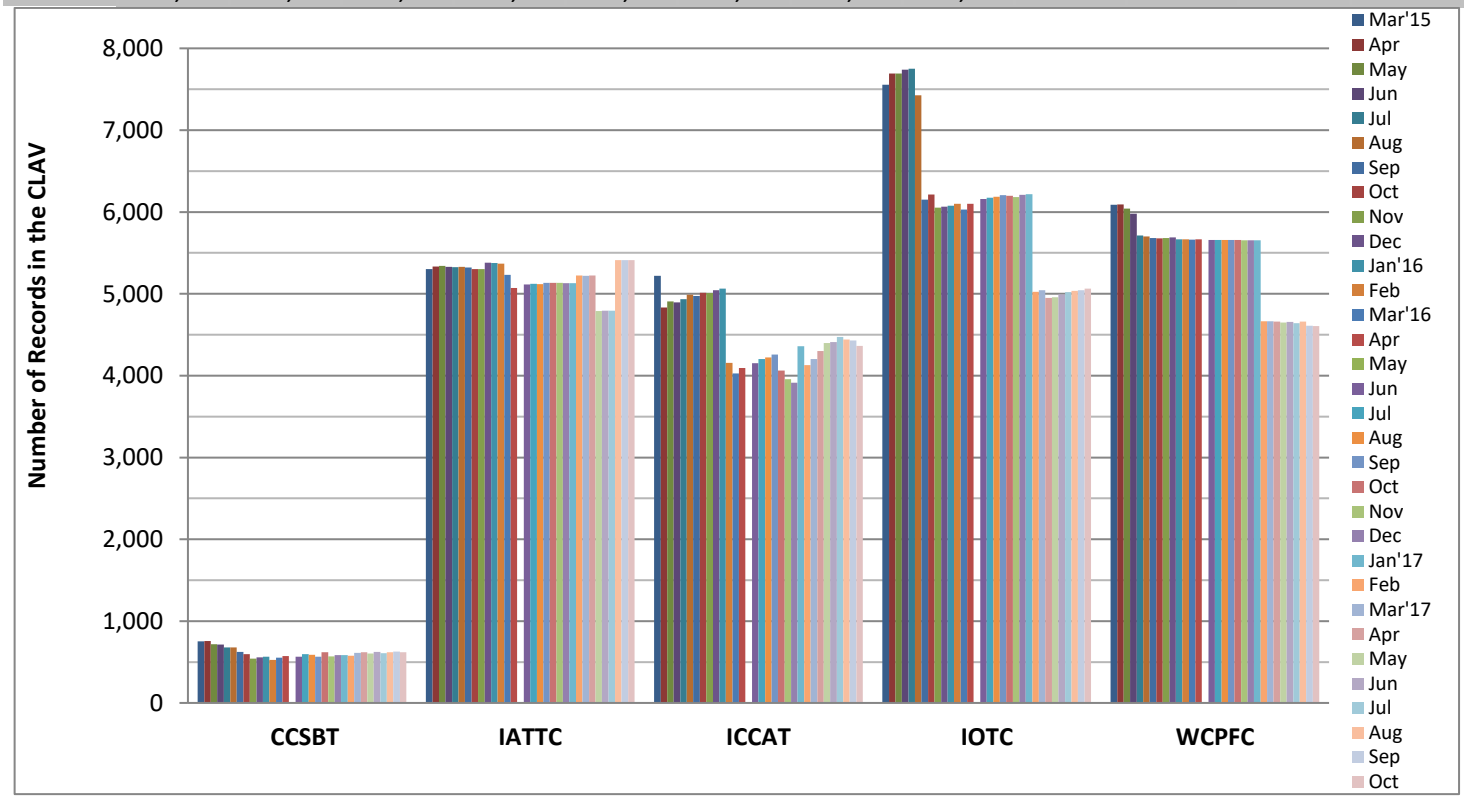
The total number of authorized records, at the end of each month, for each of the five t-RFMOs in the CLAV is illustrated below.

Table 2 and **Figure 2.** Total number of authorized records in the CLAV, March 2015 to October 2017. (*n. d.* = no data).

Source	Mar'15	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan'16	Feb
CCSBT	751	758	719	712	680	677	624	596	540	559	565	527
IATTC	5,302	5,332	5,340	5,328	5,324	5,329	5,321	5,302	5,302	5,379	5,377	5,368
ICCAT	5,219	4,834	4,907	4,894	4,936	4,990	4,972	5,011	5,010	5,045	5,064	4,156
IOTC	7,555	7,692	7,691	7,739	7,750	7,427	6,151	6,214	6,052	6,063	6,075	6,099
WCPFC	6,088	6,093	6,042	5,979	5,713	5,702	5,683	5,677	5,681	5,690	5,667	5,664
Total	**24,915**	**24,709**	**24,699**	**24,652**	**24,403**	**24,125**	**22,751**	**22,800**	**22,585**	**22,736**	**22,748**	**21,814**

Source	Mar'16	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan'17	Feb
CCSBT	553	571	*n. d.*	566	595	588	564	620	570	583	583	575
IATTC	5,233	5,071	*n. d.*	5,116	5,121	5,120	5,134	5,133	5,132	5,131	5,131	5,222
ICCAT	4,026	4,095	*n. d.*	4,153	4,202	4,221	4,256	4,063	3,955	3,912	4,358	4,128
IOTC	6,030	6,101	*n. d.*	6,160	6,174	6,186	6,205	6,198	6,182	6,208	6,218	5,025
WCPFC	5,662	5,665	*n. d.*	5,657	5,657	5,657	5,657	5,657	5,656	5,656	5,656	4,663
Total	**21,504**	**21,503**	**no data**	**21,652**	**21,749**	**21,772**	**21,816**	**21,671**	**21,495**	**21,490**	**21,946**	**19,613**

Source	Mar'17	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan'18	Feb
CCSBT	612	621	605	624	608	619	627	618				
IATTC	5,218	5,222	4,791	4,793	4,795	5,412	5,412	5,410				
ICCAT	4,201	4,302	4,399	4,409	4,472	4,443	4,429	4,365				
IOTC	5,042	4,952	4,957	4,994	5,021	5,036	5,044	5,065				
WCPFC	4,665	4,660	4,650	4,655	4,640	4,659	4,610	4,604				
Total	**19,738**	**19,757**	**19,402**	**19,475**	**19,536**	**20,169**	**20,122**	**20,062**				



5. Authorized vessels registered under a single or multiple t-RFMOs.

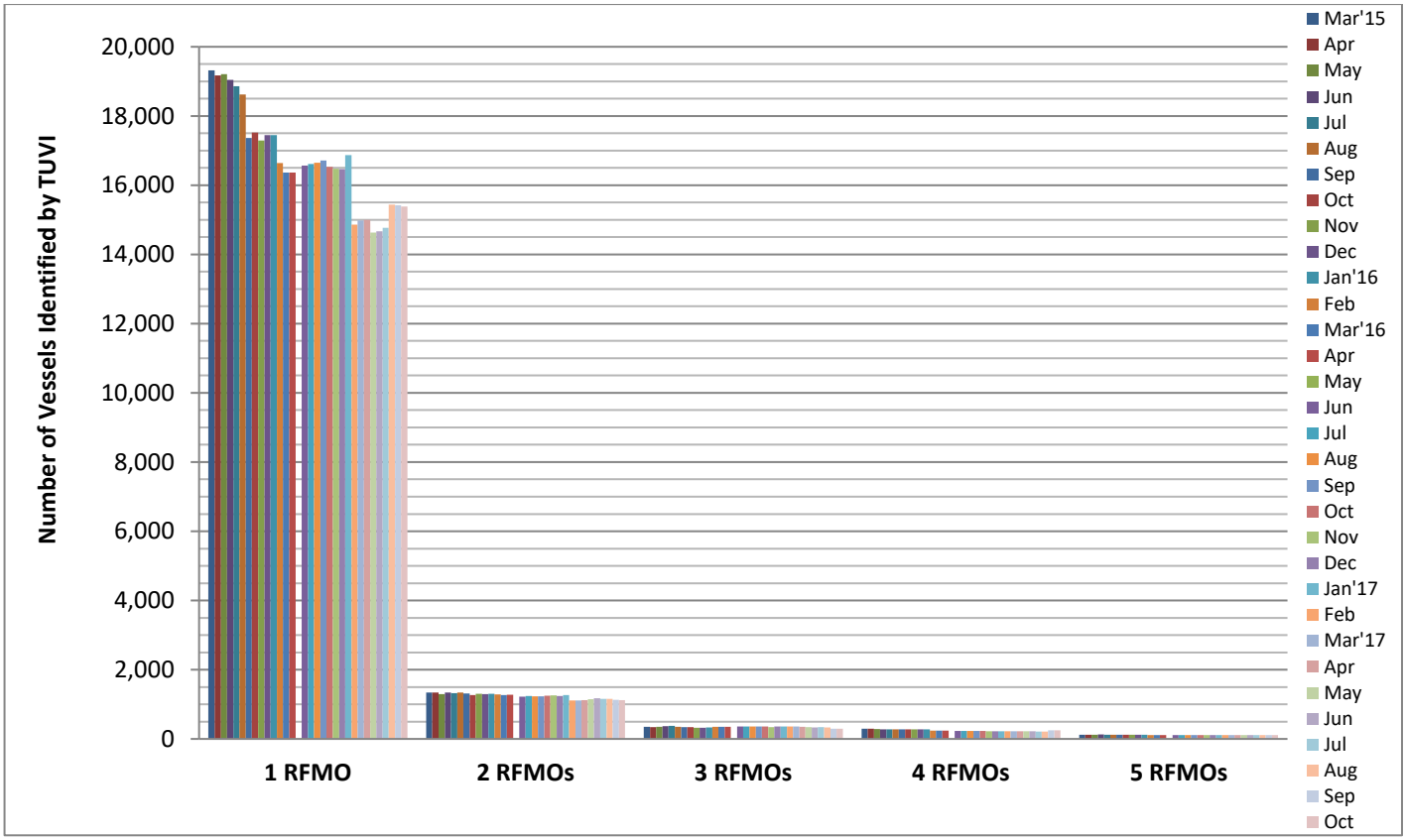
The total number and the proportion (*percent*) of authorized vessels that were registered under a single or multiple t-RFMOs, at the end of each month, is illustrated below.

Table 3 and **Figure 3.** Number and proportion (*percent*) of authorized vessels registered under a single or multiple t-RFMOs, March 2015 to October 2017. (*n. d.* = no data).

