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**ANNUAL REPORT FOR THE COMMISSION VMS**

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**WCPFC9-2012-IP03<sup>1</sup>**  
**12 November 2012**

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<sup>1</sup>WCPFC-TCC8-2012/IP02 rev1, with paragraph 19 updated to note TCC8 recommendations and Secretariat implementation of geofences for reduced polling rates.



**TECHNICAL AND COMPLIANCE COMMITTEE**  
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**ANNUAL REPORT FOR THE COMMISSION VMS**

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**WCPFC-TCC8-2012/IP02 rev1**  
**28 September 2012**

**Paper prepared by Secretariat**

1. The Annual Report for the Commission VMS is prepared in accordance with VMS SSPs requirements paragraphs 7.3.9 and 7.3.10. Comments provided by CCMs to the Secretariat during TCC7 about additional details that they would like to see in this report have been accommodated where possible.

**Background**

2. Article 24(8) of the Convention obliges each Member of the Commission to require its fishing vessels that fish for highly migratory stocks on the high seas of the Convention Area to use an ALC/MTU which meets agreed WCPFC Standards, Specifications and Procedures, while in these areas. To implement this requirement, the Commission has adopted CMM 2011-02 Commission Vessel Monitoring System Conservation and Management Measure (which replaced CMM 2007-02), a set of Standards, Specifications and Procedures (SSPs) which were approved in 2008 (WCPFC5) and a set of Standard Operating Procedures (SOPs) which were approved in 2009 (WCPFC6). CMM 2007-02 established the WCPFC VMS system covering the area of the Convention Area south of 20N and east of 175 E in the area north of 20N, and requests that vessels moving from this area into the northern quadrant to keep their ALC/MTU activated and continue to report to the WCPFC VMS. CMM 2009-11 clarifies the expectation of the Commission that CNMs shall comply with CMMs adopted by the Commission.

3. Currently the WCPFC VMS covers the high seas waters of the Convention Area, south of 20N and east of 175 E in the area north of 20N, and the waters under national jurisdiction of New Zealand and Cook Islands. Commencing 1 January 2013, in accordance with WCPFC8 decision, the WCPFC VMS will cover the waters under the national jurisdiction of Niue. A number of other coastal CCMs in the Convention Area have expressed an interest in having their waters covered by WCPFC VMS.

4. Paragraph 7.3.3 of the SSPs requires, in part, that the Secretariat develop and manage a service level agreement (SLA) with the FFA for provision of VMS services. This SLA was signed by the Secretariats of the WCPFC and FFA in early December 2008, and the WCPFC VMS became operational in April 2009. Since then the WCPFC Secretariat has regularly met with the FFA Secretariat to monitor the delivery of SLA services in support of Commission VMS implementation. The next SLA meeting is scheduled immediately following TCC8, in at WCPFC Headquarters in Pohnpei.

**Commission VMS Database**

5. Paragraph 2.8 of the SSPs requires the Secretariat to administer a Commission VMS database. Currently this database is administered and hosted in Sydney under the WCPFC-FFA SLA for the WCPFC VMS services. There is currently no link between the data in the WCPFC Record of Fishing

Vessels (RFV), which hosted at Headquarters in Pohnpei, and the Commission VMS database. The Secretariat believes that this aspect needs to be addressed and it would be more efficient and effective for the Commission VMS database if the details more directly aligned with those in the WCPFC RFV.

6. In accordance with the Commission VMS SOPs, all vessels operating in the Convention Area that are required to report to the Commission VMS are to complete, in full, a Vessel Tracking Agreement Form (VTAF). The VTAF is designed to collect the details of each vessel's MTU/ ALC being used by vessels that will report to the Commission VMS, including those reporting through the FFA VMS. The VTAF also authorises the Secretariat to electronically monitor the unit and disseminate data from it in accordance with WCPFC policy. The VTAF can be downloaded from the Commission website - <http://www.wcpfc.int/vessel-monitoring-system>

7. Annex 1 lists the number of VTAFs by CCM, which have been received by the Secretariat since the inception of the Commission VMS (as at 31 December 2012). Also listed in **Annex 1**, for comparative purposes, are the number of vessels by flag on the WCPFC RFV as at 31 Dec 2011, the number of vessels by flag in the Commission VMS database as at 31 Dec 2011, the number of vessels detected on the high seas during the 2011 and the number of vessels reported by the flag CCM to have "fished" in the Convention Area beyond the flags areas under national jurisdiction (CMM 2009-01, para 9). It is difficult to be certain whether the WCPFC has received all VTAFs for all vessels that are obliged to report to the WCPFC VMS. The reasons for this include:

- some vessels operate in the Convention Area outside their flag States national waters but may be operating principally in areas under national jurisdiction of another CCM;
- some vessels are on the Record of Fishing Vessels, but are not necessarily actively fishing in the Convention Area all the time;
- WCPFC receives VMS data for all vessels reporting to the FFA VMS system when they are within the area that the WCPFC VMS covers (and so the VTAFs are not necessarily a pre-requisite for receiving this high seas VMS data, although WCPFC has received some but not all VTAFs for vessels reporting to WCPFC through the FFA VMS); and
- The only form of advice that the WCPFC Secretariat receives on active vessels is after the fact, in the form of a "fished" or "did not fished" report in July for the previous calendar year (CMM 2009-01 paragraph 9).

8. A summary of the number of VMS position data received by the Commission VMS (both from vessels reporting directly to the WCPFC VMS and through the FFA VMS), is shown in Table 1.

**Table 1. Number of positions reports by area monitored by WCPFC VMS.**

Area	2009	2010	2011	2012 <sup>2</sup>
HS Convention Area	1,170,291	1,467,198	1,472,300	1,282,995
Cook Islands EEZ <sup>3</sup>	1,811	2,088	2,195	5,375
New Zealand EEZ <sup>2</sup>	8,779	5,910	14,234	11,416
<b>Sub-total</b>	<b>1,180,881</b>	<b>1,475,196</b>	<b>1,488,729</b>	<b>1,299,786</b>
Quarantined Data	708,284	1,820,644	2,046,068	1,599,967
<b>Total</b>	<b>1,889,165</b>	<b>3,295,840</b>	<b>3,534,797</b>	<b>2,899,753</b>

### Provision of High Seas Data for MCS Activities

<sup>2</sup> Data up to end of August 2012

<sup>3</sup> Monitoring of national waters under Article 24(8) of the Convention

9. 2009 WCPFC Rules and Procedures for the Protection, Access to and Dissemination of High Seas Non-Public Domain Data and Information<sup>4</sup> allows for CCMs conducting MCS activities, including in areas under national jurisdiction to request and receive, WCPFC VMS data, from high seas areas adjacent to up to 100 nautical miles adjacent to, and outside their Exclusive Economic Zones (paragraph 22 and 23). Eight CCMs have requested access to 100nm high seas buffer, some on an ongoing basis, and others for the purposes of specific MCS operations: Australia, Cook Islands, Federated States of Micronesia, Kiribati, Nauru, Palau, Tonga and United States of America. In accordance with CMM 2010-02, access to the EHSP-SMA WCPFC VMS data has been provided to the adjacent CCMs: Cook Islands, French Polynesia and Kiribati. Some FFA members have nominated the FFA Regional Fisheries Surveillance Centre in Honiara, Solomon Islands, as one of their MCS personnel to receive WCPFC VMS data on their behalf.

10. The WCPFC Secretariat's currently preferred method for implementing ongoing access by CCM nominated MCS personnel to WCPFC VMS data, including 100nm high seas buffer VMS data, through VMS client logins and SmartTrac software (which is currently provided under the WCPFC-FFA SLA). However noting the current limitations of SmartTrac software, particularly in terms of data extraction for specific MCS Operations or for further investigations of a vessels activity, the Secretariat maintains the option for CCMs to receive extracts of WCPFC VMS data, during particular MCS operations, on a MS Excel spreadsheet and with a Google-Earth map. At least two CCMs prefer to receive extracts of WCPFC VMS data under their requests on an ongoing daily basis. One of the enhancements that the WCPFC Secretariat would like implement in 2013, under the WCPFC/FFA SLA, is to be able to automate the process of extracting WCPFC VMS position reports from the WCPFC database and have a mechanism for direct provision of such data to CCMs authorized MCS personnel.

11. In accordance with 2009 Data Access Rules and Procedures, a number of members also have requested and received high seas WCPFC VMS data for high seas MCS activities where the member has a MCS presence or capability on the high seas (paragraph 21). A list of all accesses of WCPFC VMS data is provided in the Report on the Administration of the WCPFC data access rules and procedures (WCPFC-TCC8-2012-IP05).

### **Log of Manual Report**

12. There is an outstanding issue in the WCPFC VMS SSPs related to the time frames for manual reporting to occur, and before a vessel is required to return to port. TCC7 reviewed this issue, but CCMs were not able to agree on final text for these provisions. TCC7 agreed that CCMs should work intersessionally on this matter. During TCC7, several CCMs requested that the Secretariat provide some additional detail to assist in resolving the issues of the bracketed text: a tabulated breakdown of vessel names, ALC/MTU type, fleet, gear type, and period and regularity of manual reporting within the Annual Reports. A more detailed list of vessels that reported positions manually is appended in Annex 2.