	Number and *Percent* of authorized vessels identified by TUVI											
Number of RFMOs	**Mar'15**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan'16**	**Feb**
1 RFMO	19,317	19,174	19,209	19,045	18,858	18,619	17,367	17,525	17,289	17,444	17,446	16,637
	90.2%	*90.2%*	*90.3%*	*90.0%*	*90.0%*	*89.9%*	*89.4%*	*89.7%*	*89.5%*	*89.6%*	*89.6%*	*89.3%*
2 RFMOs	1,344	1,340	1,294	1,343	1,323	1,340	1,315	1,270	1,308	1,294	1,308	1,282
	6.3%	*6.3%*	*6.1%*	*6.3%*	*6.3%*	*6.5%*	*6.8%*	*6.5%*	*6.8%*	*6.6%*	*6.7%*	*6.9%*
3 RFMOs	347	340	349	367	376	352	342	339	322	326	327	351
	1.6%	*1.6%*	*1.6%*	*1.7%*	*1.8%*	*1.7%*	*1.8%*	*1.7%*	*1.7%*	*1.7%*	*1.7%*	*1.9%*
4 RFMOs	298	295	287	280	280	281	279	279	277	277	273	244
	1.4%	*1.4%*	*1.3%*	*1.3%*	*1.3%*	*1.4%*	*1.4%*	*1.4%*	*1.4%*	*1.4%*	*1.4%*	*1.3%*
5 RFMOs	119	117	125	128	120	119	116	117	117	119	119	114
	0.6%	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*
Total	**21,425**	**21,266**	**21,264**	**21,163**	**20,957**	**20,711**	**19,419**	**19,530**	**19,313**	**19,460**	**19,473**	**18,628**

Number of RFMOs	**Mar'16**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan'17**	**Feb**
1 RFMO	16,363	16,367	*n. d.*	16,564	16,612	16,652	16,714	16,527	16,474	16,469	16,869	14,865
	89.2%	*89.2%*		*89.6%*	*89.5%*	*89.6%*	*89.7%*	*89.5%*	*89.5%*	*89.5%*	*89.6%*	*89.2%*
2 RFMOs	1,270	1,272	*n. d.*	1,221	1,240	1,232	1,231	1,245	1,258	1,237	1,265	1,110
	6.9%	*6.9%*		*6.6%*	*6.7%*	*6.6%*	*6.6%*	*6.7%*	*6.8%*	*6.7%*	*6.7%*	*6.7%*
3 RFMOs	350	353	*n. d.*	360	361	359	355	363	341	357	358	356
	1.9%	*1.9%*		*1.9%*	*1.9%*	*1.9%*	*1.9%*	*2.0%*	*1.9%*	*1.9%*	*1.9%*	*2.1%*
4 RFMOs	244	242	*n. d.*	234	234	234	232	229	226	226	225	225
	1.3%	*1.3%*		*1.3%*	*1.3%*	*1.3%*	*1.2%*	*1.2%*	*1.2%*	*1.2%*	*1.2%*	*1.3%*
5 RFMOs	111	110	*n. d.*	111	111	111	111	112	112	112	112	111
	0.6%	*0.6%*		*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.7%*
Total	**18,338**	**18,344**	**no data**	**18,490**	**18,558**	**18,588**	**18,643**	**18,476**	**18,411**	**18,401**	**18,829**	**16,667**

Number of RFMOs	**Mar'17**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan'18**	**Feb**
1 RFMO	14,981	15,002	14,631	14,670	14,772	15,438	15,420	15,385				
	89.2%	*89.2%*	*88.9%*	*88.8%*	*89.0%*	*89.5%*	*89.6%*	*89.7%*				
2 RFMOs	1,113	1,119	1,148	1,175	1,160	1,158	1,130	1,120				
	6.6%	*6.7%*	*7.0%*	*7.1%*	*7.0%*	*6.7%*	*6.6%*	*6.5%*				
3 RFMOs	355	352	340	336	342	335	293	293				
	2.1%	*2.1%*	*2.1%*	*2.0%*	*2.1%*	*1.9%*	*1.7%*	*1.7%*				
4 RFMOs	225	225	222	217	213	210	246	246				
	1.3%	*1.3%*	*1.3%*	*1.3%*	*1.3%*	*1.2%*	*1.4%*	*1.4%*				
5 RFMOs	113	112	113	113	113	113	115	114				
	0.7%	*0.7%*	*0.7%*	*0.7%*	*0.7%*	*0.7%*	*0.7%*	*0.7%*				
Total	**16,787**	**16,810**	**16,454**	**16,511**	**16,600**	**17,254**	**17,204**	**17,158**				


Number of Vessels Identified by TUVI
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1 RFMO
2 RFMOs
3 RFMOs
4 RFMOs
5 RFMOs
Mar'15
Apr
May
Jun
Jul
Aug
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6. Authorized records at each t-RFMO, registered under a single or multiple t-RFMOs.

The total number of authorized vessels registered, at the end of each month, under a single or multiple t-RFMOs at each t-RFMO, is illustrated below.

Table 4. Number of authorized records registered under a single or multiple t-RFMOs, at each t-RFMO, March 2015 to October 2017.

Source	Period	1 RFMO	2 RFMOs	3 RFMOs	4 RFMOs	5 RFMOs	Total Auth.
CCSBT	Mar'15	200	287	84	61	119	**751**
	Apr'15	214	286	81	60	117	**758**
	May'15	199	241	93	61	125	**719**
	Jun'15	192	236	96	60	128	**712**
	Jul'15	184	206	106	64	120	**680**
	Aug'15	189	197	107	65	119	**677**
	Sep'15	179	165	101	63	116	**624**
	Oct'15	174	145	95	65	117	**596**
	Nov'15	142	156	60	65	117	**540**
	Dec'15	168	144	66	62	119	**559**
	Jan'16	161	155	67	63	119	**565**
	Feb'16	159	149	66	39	114	**527**
	Mar'16	175	159	67	41	111	**553**
	Apr'16	187	167	66	41	110	**571**
	Jun'16	195	140	78	42	111	**566**
	Jul'16	202	159	81	42	111	**595**
	Aug'16	204	150	81	42	111	**588**
	Sep'16	195	139	77	42	111	**564**
	Oct'16	242	147	76	43	112	**620**
	Nov'16	221	136	58	43	112	**570**
	Dec'16	225	129	74	43	112	**583**
	Jan'17	206	148	73	44	112	**583**
	Feb'17	213	132	76	43	111	**575**
	Mar'17	244	133	78	44	113	**612**
	Apr'17	254	132	79	44	112	**621**
	May'17	239	130	79	44	113	**605**
	Jun'17	242	146	79	44	113	**624**
	Jul'17	237	134	80	44	113	**608**
	Aug'17	242	140	80	44	113	**619**
	Sep'17	235	129	73	75	115	**627**
	Oct'17	235	120	73	76	114	**618**
IATTC	Mar'15	3,907	743	243	287	119	**5,299**
	Apr'15	3,943	740	245	284	117	**5,329**
	May'15	3,944	751	243	272	125	**5,335**
	Jun'15	3,876	798	259	265	128	**5,326**
	Jul'15	3,865	808	262	267	120	**5,322**
	Aug'15	3,870	835	236	267	119	**5,327**
	Sep'15	3,872	836	229	266	116	**5,319**
	Oct'15	3,880	807	232	264	117	**5,300**
	Nov'15	3,879	789	247	262	117	**5,294**
	Dec'15	3,956	790	241	265	119	**5,371**
	Jan'16	3,961	794	238	260	119	**5,372**
	Feb'16	3,965	791	262	231	114	**5,363**
	Mar'16	3,831	793	262	231	111	**5,228**
	Apr'16	3,672	790	264	230	110	**5,066**
	Jun'16	3,734	785	260	221	111	**5,111**
	Jul'16	3,737	788	259	221	111	**5,116**
	Aug'16	3,738	788	257	221	111	**5,115**
	Sep'16	3,748	799	252	219	111	**5,129**
	Oct'16	3,745	798	258	215	112	**5,128**
	Nov'16	3,744	800	259	212	112	**5,127**
	Dec'16	3,745	800	258	212	112	**5,127**

	Jan'17	3,743	804	257	211	112	**5,127**
	Feb'17	3,871	773	252	211	111	**5,218**
	Mar'17	3,868	773	252	211	113	**5,217**
	Apr'17	3,871	780	247	211	112	**5,221**
	May'17	3,427	808	235	207	113	**4,790**
	Jun'17	3,430	816	232	202	113	**4,793**
	Jul'17	3,431	818	235	198	113	**4,795**
	Aug'17	4,073	802	229	195	113	**5,412**
	Sep'17	4,086	798	182	231	115	**5,412**
	Oct'17	4,090	797	178	231	114	**5,410**
ICCAT	Mar'15	4,330	247	218	284	119	**5,198**
	Apr'15	3,972	247	208	281	117	**4,825**
	May'15	4,019	261	208	274	125	**4,887**
	Jun'15	4,005	265	220	269	128	**4,887**
	Jul'15	4,046	269	220	269	120	**4,924**
	Aug'15	4,102	267	221	270	119	**4,979**
	Sep'15	4,107	257	217	269	116	**4,966**
	Oct'15	4,167	235	219	269	117	**5,007**
	Nov'15	4,161	231	229	267	117	**5,005**
	Dec'15	4,183	238	231	267	119	**5,038**
	Jan'16	4,209	242	226	263	119	**5,059**
	Feb'16	3,337	223	246	235	114	**4,155**
	Mar'16	3,238	196	241	233	111	**4,019**
	Apr'16	3,314	193	246	231	110	**4,094**
	Jun'16	3,348	193	238	223	111	**4,113**
	Jul'16	3,389	195	236	223	111	**4,154**
	Aug'16	3,408	196	234	223	111	**4,172**
	Sep'16	3,447	191	236	221	111	**4,206**
	Oct'16	3,255	196	235	218	112	**4,016**
	Nov'16	3,195	197	231	215	112	**3,950**
	Dec'16	3,154	199	232	215	112	**3,912**
	Jan'17	3,591	208	232	214	112	**4,357**
	Feb'17	3,365	210	226	215	111	**4,127**
	Mar'17	3,435	214	224	215	113	**4,201**
	Apr'17	3,533	215	226	216	112	**4,302**
	May'17	3,627	233	213	213	113	**4,399**
	Jun'17	3,630	232	213	208	113	**4,396**
	Jul'17	3,709	228	218	204	113	**4,472**
	Aug'17	3,699	222	208	201	113	**4,443**
	Sep'17	3,691	207	180	236	115	**4,429**
	Oct'17	3,628	207	181	235	114	**4,365**
IOTC	Mar'15	6,334	519	242	297	119	**7,511**
	Apr'15	6,478	518	242	293	117	**7,648**
	May'15	6,523	461	251	287	125	**7,647**
	Jun'15	6,577	444	266	280	128	**7,695**
	Jul'15	6,633	415	274	280	120	**7,722**
	Aug'15	6,345	405	248	281	119	**7,398**
	Sep'15	5,114	386	241	279	116	**6,136**
	Oct'15	5,209	369	237	279	117	**6,211**
	Nov'15	5,015	426	215	277	117	**6,050**
	Dec'15	5,041	403	221	277	119	**6,061**
	Jan'16	5,037	414	230	273	119	**6,073**
	Feb'16	5,082	403	254	244	114	**6,097**
	Mar'16	5,027	390	256	244	111	**6,028**
	Apr'16	5,093	397	256	242	110	**6,098**
	Jun'16	5,176	348	267	234	111	**6,136**
	Jul'16	5,173	363	269	234	111	**6,150**
	Aug'16	5,191	353	269	234	111	**6,158**
	Sep'16	5,216	348	267	232	111	**6,174**
	Oct'16	5,189	358	279	229	112	**6,167**
	Nov'16	5,216	370	256	226	112	**6,180**
	Dec'16	5,248	347	273	226	112	**6,206**
	Jan'17	5,239	364	277	224	112	**6,216**
	Feb'17	4,149	257	283	225	111	**5,025**

	Mar'17	4,166	258	280	225	113	**5,042**
	Apr'17	4,077	261	277	225	112	**4,952**
	May'17	4,084	261	277	222	113	**4,957**
	Jun'17	4,112	282	270	217	113	**4,994**
	Jul'17	4,150	268	277	213	113	**5,021**
	Aug'17	4,155	283	271	210	113	**5,032**
	Sep'17	4,171	266	242	246	115	**5,040**
	Oct'17	4,201	255	245	246	114	**5,061**
WCPFC	Mar'15	4,546	892	254	263	119	**6,074**
	Apr'15	4,567	889	244	262	117	**6,079**
	May'15	4,524	874	252	254	125	**6,029**
	Jun'15	4,395	943	260	246	128	**5,972**
	Jul'15	4,130	948	266	240	120	**5,704**
	Aug'15	4,113	976	244	241	119	**5,693**
	Sep'15	4,095	986	238	239	116	**5,674**
	Oct'15	4,095	984	234	239	117	**5,669**
	Nov'15	4,092	1,014	215	237	117	**5,675**
	Dec'15	4,096	1,013	219	237	119	**5,684**
	Jan'16	4,078	1,011	220	233	119	**5,661**
	Feb'16	4,094	998	225	227	114	**5,658**
	Mar'16	4,092	1,002	224	227	111	**5,656**
	Apr'16	4,101	997	227	224	110	**5,659**
	Jun'16	4,111	976	237	216	111	**5,651**
	Jul'16	4,111	975	238	216	111	**5,651**
	Aug'16	4,111	977	236	216	111	**5,651**
	Sep'16	4,108	985	233	214	111	**5,651**
	Oct'16	4,096	991	241	211	112	**5,651**
	Nov'16	4,098	1,013	219	208	112	**5,650**
	Dec'16	4,097	999	234	208	112	**5,650**
	Jan'17	4,090	1,006	235	207	112	**5,650**
	Feb'17	3,267	848	231	206	111	**4,663**
	Mar'17	3,268	848	231	205	113	**4,665**
	Apr'17	3,267	850	227	204	112	**4,660**
	May'17	3,254	864	216	202	113	**4,649**
	Jun'17	3,256	874	214	197	113	**4,654**
	Jul'17	3,245	872	216	193	113	**4,639**
	Aug'17	3,269	869	217	190	113	**4,658**
	Sep'17	3,237	860	202	196	115	**4,610**
	Oct'17	3,231	861	202	196	114	**4,604**

The authorized vessels shared by all five t-RFMOs, in all possible combinations from one to five are shown below. In addition to the total number of the vessels authorized, the main vessels types, such as liners, seiners, gillnetters, trawlers, etc. are also represented. The largest number of vessels authorized are reported as liners and they are shared by up to all five t-RFMOs, while gillnetters, trawlers, and multipurpose vessels are hardly shared among the t-RFMOs. The largest proportion of fish carriers (about 83 percent) are registered at a single t-RFMO.

Table 5a. Total number, and number by main types, of vessels authorized that were registered under a single or multiple t-RFMOs for all the possible combinations of t-RFMOs, at the end of September 2017.

Source	IATTC	ICCAT	IOTC	WCPFC	Number of RFMOs	All Vessels Authorized	Liners	Seiners	Gill-netters	Trawlers	Multi-purpose	Fish Carriers	Mother-ships
CCSBT					**1**	235	112	1	0	20	65	0	0
	IATTC				**1**	4,086	2,483	239	86	3	968	0	0
		ICCAT			**1**	3,691	1,056	951	22	710	62	38	2
			IOTC		**1**	4,171	1,177	89	1,305	3	1,564	12	0
				WCPFC	**1**	3,237	2,093	489	0	0	0	337	2
				Total	**1 RFMO**	**15,420**	**6,921**	**1,769**	**1,413**	**736**	**2,659**	**387**	**4**
CCSBT	**IATTC**				**2**	0	0	0	0	0	0	0	0
CCSBT		**ICCAT**			**2**	17	17	0	0	0	0	0	0
CCSBT			**IOTC**		**2**	102	100	2	0	0	0	0	0
CCSBT				**WCPFC**	**2**	10	5	0	0	0	2	3	0
	IATTC	**ICCAT**			**2**	78	59	15	0	2	0	0	0
	IATTC		**IOTC**		**2**	12	12	0	0	0	0	0	0
	IATTC			**WCPFC**	**2**	708	672	25	0	0	6	1	0
		ICCAT	**IOTC**		**2**	61	31	17	1	2	0	2	0
		ICCAT		**WCPFC**	**2**	51	11	6	0	0	0	31	0
			IOTC	**WCPFC**	**2**	91	31	38	1	0	1	17	0
				Total	**2 RFMOs**	**1,130**	**938**	**103**	**2**	**4**	**9**	**54**	**0**
CCSBT	**IATTC**	**ICCAT**			**3**	1	1	0	0	0	0	0	0
CCSBT	**IATTC**		**IOTC**		**3**	2	2	0	0	0	0	0	0
CCSBT	**IATTC**			**WCPFC**	**3**	4	4	0	0	0	0	0	0
CCSBT		**ICCAT**	**IOTC**		**3**	34	32	0	0	0	1	1	0
CCSBT		**ICCAT**		**WCPFC**	**3**	1	0	0	0	0	0	1	0
CCSBT			**IOTC**	**WCPFC**	**3**	31	24	4	0	0	3	0	0
	IATTC	**ICCAT**	**IOTC**		**3**	54	52	0	0	0	0	0	0
	IATTC	**ICCAT**		**WCPFC**	**3**	45	43	2	0	0	0	0	0
	IATTC		**IOTC**	**WCPFC**	**3**	76	73	3	0	0	0	0	0
		ICCAT	**IOTC**	**WCPFC**	**3**	45	2	24	0	0	0	19	0
				Total	**3 RFMOs**	**293**	**233**	**33**	**0**	**0**	**4**	**21**	**0**
CCSBT	**IATTC**	**ICCAT**	**IOTC**		**4**	50	50	0	0	0	0	0	0
CCSBT	**IATTC**	**ICCAT**		**WCPFC**	**4**	0	0	0	0	0	0	0	0
CCSBT	**IATTC**		**IOTC**	**WCPFC**	**4**	10	10	0	0	0	0	0	0
CCSBT		**ICCAT**	**IOTC**	**WCPFC**	**4**	15	1	0	0	0	7	7	0
	IATTC	**ICCAT**	**IOTC**	**WCPFC**	**4**	171	169	1	0	0	0	0	0
				Total	**4 RFMOs**	**246**	**230**	**1**	**0**	**0**	**7**	**7**	**0**
CCSBT	**IATTC**	**ICCAT**	**IOTC**	**WCPFC**	**5**	115	115	0	0	0	0	0	0
				Total	**5 RFMOs**	**115**	**115**	**0**	**0**	**0**	**0**	**0**	**0**
				Grand Total		**17,204**	**8,437**	**1,906**	**1,415**	**740**	**2,679**	**469**	**4**

Table 5b. Total number, and number by main types, of vessels authorized that were registered under a single or multiple t-RFMOs for all the possible combinations of t-RFMOs, at the end of October 2017.

Source	IATTC	ICCAT	IOTC	WCPFC	Number of RFMOs	All Vessels Authorized	Liners	Seiners	Gill-netters	Trawlers	Multi-purpose	Fish Carriers	Mother-ships
CCSBT					1	235	112	1	0	20	65	0	0
	IATTC				1	4,090	2,481	245	86	3	968	0	0
		ICCAT			1	3,628	1,045	934	22	710	61	37	2
			IOTC		1	4,201	1,207	90	1,305	3	1,564	11	0
				WCPFC	1	3,231	2,085	489	0	0	0	339	2
				Total	1 RFMO	**15,385**	**6,930**	**1,759**	**1,413**	**736**	**2,658**	**387**	**4**
CCSBT	IATTC				2	0	0	0	0	0	0	0	0
CCSBT		ICCAT			2	16	16	0	0	0	0	0	0
CCSBT			IOTC		2	94	92	2	0	0	0	0	0
CCSBT				WCPFC	2	10	5	0	0	0	2	3	0
	IATTC	ICCAT			2	73	59	10	0	2	0	0	0
	IATTC		IOTC		2	13	13	0	0	0	0	0	0
	IATTC			WCPFC	2	711	675	25	0	0	6	1	0
		ICCAT	IOTC		2	63	32	17	1	2	1	2	0
		ICCAT		WCPFC	2	55	12	6	0	0	0	34	0
			IOTC	WCPFC	2	85	30	38	1	0	1	12	0
				Total	2 RFMOs	**1,120**	**934**	**98**	**2**	**4**	**10**	**52**	**0**
CCSBT	IATTC	ICCAT			3	1	1	0	0	0	0	0	0
CCSBT	IATTC		IOTC		3	1	1	0	0	0	0	0	0
CCSBT	IATTC			WCPFC	3	4	4	0	0	0	0	0	0
CCSBT		ICCAT	IOTC		3	35	33	0	0	0	1	1	0
CCSBT		ICCAT		WCPFC	3	1	0	0	0	0	0	1	0
CCSBT			IOTC	WCPFC	3	31	24	4	0	0	3	0	0
	IATTC	ICCAT	IOTC		3	54	52	0	0	0	0	0	0
	IATTC	ICCAT		WCPFC	3	42	40	2	0	0	0	0	0
	IATTC		IOTC	WCPFC	3	76	73	3	0	0	0	0	0
		ICCAT	IOTC	WCPFC	3	48	2	24	0	0	0	22	0
				Total	3 RFMOs	**293**	**230**	**33**	**0**	**0**	**4**	**24**	**0**
CCSBT	IATTC	ICCAT	IOTC		4	50	50	0	0	0	0	0	0
CCSBT	IATTC	ICCAT		WCPFC	4	0	0	0	0	0	0	0	0
CCSBT	IATTC		IOTC	WCPFC	4	11	11	0	0	0	0	0	0
CCSBT		ICCAT	IOTC	WCPFC	4	15	1	0	0	0	5	9	0
	IATTC	ICCAT	IOTC	WCPFC	4	170	168	1	0	0	0	0	0
				Total	4 RFMOs	**246**	**230**	**1**	**0**	**0**	**5**	**9**	**0**
CCSBT	IATTC	ICCAT	IOTC	WCPFC	5	114	114	0	0	0	0	0	0
				Total	5 RFMOs	**114**	**114**	**0**	**0**	**0**	**0**	**0**	**0**
				Grand Total		**17,158**	**8,438**	**1,891**	**1,415**	**740**	**2,677**	**472**	**4**

7. Vessel Types

The total number of authorized vessels in the CLAV, classified by type is illustrated below. At the end of October 2017, liners comprised 49 percent of all vessels authorized, multipurpose vessels represented more than fifteen percent, seiners more than eleven percent, gillnetters eight percent, trawlers more than four percent, while fish carriers represented less than three percent of all vessel authorized.