13. Despite the bracketed text in the SSPs, the WCPFC Secretariat receives manual reports from some vessels operating in the Convention Area. The Secretariat maintains a log of all vessels placed on manual reporting consistent with paragraph 5.6 of the SSPs. The manual reports are also entered in the Commission VMS database, however the WCPFC VMS system does not currently have the capability to incorporate these position reports into SmartTRAC view or in extracts of WCPFC VMS data that are provided to. It should be noted that some vessels have delayed in reporting manually until urged by their flag State. Since 2009 there have been 9,279 manual reports received by the Secretariat from 198 fishing vessels. Manual reports is provided in various formats, and the Secretariat notes that resolution of the

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<sup>4</sup> Rules and Procedures for the Protection, Access to, and Dissemination of High Seas Non-Public Domain Data and Information Compiled by the Commission for the Purpose of Monitoring, Control or Surveillance (MCS) Activities and the Access to and Dissemination of High Seas VMS Data for Scientific Purposes (adopted at WCPFC6, December 2009)

manual reporting provisions in the SSPs together with the specification of a format for example, (dd\*mm'ss') would certainly assist the ease of monitoring and managing the manual vessel reports that are received. A breakdown of manual VMS reports by flag and by year is shown in Table 2.

**Table 2. Number of vessels by flag that have provided manual position reports by year (2012 data is as at 31 August).**

FLAG	2009	2010	2011	2012
Cook Islands				1
China	1	14	8	17
Ecuador	1		2	
Fiji				1
Federated States of Micronesia			1	1
Japan		11	3	4
Kiribati			1	3
Korea		2	11	2
Singapore			1	1
Chinese Taipei	16	57	49	13
Vanuatu	2		1	
<b>Total</b>	<b>20</b>	<b>84</b>	<b>77</b>	<b>43</b>

### List of Non-Compliant ALCs

14. In response to the requirement in paragraph 7.3.10 of the WCPFC VMS SSPs, the WCPFC Secretariat reports that no non-compliant ALCs have been reported to the WCPFC Secretariat during the period that the Commission VMS has been operational.

### ALCs Comply with WCPFC standards

15. Paragraphs 2.9 and 2.13 of the SSPs state that CCMs are to carry out a periodic audit of a representative sample of installed ALCs. The results of these audits will be provided to the Commission by CCMs in the Part 2 Annual Report to the Commission and those results compiled by the Secretariat into a VMS Audit Report Document. At the time of preparation of this paper the following MTU/ALC audit summaries had been received by the Secretariat related to the 2011 year:

- Two CCMs provided lists of vessels that had been inspected during 2011 (Chinese Taipei 84 vessels in Part 2 report, United States noted in Part 2 report, their submission direct to Secretariat in June 2012 of a list of 42 vessels, as well as another 28 conducted to date in 2012);
- Two CCMs (Korea and EU) indicated in their Part 2 report that VMS inspections are conducted annually on their vessels which are licensed to FFA members;
- One CCM indicated in their Part 2 report that MTU inspections would be conducted in 2012 (Japan); and
- Other CCMs either had not submitted their Part 2 report or reported that they had implemented the VMS SSPs 7.2.4, but provided no further details on the inspections that had been conducted or indicated that the provision was not applicable because they had no flagged vessels fishing on the high seas in 2011.

## **VMS is Stable, Reliable and Fully Maintained**

16. SSP 7.3.2 requires the WCPFC Secretariat to provide a stable, reliable, fully maintained and supported Commission VMS that conforms to the security standards set out in the Commission's ISP. The Commission VMS is housed at the FFA's Pacific VMS infrastructure at Macquarie Telecom Data Center and fully managed by FFA Secretariat and its VMS Service provider. The redundant system in Guam for backup/data security purposes is operational.

## **Issues for TCC8**

### **Report on the work of the VMS-Small Working Group**

17. WCPFC8 established the VMS-SWG to clarify the needs, purposes and attributes of the Commission VMS. A separate report will be provided by the VMS-SWG co-Chairs to TCC8, which may include recommended amendments to the WCPFC SSPs and CMM 2011-02, as well as other ways that costs of the WCPFC VMS might be optimised. This paper is provided as **WCPFC-TCC8-2012/11**.

### **Cost Optimisation of the WCPFC VMS**

18. At WCPFC8, in response to the recommendations of the 2011 Joint FFA/WCPFC VMS Review, the Secretariat was able to report on agreement between WCPFC and FFA to reduce the SLA charges effective as of 1 January 2011, and which resulted in significant cost savings to the Commission (of \$300,000 to the 2012 budget).

19. During the Joint FFA/WCPFC VMS review it was noted that much of the WCPFC VMS data, particularly the VMS data related to the area outside of the Convention Area and positions that occur in areas under national jurisdiction that are not currently covered by the WCPFC VMS, were resident in the system and is charged to the WCPFC, even though WCPFC was not able to access or use this VMS data. Accordingly the Joint FFA/WCPFC VMS Review recommended "Reducing the polling rate to a less frequent polling interval when a vessel is more than 200nm out of the Convention Area", which was supported by TCC7. To implement this recommendation, the Secretariat has created geo-fences around the Convention Area boundaries and not at EEZ-high seas boundaries.<sup>5</sup> The geo-fences enable vessels Inmarsat C MTU reporting rates to be reduced to 1 position report per day when a vessel enters these areas.

20. Along similar lines, another way that CCMs might consider to optimize costs is to configure certain Inmarsat C MTUs to report in single packet particularly where this configuration can only be done onsite, and where it is not possible to do this remotely through the WCPFC VMS. Noting this CCMs are encouraged, where appropriate, to reconfigure their flag vessels Inmarsat C MTUs to single packet reporting.

21. The 2011 TCC-SWG which considered the Joint VMS review report noted "Addressing VMS data management issues for WCPFC Secretariat staff is a high priority for improving quality of service to members and for reducing costs." Along these lines the WCPFC Secretariat, and supported by the findings of the 2011 Joint WCPFC-FFA VMS review, believes there could be some cost-efficiencies and service efficiencies from the Secretariat having authorization to query and generate standard and ad-hoc reports from the VMS database. In addition, the Secretariat believes that this may assist the Secretariat in

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<sup>5</sup> 104. TCC8 supported the Secretariat's revised approach to application of the recommendations from the Joint FFA-WCPFC Review of the WCPFC VMS with regard to application of geo-fencing and reduced polling rate procedures only at the boundaries of the Convention Area and not at EEZ-high seas boundaries.

105. TCC8 tasked the Secretariat with implementing an appropriate buffer zone around the Convention Area with regard to application of the geo-fencing and reduced polling rate procedures.

being able to better support and assist in developing automated processes for extracting and for facilitating the dissemination of WCPFC VMS data under approved WCPFC data requests. Nevertheless, the Secretariat remains hopeful of progress on these matters being made through the VMS-SWG working group established by WCPFC8. The Secretariat remains committed to working on these priority areas and in partnership with the FFA Secretariat within the scope of the WCPFC VMS SLA.

22. Finally, to note that there have been some slight increases in the operational costs of the WCPFC VMS during 2012, because of increases in the packet reporting to Inmarsat mini C units. These additional SatComms charges have currently been able to be absorbed within the VMS operational costs for 2012.

### **Operationalizing Article 24(8) of the Convention – (Access to in-zone data, Niue Application and Flick the Switch)**

23. WCPFC8 agreed that the joint US and RMI proposal (WCPFC8-2011-DP/30 Rev 3) be further elaborated at TCC8.

### **Proposed template for ALC/MTU audits by CCMs (SSPs paragraphs 9 -13)**

24. The Secretariat has produced a revised template for ALC/MTU audits, which takes into account the comments received from CCMs during WCPFC8 (WCPFC-TCC8-2012/12).

### **Review of integrity of Commissions VMS data**

25. WCPFC VMS SSPs paragraph 6.10 requires that the Secretariat undertake an annual external audit of the WCPFC VMS, to verify the integrity of WCPFC VMS data. This report is expected to be a late paper for TCC8 (WCPFC-TCC8-2012/13).

**Annex 1. Table comparing the number of vessels listed in the WCPFC Record of Fishing Vessels, the number of Vessel Tracking Agreement Forms (VTAFs) received and the number of vessels in the WCPFC VMS Database (WCPFC registered vessels and FFA registered vessels present on the high seas in 2011), as at 31<sup>st</sup> Dec 2011. For comparative purposes the reports provided by CCMs under CMM 2009-01 para 9 for 2011, is compared to the number of vessels that were detected on the WCPFC VMS during 2011.**