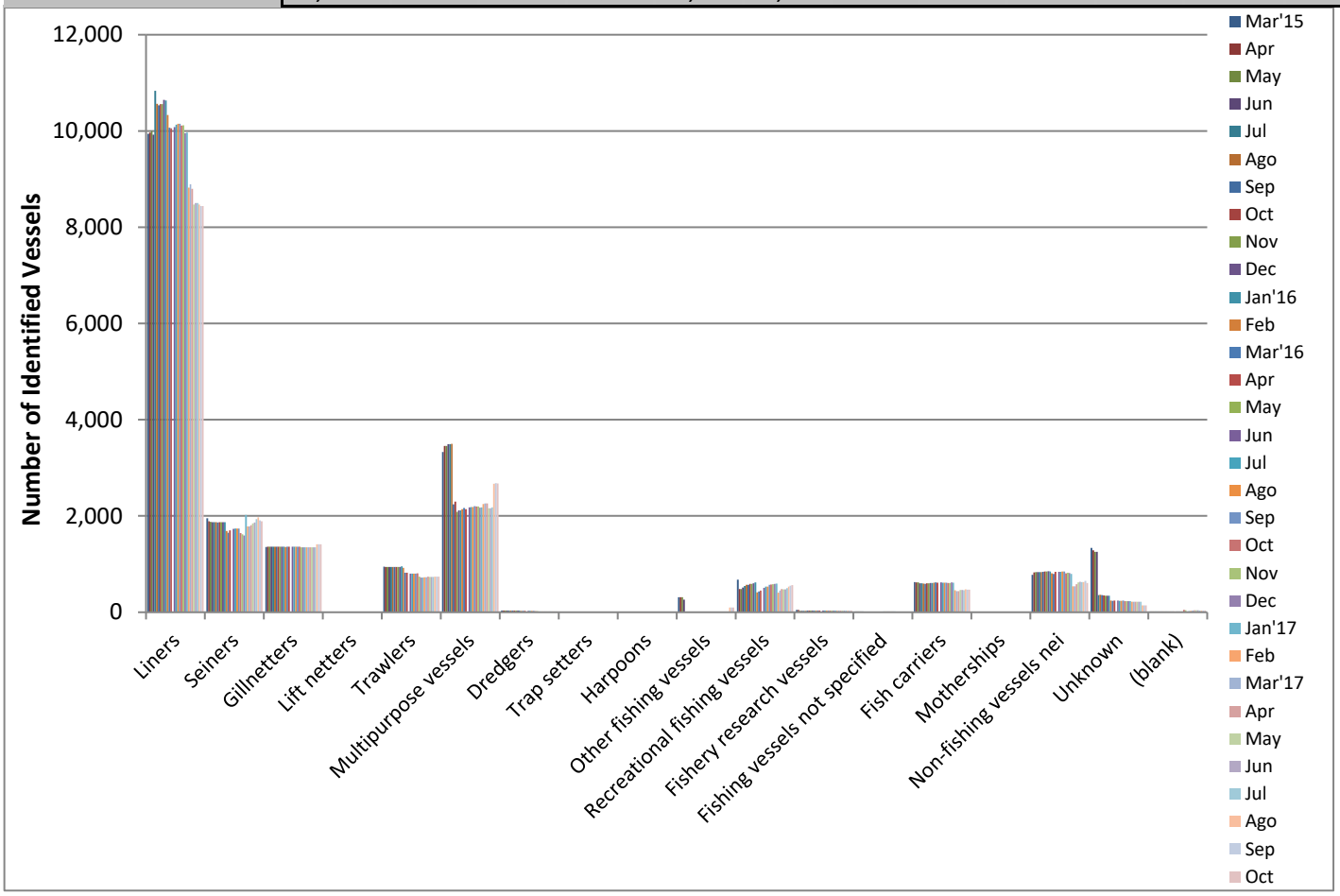
Table 6 and **Figure 4.** Total number of authorized vessels by types at the end of each month from March 2015 to October 2017. (*nei* = not elsewhere included; *n. d.* = no data).

Vessel Types	Mar'15	Apr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dec	Jan'16	Feb
Liners	9,945	9,967	9,999	9,922	10,837	10,565	10,535	10,556	10,560	10,645	10,634	10,331
Seiners	1,950	1,889	1,880	1,869	1,868	1,870	1,867	1,870	1,870	1,871	1,871	1,689
Gillnetters	1,358	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,361	1,358
Lift netters	0	0	0	0	0	0	0	0	0	0	0	0
Trawlers	945	940	940	942	942	942	942	941	940	942	953	923
Multipurpose vessels	3,331	3,454	3,455	3,492	3,491	3,497	2,239	2,301	2,083	2,118	2,118	2,142
Dredgers	37	35	35	35	35	35	35	35	35	35	35	30
Trap setters	9	12	12	4	4	4	3	1	1	1	1	1
Harpoons	0	0	0	1	1	1	1	1	1	1	1	1
Other fishing vessels	313	314	314	261	7	7	7	7	7	8	8	8
Recreational fishing vessels	674	481	481	513	546	568	568	590	589	601	620	413
Fishery research vessels	50	50	32	32	32	32	33	33	34	34	34	34
Fishing vessels not specified	15	17	16	16	16	13	13	13	13	13	13	12
Fish carriers	629	621	620	600	600	597	589	602	603	606	608	611
Motherships	13	12	12	11	11	11	11	11	12	12	12	12
Non-fishing vessels *nei*	775	830	832	832	833	832	840	844	845	852	847	806
Unknown	1,337	1,287	1,258	1,256	357	360	359	347	346	346	342	241
(blank)	15	16	18	17	17	17	17	17	14	15	15	16
Grand Total	**21,396**	**21,285**	**21,264**	**21,163**	**20,957**	**20,711**	**19,419**	**19,529**	**19,313**	**19,460**	**19,473**	**18,628**

Vessel Types	Mar'16	Apr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dec	Jan'17	Feb
Liners	10,067	10,054	*n. d.*	10,080	10,128	10,149	10,152	10,111	10,120	9,954	9,964	8,822
Seiners	1,653	1,701	*n. d.*	1,734	1,738	1,739	1,738	1,642	1,622	1,595	2,021	1,781
Gillnetters	1,359	1,359	*n. d.*	1,360	1,359	1,360	1,360	1,359	1,351	1,351	1,351	1,348
Lift netters	0	0	*n. d.*	0	0	0	0	0	0	0	0	10
Trawlers	819	821	*n. d.*	805	802	804	805	806	740	721	719	726
Multipurpose vessels	2,169	2,144	*n. d.*	2,181	2,184	2,184	2,201	2,200	2,199	2,172	2,176	2,251
Dredgers	30	30	*n. d.*	30	30	30	30	25	20	19	19	19
Trap setters	9	9	*n. d.*	7	1	1	1	1	0	0	0	0
Harpoons	1	1	*n. d.*	1	1	1	1	1	1	1	1	1
Other fishing vessels	8	9	*n. d.*	9	9	9	9	9	9	9	9	9
Recreational fishing vessels	431	449	*n. d.*	509	533	533	567	573	580	586	593	405
Fishery research vessels	33	34	*n. d.*	34	34	34	34	33	33	33	33	33
Fishing vessels not specified	12	12	*n. d.*	10	14	15	15	15	15	15	15	6
Fish carriers	623	615	*n. d.*	620	616	616	616	605	606	617	611	458
Motherships	11	11	*n. d.*	11	11	11	11	11	11	11	11	5
Non-fishing vessels *nei*	799	839	*n. d.*	841	842	845	845	811	822	817	798	537
Unknown	238	240	*n. d.*	240	238	239	240	229	230	229	230	220
(blank)	16	16	*n. d.*	18	18	18	18	45	43	16	20	28
Grand Total	**18,278**	**18,344**	**o data**	**18,490**	**18,558**	**18,588**	**18,643**	**18,476**	**18,402**	**18,146**	**18,571**	**16,659**

Vessel Types	Mar'17	Apr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dec	Jan'18	Feb
Liners	8,890	8,800	8,469	8,503	8,502	8,468	8,437	8,438				
Seiners	1,782	1,807	1,844	1,866	1,933	1,972	1,906	1,891				
Gillnetters	1,348	1,348	1,347	1,347	1,347	1,415	1,415	1,415				
Lift netters	10	10	10	10	10	10	10	10				
Trawlers	730	741	735	735	732	740	740	740				
Multipurpose vessels	2,263	2,259	2,158	2,160	2,176	2,669	2,679	2,677				
Dredgers	19	19	19	19	19	19	19	19				
Trap setters	10	10	10	0	0	6	0	0				

Harpoons	1	1	1	1	1	1	1	1
Other fishing vessels	9	9	5	5	5	100	100	100
Recreational fishing vessels	451	484	476	476	499	530	554	562
Fishery research vessels	34	34	34	34	34	34	34	34
Fishing vessels not specified	6	6	6	3	3	6	6	6
Fish carriers	436	438	460	462	458	475	469	472
Motherships	4	4	4	4	4	4	4	4
Non-fishing vessels *nei*	537	580	618	630	624	626	651	610
Unknown	219	220	219	217	217	143	143	143
(blank)	38	40	39	39	36	36	36	36
Grand Total	**16,787**	**16,810**	**16,454**	**16,511**	**16,600**	**17,254**	**17,204**	**17,158**



The numbers of vessels whose types were reported as either Other fishing vessels or Unknown early on (March to June 2015) were drastically reduced when most of them were later re-classified as Liners (October 2015 onwards). On the other hand, the number of vessels reported as Multipurpose was notoriously reduced in September 2015 when about 1,260 of them flagged to Sri Lanka had their authorization terminated. Throughout the period illustrated above, the number of trawlers shows a decreasing tendency from 945 in March 2015 to 740 in October 2017 (**Table 6** and **Figure 4**). The number of liners dropped notoriously in February and May 2017 as many vessels from IOTC (flagged to Indonesia), WCPFC (flagged to Indonesia, and Philippines), ICCAT and more recently IATTC (flagged to USA) had their authorization terminated.

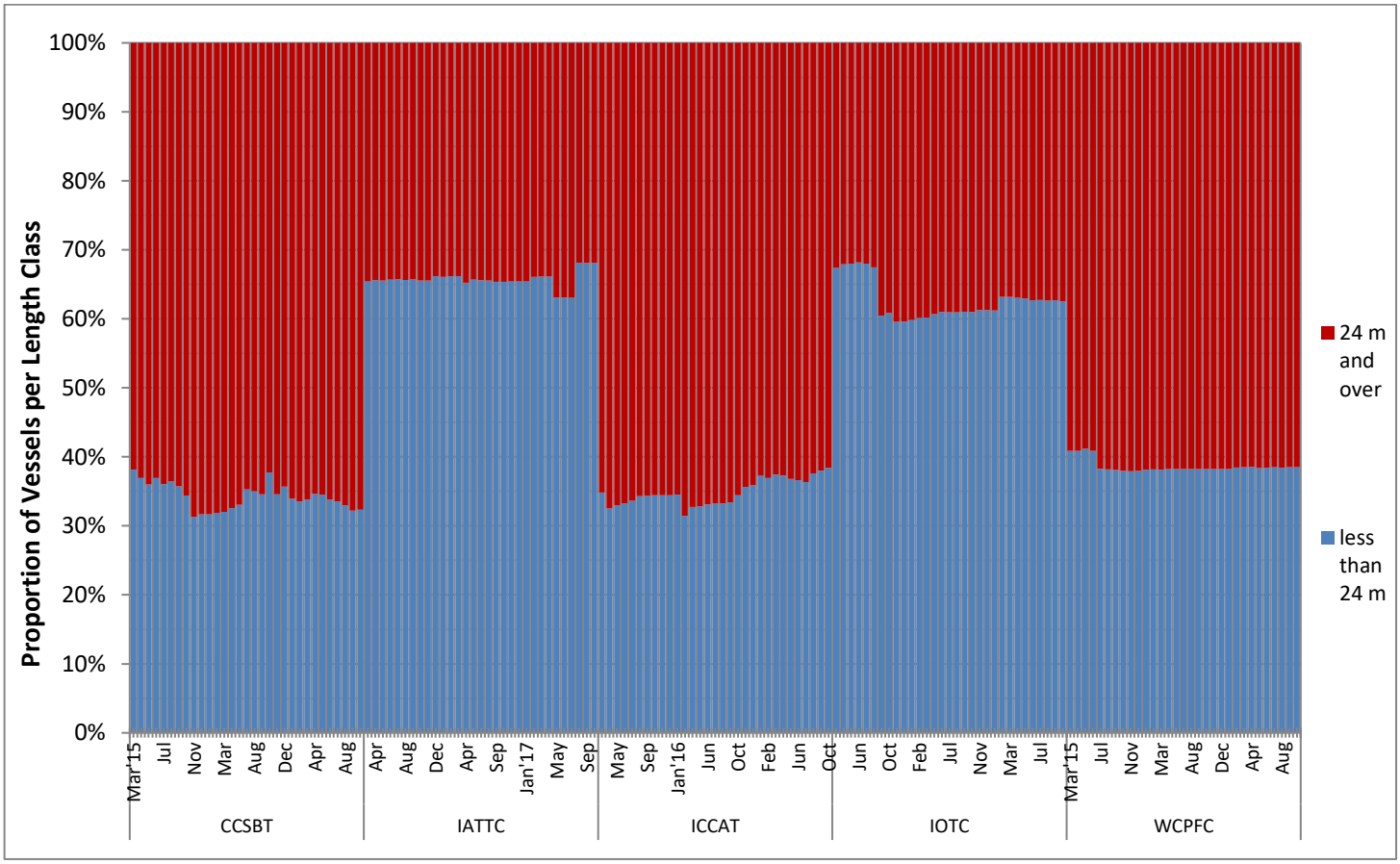
Most small-scale Chilean fishing vessels of the 649 added to IATTC are identified as multipurpose, thus responsible for the sharp increase of that category in August 2017.