CCM	RFV or Interim Register	VTAF Received	VMS Database	Number of vessels reported as “fished”	Vessels reporting to WCPFC VMS on the high seas
Australia	101	16	13	8	3
Belize	11	6	6	2	2
Cambodia	6		8		4
Canada	4	2	1	2	1
China	401	257	376		272
Chinese Taipei	1,705	815	1,062	777	620
Cook Islands	16	21	31	15	9
Ecuador	9	8	12		10
El Salvador	2	2	2		2
European Union	115	32	33	13	12
Federated States of Micronesia	33	31	42	37	31
Fiji	92	8	84	70	63
French Polynesia	95				
Honduras			1		
Indonesia	430	3	12	89	7
Japan	1,336	798	863	981	506
Kiribati	42	13	45		35
Korea	279	116	174	152	167
Liberia			1		1
Marshall Islands	27	3	28	26	25
New Caledonia	27	20	20		1
New Zealand	7	7	7	5	5
Panama	70	22	85		67
Papua New Guinea	40	12	11	34	7
Philippines	622	4	63	184	34
Russian Federation	1		1		1
Saint Kitts and Nevis		1	1		1
Senegal		2			
Sierra Leone	9	1	7		5
Singapore	5	2	9		8
Solomon Islands	5		1		
Thailand	6	2	5		
Tonga	2			0	
Tuvalu	9	3	7		6
USA	189	161	203	183	122
Vanuatu	130	104	146	123	106
<b>Total</b>	<b>5,826</b>	<b>2,472</b>	<b>3,360</b>	<b>2,701</b>	<b>2,135</b>



## Manual Reports by Year

2009

Vessel Name	IRCS	Type	FLAG	Manufacturer	Model	May	Jun	Jul	Aug	Sep	Oct
CHANG JAAN NO.1	YJSW2	LL	VU	Thrane & Thrane	TT-3022D			30	93	28	
CHIA MING SHENG	BK7153	LL	TW	Thrane & Thrane	TT-3022D		6				
CHIH CHI FENG NO.1	BJ4871	LL	TW	Thrane & Thrane	TT-3022D			32			
CHIUAN SHENG NO.36	BJ3592	LL	TW	Thrane & Thrane	TT-3026	1	76	17			
DER HAE NO.2	BJ4980	LL	TW	Thrane and Thrane	TT3022D			11	7		
GOLDEN NO.301	BJ4896	LL	TW	Trimble	TNL7001			29	27		
HORNG SHYANG	BK7403	LL	TW	Thrane & Thrane	TT-3022D			1			
HUNG FA NO.128	BK7729	LL	TW	Thrane & Thrane	TT-3026S		28				
JIN ROEI FWU NO.6	BJ4502	LL	TW	Thrane & Thrane	TT-3026			1			
JIN SHENQ LIH NO.33	BK7484	LL	TW	Thrane & Thrane	TT-3026			1			
JINN LONG YU	BK6263	LL	TW	Thrane & Thrane	TT-3026			1			
JINN LONG YU NO.2	BJ4178	LL	TW	Thrane & Thrane	TT-3026			1			
MAN HSIANG HSIN	BK7394	LL	TW	Thrane & Thrane	TT-3020C		51				
NINE LUCKY NO.6	YJSY4	LL	VU	TRIMBLE	TNL7001						6
SHENG I TSAI NO.368	BJ4889	LL	TW	Thrane & Thrane	TT-3022D		107				
SHIN TSAI FA NO.6	BJ4357	LL	TW	Thrane & Thrane	TT-3026S		4	1			
XIN SHI JI 101	BZ4UB	PS	CN	Thrane & Thrane	TT-3022D			198	504		
YU LONG 2	BJ4874	LL	TW	Thrane & Thrane	TT-3022D				35		
JIA DER FA 6	BJ4415	LL	TW	FFA VMS		5	1				
UGAVI DOS	HC4593	PS	EC	FFA VMS		9					