8. Size composition of the authorized vessels registered at each t-RFMO, and at the CLAV.

There are differences in the size distributions of the vessels registered under the five tuna organizations, with IATTC and IOTC having the greatest proportion (60 percent or more) of vessels of less than 24 meters in length (**Figure 5**).

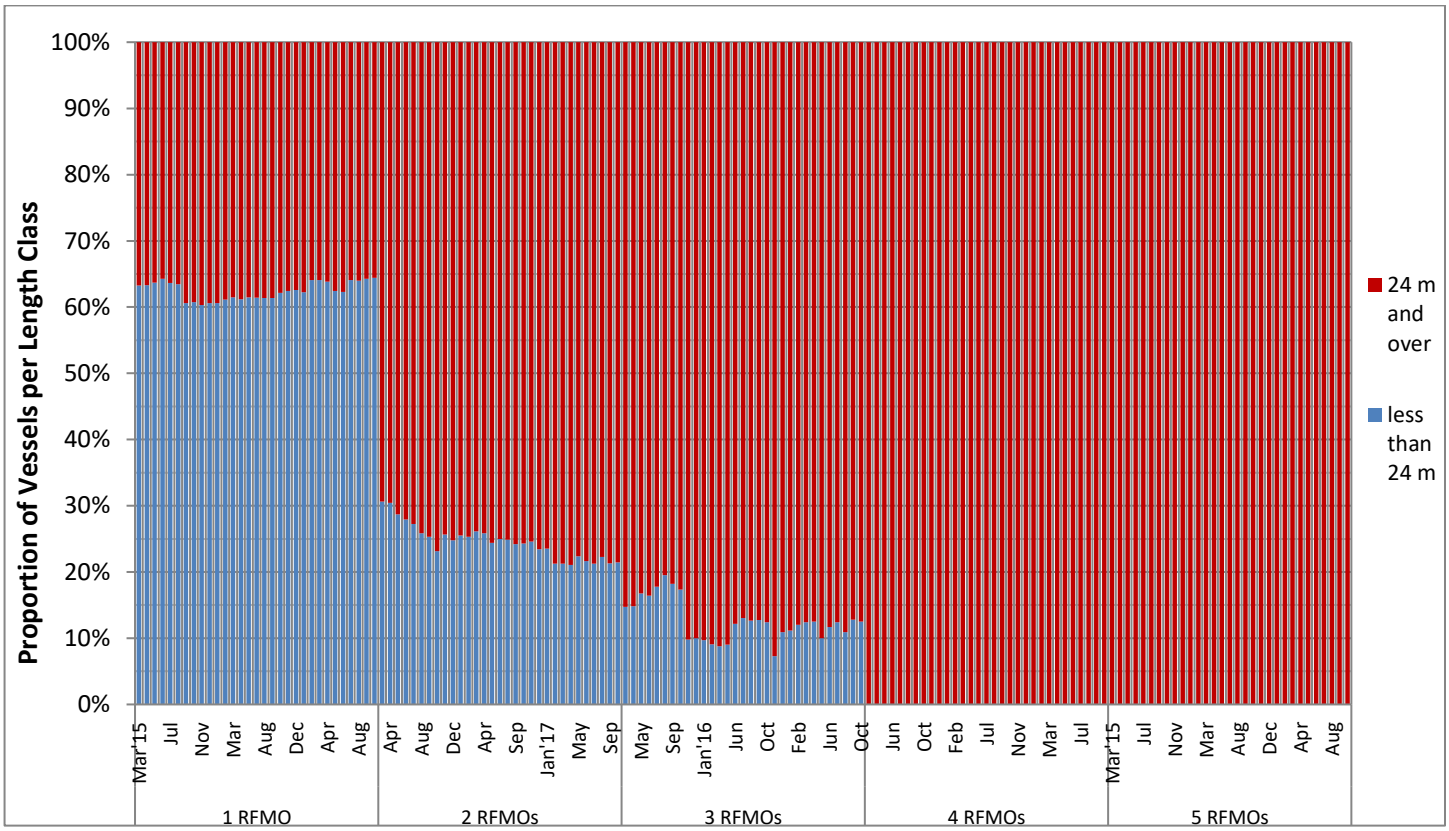
The categorization, using 24 meters as the delimiting criterion, permits individualizing the fraction of the vessels for which the IMO number should be mandatory.

Figure 5. Proportion of the number of authorized vessels by length category at each t-RFMO, March 2015 to October 2017.



The drops in the number of authorized vessels already mentioned in relation to **Figure 1**, affected the proportion of small vessels (less than 24 meters) in IOTC from August to September 2015 onwards (**Figure 5**), and corresponded mainly to multipurpose vessels, as seen in **Table 6**. The small-scale Chilean fishing vessels added to IATTC contributed to increasing the representation of that category from August 2017 onwards.

Figure 6. Proportion of the number of authorized vessels in the CLAV, registered under a single or multiple t-RFMOs, by length category, March 2015 to October 2017.



Small-sized vessels are predominant among those registered at a single t-RFMO (more than 60 percent), while they represent less than 30 percent and around 12 percent of those registered at two and three t-RFMOs, respectively.

The registration at multiple t-RFMOs is predominant for vessels of larger size (hundred percent at four and five t-RFMOs). The vessels registered at four and five t-RFMOs are mostly large liners (see also **Tables 5a**,**b**).

9. Flags with authorized vessels at each t-RFMO.

The number of different flags with authorized vessels registered at each t-RFMO, at the end of each month, is illustrated below.

Table 7. Number of flags with authorized vessels registered at each t-RFMO, March 2015 to October 2017. (*n. d.* = no data).

Source	Mar'15	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan'16	Feb
CCSBT	12	12	12	12	12	12	13	13	12	14	14	14
IATTC	26	28	27	26	25	25	25	24	24	24	25	25
ICCAT	56	55	54	54	55	55	55	55	55	56	56	52
IOTC	30	31	31	31	31	31	31	31	31	31	31	31
WCPFC	33	33	33	33	33	33	33	33	33	33	33	33

Source	Mar'16	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan'17	Feb
CCSBT	14	15	*n.d.*	15	14	15	15	15	15	15	15	15
IATTC	26	26	*n.d.*	26	26	26	26	26	26	26	26	26
ICCAT	52	53	*n.d.*	55	54	55	55	54	54	54	55	52
IOTC	31	31	*n.d.*	32	32	32	32	32	32	32	32	31
WCPFC	33	33	*n.d.*	33	33	33	33	33	33	33	33	33

Source	Mar'17	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan'18	Feb
CCSBT	15	15	15	15	15	14	15	15				
IATTC	26	26	26	26	26	27	26	26				
ICCAT	53	54	55	55	56	55	55	55				
IOTC	31	31	31	31	31	31	31	31				
WCPFC	33	33	33	33	33	33	33	33				

10. Flags represented in the CLAV.

There were in total 91 different flags represented in the CLAV at the end of October 2017, with vessels authorized at a single or multiple t-RFMOs. Most flags (71 percent) had all their vessels registered under a single t-RFMO. Nine flags (10 percent) had vessels registered under only two t-RFMOs, ten flags (11 percent) registered vessels under only three t-RFMOs, three flags (3.3 percent) registered vessels under only four t-RFMOs, and four flags (4.4 percent) have vessels registered under all five t-RFMOs.

Table 8. Number of flags with registered vessels authorized in the CLAV at a single or multiple t-RFMOs, March 2015 to October 2017. (*n. d.* = no data).

Number of RFMOs	Mar'15	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan'16	Feb
1 RFMO	67	67	64	63	63	63	63	63	63	63	65	62
2 RFMOs	8	7	7	9	9	8	8	8	10	10	8	9
3 RFMOs	9	8	10	9	9	10	10	9	7	8	9	8
4 RFMOs	2	3	3	3	3	3	3	4	4	4	4	4
5 RFMOs	4	4	4	4	4	4	4	4	4	4	4	4
Total	**90**	**89**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**89**	**90**	**87**

Number of RFMOs	Mar'16	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan'17	Feb
1 RFMO	61	62	*n.d.*	63	64	65	65	64	64	63	63	61
2 RFMOs	10	9	*n.d.*	10	10	10	10	10	9	9	11	10
3 RFMOs	8	10	*n.d.*	10	10	9	9	9	10	10	8	9
4 RFMOs	4	3	*n.d.*	3	3	3	3	3	3	3	4	3
5 RFMOs	4	4	*n.d.*	4	4	4	4	4	4	4	4	4
Total	**87**	**88**	***n.d.***	**90**	**91**	**91**	**91**	**90**	**90**	**89**	**90**	**87**

Number of RFMOs	Mar'17	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan'18	Feb
1 RFMO	61	62	63	63	65	65	65	65				
2 RFMOs	11	11	11	11	10	10	9	9				
3 RFMOs	9	9	9	9	9	9	10	10				
4 RFMOs	3	3	3	3	3	3	3	3				
5 RFMOs	4	4	4	4	4	4	4	4				
Total	**88**	**89**	**90**	**90**	**91**	**91**	**91**	**91**				

11. Flags reporting authorized vessels at a single and multiple t-RFMOs as of October 31, 2017.

Table 9. Proportion of all vessels authorized by flag registered under a single or multiple t-RFMOs, at the end of October 2017.

Flag	1 RFMO	2 RFMOs	3 RFMOs	4 RFMOs	5 RFMOs
AGO	100.00%				
ALB	100.00%				
AUS	32.97%	38.46%	28.57%		
BHS	100.00%				
BLZ	100.00%				
BRA	100.00%				
CAN	93.33%	6.67%			
CHL	100.00%				
CHN	48.93%	40.40%	9.82%	0.85%	
CIV	100.00%				
COK	100.00%				
COL	100.00%				
CPV	100.00%				
CRI	100.00%				
CUW	100.00%				
CYP	100.00%				
DEU	100.00%				
DZA	100.00%				
ECU	96.15%	3.85%			
EGY	100.00%				
ESP	73.35%	5.56%	10.69%	8.78%	1.61%
FJI	100.00%				
FRA	87.92%	7.50%	4.58%		
FSM	100.00%				
GBR	98.70%		1.30%		
GHA	100.00%				
GRC	100.00%				
GTM	100.00%				
HND	100.00%				
HRV	100.00%				
IDN	67.92%	32.08%			
IND	100.00%				
IRL	100.00%				
IRN	100.00%				
ISL	100.00%				
ITA	100.00%				
JPN	68.57%	7.50%		13.81%	10.12%
KEN	100.00%				
KIR	96.97%	3.03%			
KOR	48.34%	18.54%	13.25%	16.56%	3.31%
LBR	10.00%	6.67%	56.67%	26.67%	
LBY	100.00%				
LKA	100.00%				
LTU	37.50%	62.50%			
MAR	100.00%				
MDG	100.00%				
MDV	100.00%				
MEX	100.00%				
MHL	100.00%				
MLT	100.00%				
MOZ	100.00%				
MUS	100.00%				

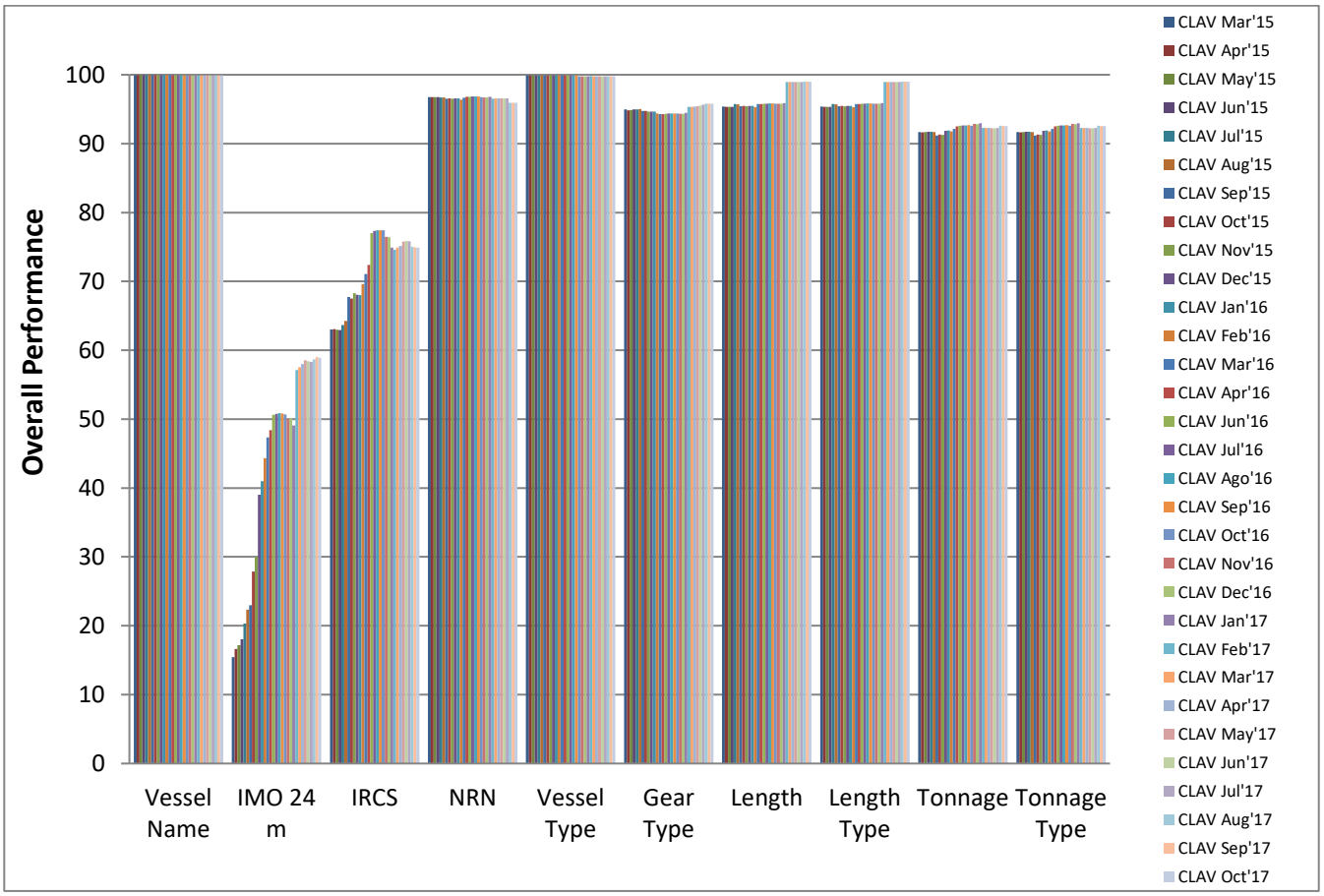
MYS	100.00%				
NAM	100.00%				
NCL	100.00%				
NIC	100.00%				
NLD	70.00%	10.00%	20.00%		
NOR	100.00%				
NZL	98.92%	1.08%			
OMN	100.00%				
PAK	100.00%				
PAN	89.24%	9.52%	0.53%	0.71%	
PER	100.00%				
PHL	97.06%	2.94%			
PNG	100.00%				
POL	100.00%				
PRT	73.56%	5.75%	9.20%	2.30%	9.20%
PYF	100.00%				
RUS	100.00%				
SEN	100.00%				
SGP			100.00%		
SHN	100.00%				
SLB	100.00%				
SLE	100.00%				
SLV	73.33%	13.33%	13.33%		
SPM	100.00%				
SYC	100.00%				
SYR	100.00%				
THA	60.00%	40.00%			
TON	100.00%				
TTO	100.00%				
TUN	100.00%				
TUR	100.00%				
TUV	100.00%				
TWN	91.01%	8.71%	0.28%		
URY	100.00%				
USA	92.82%	6.98%	0.20%		
VCT	100.00%				
VEN	75.76%	24.24%			
VUT	44.71%	54.12%	1.18%		
ZAF	64.04%	11.24%	24.72%		

12. Degree of Completion of minimum data requirements and benchmark analyses.

Performance, for the ten different data fields compiled in the CLAV, based on their degree of completion and expressed on a 100-points scale. For the performance evaluation of the IMO number, only the vessels authorized of length 24 meters and over were included.

It should be noted that, up to now, there remains the problem of reporting standardized measures for length and tonnage, being length overall (LOA) and gross tonnage (GT) the standard ones. However, in addition to LOA and GT, lengths and tonnages have been reported in several different forms, such as LBP, REG, RGL and UNK for length, and GRT and UNK for tonnage. To carry the following analyses, no distinctions were made among the different measures, however.

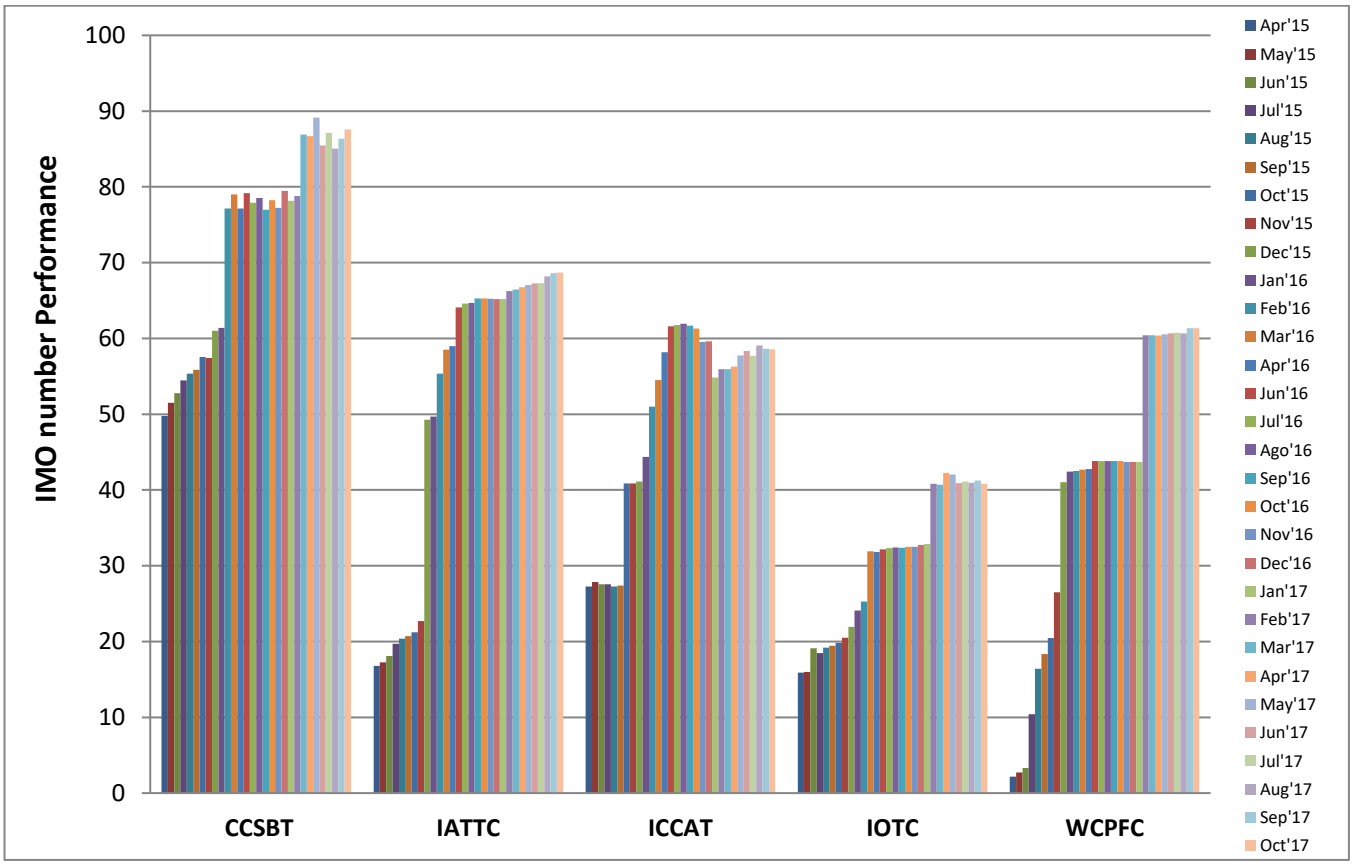
Figure 8. Overall performance for the ten different data fields compiled in the CLAV, March 2015 to October 2017.



The performance reductions observed from October 2016 to January 2017 for IMO 24 m, and IRCS were the direct result of resolving and cleaning erroneous or spurious entries to the CLAV database. Figures or expressions that were incorrect or that did not correspond to IMO numbers or IRCS, which have accumulated through time in the CLAV, and which were taken as valid entries in past analyses were deleted as part of the cleaning-up of the CLAV database. In the case of IRCS, the cleaning of those expressions affected greatly ICCAT´s performance as there were hundreds of entries with values entered as (n/a), which were deleted from the CLAV.