2010

Vessel Name	IRCS	Type	FLAG	Manufacturer	Model	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Dec
CHI CHENG NO.11	BJ4795	LL	TW	Thrane & Thrane	TT-3022D								37			
CHIA CHUN NO.23	BJ4838	LL	TW	Thrane & Thrane	TT-3022D							5	40			
CHUNG YIH	BK7110	LL	TW	ARGOS	Marge V2								21			
CHYUAN SHENQ NO.16	BJ3803	LL	TW	Thrane & Thrane	TT-3026								3			
CHYUAN SHENQ NO.333	BJ3565	LL	TW	ARGOS	Argos				5	10	6					
DER YUH SHENG	BK7143	LL	TW	Thrane & Thrane	TT-3022D							5				
DONG HORNG	BJ4941	LL	TW	Thrane & Thrane	TT-3022D						52					
FU YUEN	BJ3367	LL	TW	ARGOS	Marge V2										10	
FUKUYO MARU NO.68	JQNK	LL	JP	FURUNO	FURUNO					60	78					
FWU MAAN TSAIR NO.6	BK6502	LL	TW	ARGOS	Marge V2								1			
GOLDEN NO.301	BJ4896	LL	TW	Trimble	TNL7001								68			
HORNG JYI TSAIR	BK6821	LL	TW	Thrane & Thrane	TT-3022D							19	21	15		
HORNG YIH FWU NO.268	BJ4593	LL	TW	Thrane & Thrane	TT-3026							4				
HSIN MAN CHUN	BJ4485	LL	TW	Thrane & Thrane	TT-3026							15	128			
HSIN YI FA NO.3	BK7506	LL	TW	Thrane & Thrane	TT-3026S								14			
JENN FENG MAN NO.1	BK6889	LL	TW	Thrane & Thrane	TT-3026								1			
JIA CING LI	BK7717	LL	TW	ARGOS	Marge V2								28			
JIA JYI FA	BK7460	LL	TW	Thrane & Thrane	TT3026S								17			
JIN CHING FA NO.16	BJ3555	LL	TW	Thrane & Thrane	TT-3026				1	14	2	4				
JIN HO No.23	BJ4894	LL	TW	Thrane & Thrane	TT-3022D								6			
JIN MING YU	BK6852	LL	TW	Thrane & Thrane	TT-3022D							5	15			
JIN ROEI FWU NO.6	BJ4502	LL	TW	Thrane & Thrane	TT-3026								1	4		
JIN SHENG FENG NO.218	BJ3884	LL	TW	Thrane & Thrane	TT-3026							16	28		13	
JIN SHENQ LIH NO.33	BK7484	LL	TW	Thrane & Thrane	TT-3026								2			
JIN SHYE YIH NO.36	BJ4121	LL	TW	Thrane & Thrane	TT-3026							5	45	7		
JIN YIH CHERNG	BJ4401	LL	TW	Thrane & Thrane	TT-3026S				1	1		15	27	23	31	
JING LU YUAN 002	BZZS3	LL	CN	Thrane & Thrane	TT-3026S	6	8	13	12	9	21	7				
JING LU YUAN 003	BZZS4	LL	CN	Thrane & Thrane	TT-3026S	6	9	11	12	4	21	7				
JING LU YUAN 005	BZZS6	LL	CN	Thrane & Thrane	TT-3026S	41	35	42	38	36	52	19				

JING LU YUAN 008	BZZS9	LL	CN	Thrane & Thrane	TT-3026S	39	37	43	41	40	51	19				
JING YUAN 903	BZZT3	LL	CN	FURUNO	FELCOM 12	5	9	12	13	12	23	7				
JING YUAN 906	BZZT4	LL	CN	FURUNO	TT-3026S	6	9	12	14	13	22	7				
JINN LONG YU NO.2	BJ4178	LL	TW	Thrane & Thrane	TT-3026								6		16	
JYI JYI YIH NO.2	BK6808	LL	TW	Thrane & Thrane	TT-3026							8	18			
LIAO JIN LUN 103	BZZB2	LL	CN	Thrane & Thrane	TT-3026S	5	9	9	5	9	22	5				
LIAO JIN LUN 107	BZZB5	LL	CN	Thrane & Thrane	TT-3026S	6	9	9	8	7	21	6				
LIAOJINLUN 108	BZTF8	LL	CN	Thrane & Thrane	TT-3026S	43	37	41	42	37	51	18				
LIAOJINLUN 109	BZTF9	LL	CN	Thrane & Thrane	TT-3026S	43	37	41	42	37	51	18				
LIAOJINLUN 110	BZTG2	LL	CN	Thrane & Thrane	TT-3026S	6	7	11	10	8	20	7				
LIAOJINLUN 111	BZTG3	LL	CN	Thrane & Thrane	TT-3026S	5	9	10	10	7	20	7				
LIEN I HSING NO.116	BJ4828	LL	TW	Thrane & Thrane	TT-3022D								1			
LIEN YU FA	BJ4584	LL	TW	Thrane & Thrane	TT-3022D							15	42			
MAAN CHUAN JYI	BK6316	LL	TW	Thrane & Thrane	TT-3026								1			
MAAN DAH FENG NO.2	BK6379	LL	TW	ARGOS	ARGOS								2			
MAAN FONG NO.268	BJ4315	LL	TW	Thrane & Thrane	TT-3020C								1			
MING FWU TSAIR NO.6	BJ3978	LL	TW	Thrane & Thrane	TT-3026								19			
NO.121 DONGWON	6MPX	LL	KR	FURUNO	FELCOM 16							55				
NO.168 SHENG FU YU	BJ4631	LL	TW	Thrane & Thrane	TT-3026								2			
NO.212 DONGWON	6NMC	LL	KR	FURUNO	FELCOM 16							36				
RIASU MARU	JPYT	Resrch - Trng	JP	JRC	JUE-75C		10	9								
RYOYOSHI-MARU No.8	JNQM	LL	JP	FURUNO	FELCOM 16		8	3								
SHENG FU YU NO.168	BJ4631	LL	TW	Thrane & Thrane	TT-3026								2			
SHENG I HSING NO.63	BJ4907	LL	TW	Thrane & Thrane	TT-3026S								4			
SHENQ MAAN SHING NO.10	BK7412	LL	TW	Thrane & Thrane	TT-3020C								3			
SHIMA MARU NO. 1		LL	JP	FURUNO	FURUNO											11
SHIN RONG SHING NO.3	BK7508	LL	TW	ARGOS	Marge V2								1			
SHIN SHEND HER	BJ4398	LL	TW	Thrane & Thrane	TT-3022D							1	14		2	
SHING MAAN YU	BK6789	LL	TW	Thrane & Thrane	TT-3022D				3	4		1				
SHINYO MARU	7JAO	LL	JP	JRC	JUE-75C		6									
SHUN HONG	BJ5004	LL	TW	Thrane & Thrane	TT-3022D							19				