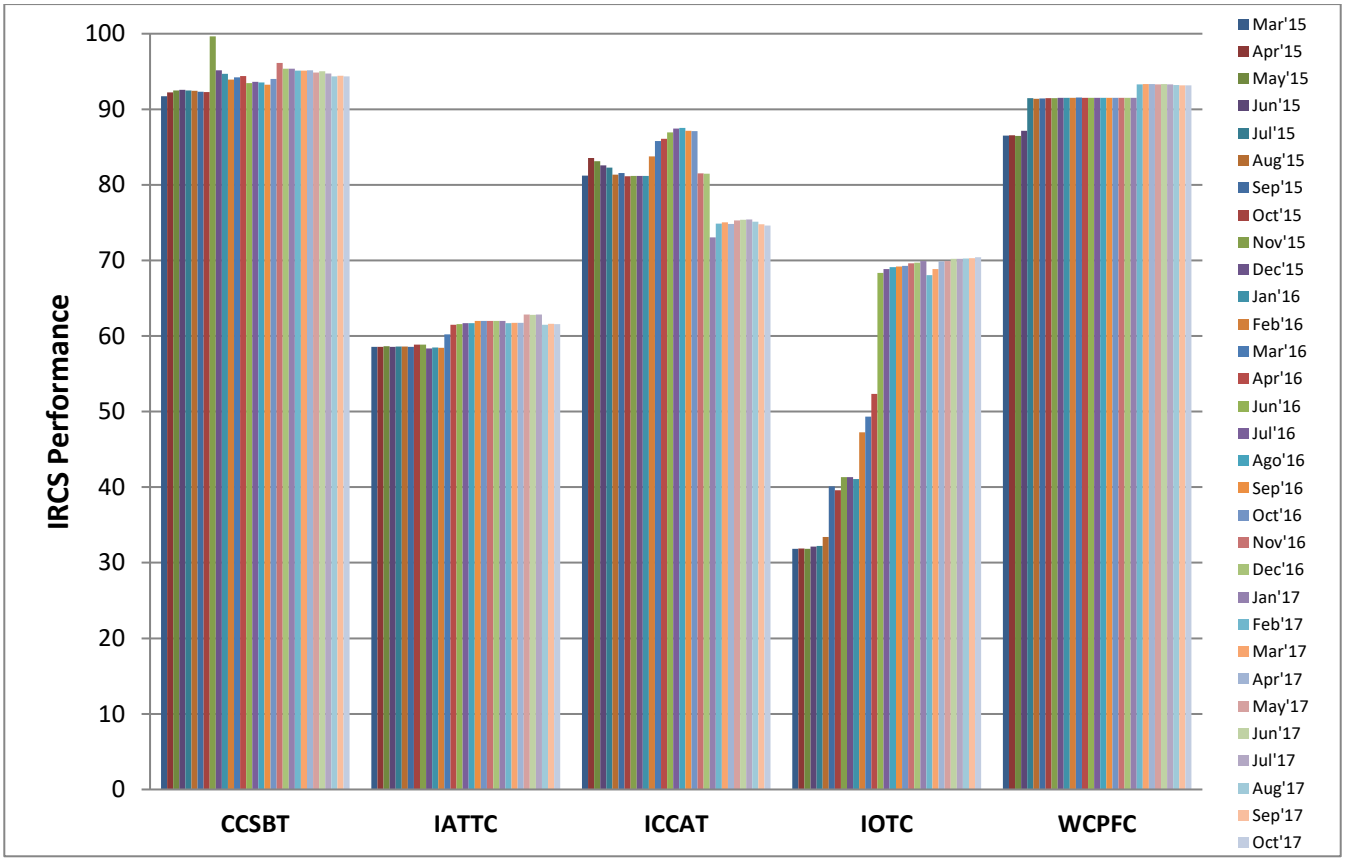
The **IMO number** tendency at improving its reporting continues, as shown by the overall trend from March 2015 (15.4 percent) to March 2016 (47.4 percent) to March 2017 (57.5 percent) to October 2017 (58.9 percent). Extra efforts at gathering IMO numbers by all five t-RFMOs are responsible for this notable overall improvement, whose details are shown below in **Figure 9**. There are differences in the reporting of the IMO number by the different t-RFMOs, however.

Figure 9. IMO number performance for the five t-RFMOs, considering only those authorized vessels of length equal to 24 meters and over, March 2015 to October 2017.



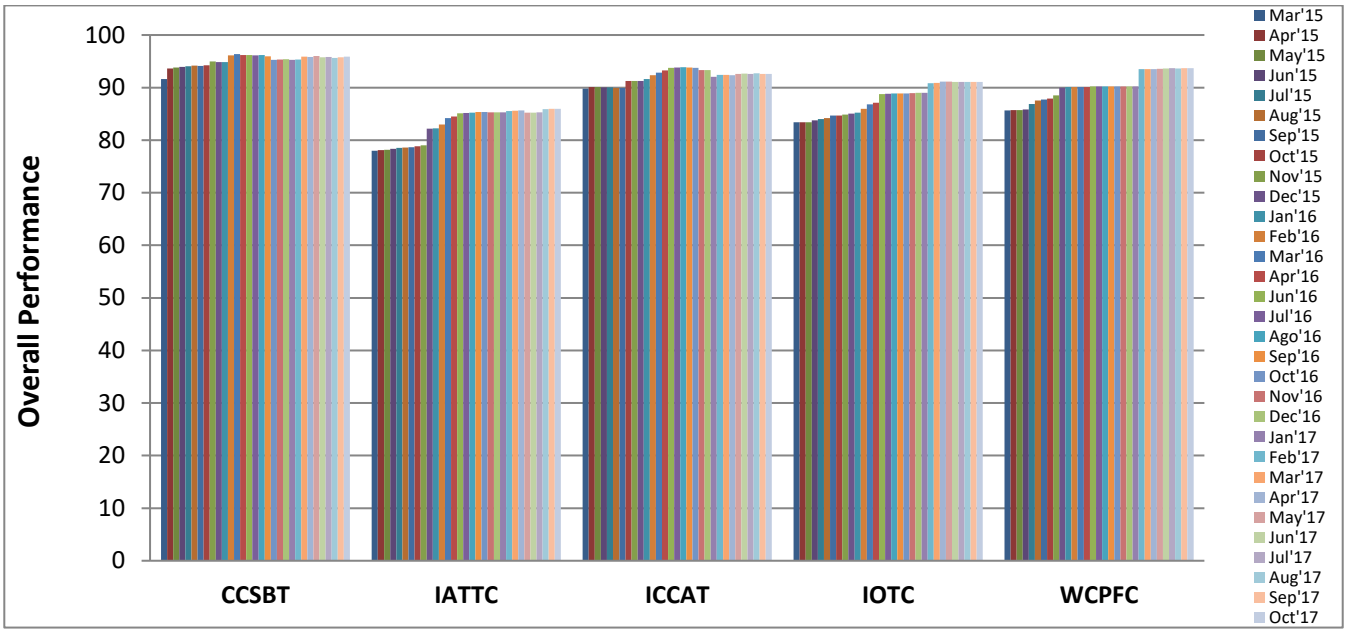
The **IRCS** (International Radio Call Sign) has also improved its reporting through time and overall almost 75 percent of all the vessels authorized included an IRCS at the end of October 2017 (see **Figure 8**). The cleaning of hundreds of entries with values entered as (n/a) affected greatly ICCAT´s performance from October 2016 onwards as seen in **Figure 10**, below. There are differences in the reporting of the IRCS by the various t-RFMOs, as shown below. Part of such lower IRCS reporting is likely associated with the higher proportion of vessels of smaller size in a couple of the t-RFMOs (i.e., IATTC and IOTC). Smaller vessels that operate near shore may not be required an IRCS.

Figure 10. IRCS performance for all the vessels authorized by the five t-RFMOs, March 2015 to October 2017.



Summarizing the scoring for the ten attributes it is possible to have a comparative idea of the overall performance of the different t-RFMOs in a type of benchmark analysis, as shown below. The figure below illustrates that, though in different degrees, all five t-RFMOs have improved through time their performance in terms of completion of the ten basic attributes reported to the CLAV.

Figure 11. Comparison of the overall performance of the five t-RFMOs, March 2015 to October 2017.



The slight drop (noticeable for ICCAT) in the period October 2016 to January 2017 is partially the result of the resumed maintenance of the CLAV, when duplicates were again being consolidated and erroneous and spurious accumulated entries were either edited or deleted. These actions affected the number of authorized records reporting the ten basic attributes and hence modified their performance, in particular that of the IMO number and the IRCS reporting.

13. Performance of the most represented flags in the CLAV.

The results of the overall performance evaluation (based on similar benchmark analyses) for the most representative 38 flags in the CLAV are shown below. Only those most represented flags with 50 or more authorized vessels are shown; together they encompassed more than 90 percent of the total number of vessels authorized in the CLAV at the end of October 2017.

The following Figures illustrate the overall performance by flag for the degree of completion of the ten basic attributes included in the CLAV for all vessels authorized (**Figure 12**), and the comparative performance by flag for those least reported attributes, namely the IMO number for all vessels authorized of 24 meters and over (**Figure 13**), and the IRCS (**Figure 14**).

Cases where notable changes are observed (e.g., from 0 to 100) may result from only one or very few vessels being reported with such attribute. This was the case for LKA where the IMO number of just one vessel larger than 24 meters was reported. Some other notable changes of performance were from flags with only a small proportion of vessels equal or above 24 meters, where the reporting of some few IMO numbers made a big difference (**Figure 13**).

Figure 12. Comparison of the overall performance for all the vessels authorized by the 38 most representative flags in the CLAV, March 2015 to October 2017.

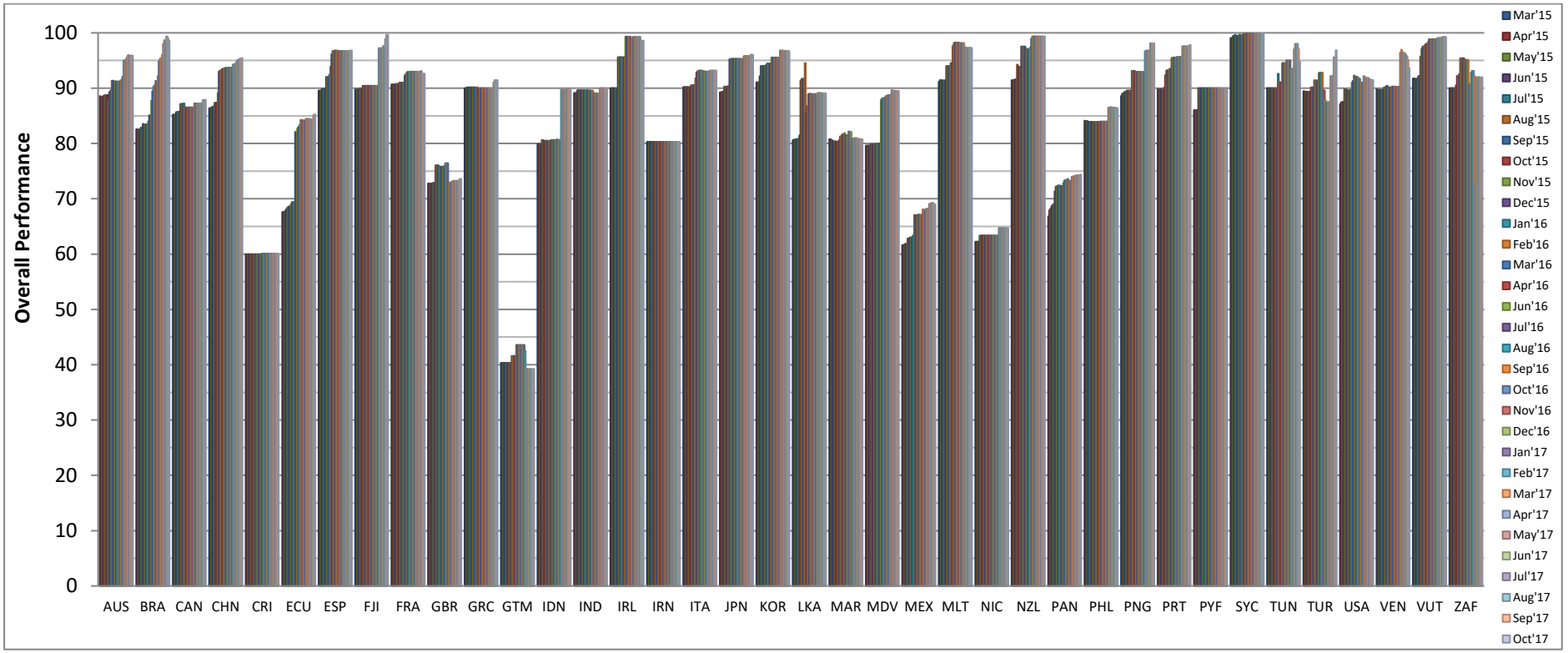


Figure 13. Comparison of the IMO number performance, for all the vessels authorized of length equal to 24 meters and over, by the 38 most representative flags in the CLAV, March 2015 to October 2017.