SHUNYO MARU	JETM	Resrch - Trng	JP														1
TAKE MARU NO.38		LL	JP	FURUNO	FELCOM 12												6
TE LI NO.10	BK7421	LL	TW	Thrane & Thrane	TT-3020C							20	23				
TOKUHO MARU NO.21		LL	JP	FURUNO	FURUNO												20
TZENG GIN SOON NO.288	BJ4128	LL	TW	ARGOS	Marge V2							1					
WIH CHINQ	BK4278	LL	TW	ARGOS	Marge V2			1									
XIN SHI JI 12	BZUS9	LL	CN	TRIMBLE	TNL7001	5	5	11	9	12	21	7					
XIN SHI JI 31	BZVA9	LL	CN	FURUNO	FELCOM 12	86	10	17	23	21	28	8					
YI SHENG WANG	BJ3565	LL	TW	Thrane & Thrane	TT-3026				12	20	12						
YI YUAN NO.316	BJ4842	LL	TW	Thrane & Thrane	TT-3022D											1	
FUMI MARU		LL	JP	FFA VMS													39
HER HAE NO.26	BJ4994	LL	TW	FFA VMS												2	
JIA DER FA 6	BJ4415	LL	TW	FFA VMS							3						
JIN MAAN SHYANG NO.12	BJ4673	LL	TW	FFA VMS												2	
JIN YU SHENG	BJ4220	LL	TW	FFA VMS												35	
KOKUSHIN MARU NO.8		LL	JP	FFA VMS													2
KUO RONG NO.136	BJ4912	LL	TW	FFA VMS												24	
MAN FU TSAI NO.1	BK7748	LL	TW	FFA VMS												37	
NORI MARU		LL	JP	FFA VMS													12
SHENG CHI HUI No.2	BJ4524	LL	TW	FFA VMS												32	
SHENG JYI HUEI NO.16	BJ4330	LL	TW	FFA VMS												24	
YU WEN NO.101	BZJM	PS	TW	FFA VMS												95	
YUH CHANG NO.6	BJ4715	LL	TW	FFA VMS								19					
YUH YI NO.1	BJ4581	LL	TW	FFA VMS				8									