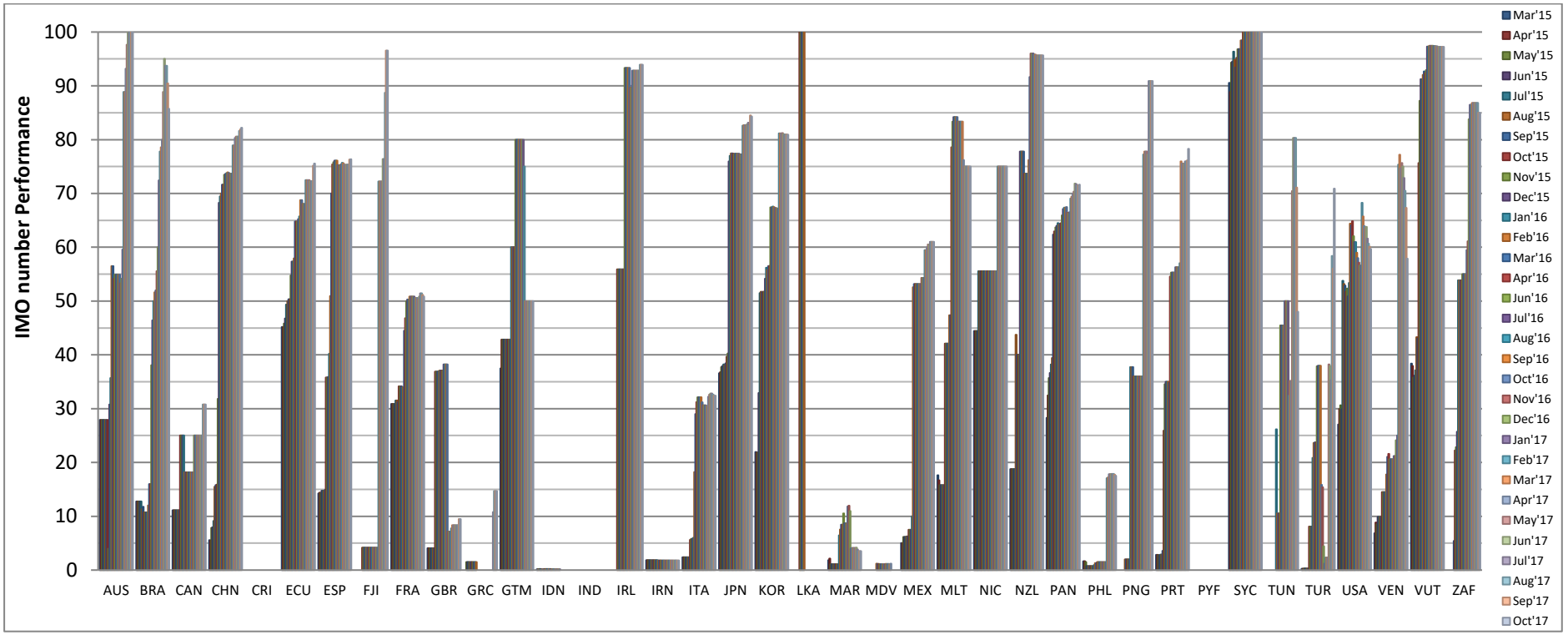
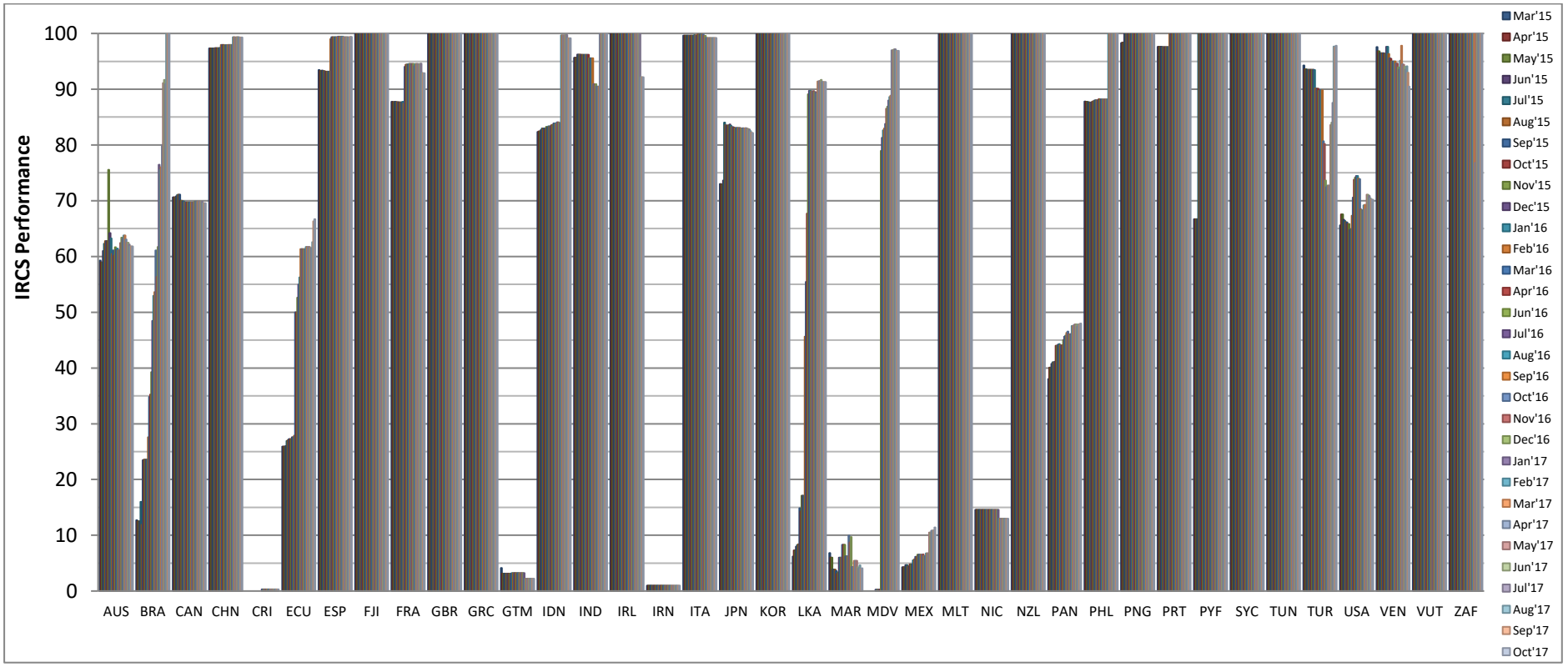


Figure 14. Comparison of the IRCS performance for all the vessels authorized by the 38 most representative flags in the CLAV, March 2015 to October 2017.



14. Conclusions.

- Though the CLAV maintenance work has been centered on resolving accumulated erroneous entries, there still remain duplicates, mixed-up records, and some spurious entries (that although detected and informed to the corresponding t-RFMOs) have not been corrected or resolved by the sources yet. Therefore, those errors will remain in the CLAV database until further notice from the responsible sources.

- Coordinated efforts between ICCAT and CLAV to closely aligning the CLAV with the original information in the ICCAT database have demanded a number of maintenance actions through August to October 2017. ICCAT records, which were no longer authorized or were redundant, have failed to update to the CLAV opportunely. Those discrepancies are being jointly tackled and solved, resulting in a reduction of the number of authorized vessels and records in the CLAV database.

- Out of 17,158 authorized vessels uniquely identified in the CLAV at the end of October 2017, the majority (89.7 percent; 15,385) were authorized in a unique t-RFMO, and the remaining (10.3 percent) were authorized in multiple t-RFMOs.

- Of the 91 flags represented in the CLAV at the end of October 2017, the great majority (71.4 percent) have vessel authorized to operate at only one Convention area. Nine flags operated vessels at two Convention areas, while ten flags operated vessels at three, three flags operated vessels at four, and four flags operated vessels at five Convention areas.

- Although the performance analyses done for comparative purposes in this report made use of the CLAV information as it is, it should be noted that up to now there remains problems reporting standardized measures for length and tonnage, being length overall (LOA) and gross tonnage (GT) the standard ones. In addition to LOA and GT, lengths and tonnages have been reported in several different forms, such as LBP, REG, RGL, UNK for length, and GR, UNK for tonnage.

- The rate of the overall IMO number reporting (for vessels 24 meters and above) has maintained an increasing trend from March 2015 (15.4 percent) to October 2017 (58.9 percent), a near fourfold improvement. Performance reductions observed from October 2016 onwards originated from resolving and cleaning erroneous and spurious entries to the CLAV database. Figures or expressions that were incorrect or that did not correspond to IMO numbers accumulated through time and were deleted as part of the cleaning-up of the CLAV database.

- The overall IRCS reporting rate has improved slightly, from 63 percent in March 2015 to 74.9 percent at the end of October 2017. Performance reductions observed from October 2016 onwards originated from resolving and cleaning erroneous or spurious entries to the CLAV database. This affected primarily ICCAT´s performance as hundreds of spurious entries (such as n/a) counted previously as IRCS were deleted from the CLAV database.

- Developing and maintaining the CLAV up to this point has involved multiple efforts and investments. The progress achieved at keeping the CLAV updated at close-to-real time, during the period of two and a half years has been possible by the joint efforts and close collaboration between the t-RFMO´s compliance officials, the database managers, and the CLAV maintenance work.

- The Common Oceans Tuna Project at FAO has now committed to support the CLAV maintenance work to the end of March 2018. In the meantime, some mechanism and institutionalization, agreed upon by the t-RFMOs owners of the CLAV, would seem necessary and should be devised to insure the continuation and further maintenance of the CLAV beyond March 2018.

- Responses, from the t-RFMO´s compliance officials and/or database managers, regarding the usefulness of the CLAV unanimously indicated that *maintaining the CLAV is a worthwhile effort, and that the additional time and efforts dedicated to resolve issues detected by the CLAV maintenance ultimately resulted in data quality improvements to the benefit of both the t-RFMOs and flag members.*

- http://clav.iotc.org/browser/search