# 2011

Vessel Name	IRCS	Type	FLAG	Manufacturer	Model	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AN WEN FA NO.22	BJ4334	LL	TW	Thrane & Thrane	TT-3022D									6			
CAENG CHI TSAI NO.12	BK7517	LL	TW	Thrane & Thrane	TT-3026						9						
CHARNG SHING YUAN No.12	BJ4918	LL	TW	Thrane & Thrane	TT-3022D					9	99						
CHERNG YIH MAAN	BJ4767	LL	TW	Thrane & Thrane	TT-3022D											7	
CHIA CHUN NO.23	BJ4838	LL	TW	Thrane & Thrane	TT-3022D									10			
CHIUAN SHENG NO.36	BJ3592	LL	TW	Thrane & Thrane	TT-3026						7						
CHUAN YI	BJ4717	LL	TW	Thrane & Thrane	TT-3022D						9						
CHUNG YIH	BK7110	LL	TW	ARGOS	Marge V2						2	10					
CHYUAN LIANG FA NO.6	BJ4434	LL	TW	Thrane & Thrane	TT-3020C											15	71
CHYUAN SHENQ NO.16	BJ3803	LL	TW	Thrane & Thrane	TT-3026								1				
DAYANG 11	BZZB8	LL	CN	Thrane & Thrane	TT3626S									6			
DER YUH SHENG	BK7143	LL	TW	Thrane & Thrane	TT-3022D						6	56					
FA ZAI YI	BJ4682	LL	TW	Thrane & Thrane	TT-3022D											11	
FENG DAR YUH NO.168	BJ3899	LL	TW	ARGOS	Marge V2									2			7
FU YUAN YU 064	BZ6UR	LL	CN	Thrane & Thrane	TT3626S									20	1		
FUH AN NO.1	BK6600	LL	TW	Thrane & Thrane	TT-3022D									8			
HONG YU NO.66	BJ4481	LL	TW	Thrane & Thrane	TT-3026									2			
HORNG MING NO.6	BK6827	LL	TW	Thrane & Thrane	TT-3026S						25			7			
HORNG YIH FWU NO.268	BJ4593	LL	TW	Thrane & Thrane	TT-3026												2
JENN MING YANG	BK6812	LL	TW	Thrane & Thrane	TT-3022D												12
JIN CHING FA NO.16	BJ3555	LL	TW	Thrane & Thrane	TT-3026							21					
JIN LIEN FA NO.168	BK7475	LL	TW	Thrane & Thrane	TT-3022D											6	
JIN MAAN FA NO.66	BJ4915	LL	TW	Thrane & Thrane	TT-3026											4	
JIN SHENG FENG	BK7912	LL	TW	Thrane & Thrane	TT-3022D									34	115		
JIN SHENG FENG NO.218	BJ3884	LL	TW	Thrane & Thrane	TT-3026							6					
JIN SHYE YIH NO.36	BJ4121	LL	TW	Thrane & Thrane	TT-3026									3			
JINN LONG YU	BK6263	LL	TW	Thrane & Thrane	TT-3026											1	
JINN LONG YU NO.2	BJ4178	LL	TW	Thrane & Thrane	TT-3026						5	21		3	1	1	7
LIAN FONG YI NO.21	BJ3510	LL	TW	Thrane & Thrane	TT-3026						2	37				10	

LIAN JYI FA	BK6825	LL	TW	Thrane & Thrane	TT-3022D						2	66					
MAAN DAH FENG NO.2	BK6379	LL	TW	ARGOS	ARGOS								13				
MAN I FENG NO.22	BJ4483	LL	TW	Thrane & Thrane	TT-3026S							55	2				
MING CHI TSAI NO.16	BJ4329	LL	TW	Thrane & Thrane	TT-3026S							77	68				
MING FWU TSAIR NO.6	BJ3978	LL	TW	Thrane & Thrane	TT-3026						11						
NO.73 CHUNGYONG	6NKT	LL	KR	FURUNO	FELCOM 16								39				
RUI JIN FA NO.3	BJ5013	LL	TW	Thrane & Thrane	TT-3022D									21	6		
SHANG SHUN NO.668	BI2510	LL	TW	Thrane & Thrane	TT-3022D						10						
SHENG YI SHING NO.20	BJ3889	LL	TW	Thrane & Thrane	TT-3020C									5			
SHENG YU	BJ4071	LL	TW	Thrane & Thrane	TT-3022D											15	81
SHIMA MARU NO.1		LL	JP	FURUNO	FURUNO						46	67					
SHIN JINN YIH NO.8	BJ4261	LL	TW	Thrane & Thrane	TT-3026S						5						
SHIN SHYANG YIH NO.116	BJ3497	LL	TW	Thrane & Thrane	TT-3026									1	13	2	2
SING MAN YU	BK6789	LL	TW	Thrane & Thrane	TT-3022D									19	11	4	
TIAN FA TSAIR NO.38	BJ4361	LL	TW	Thrane & Thrane	TT-3022D											10	
TZENG JIN SHUENN NO.133	BJ3910	LL	TW	Thrane & Thrane	TT-3026						1						
YI FENG NO.168	BJ4622	LL	TW	Thrane & Thrane	TT-3020C								16				
YI FENG NO.682	BJ4945	LL	TW	Thrane & Thrane	TT-3022D											11	14
YONG MIN NO.6	BK7106	LL	TW	Thrane & Thrane	TT-3022D							12					
YU JIN NO.136	BK7048	LL	TW	Thrane & Thrane	TT-3026						2						1
YU TSAIR WANQ	BK6712	LL	TW	Thrane & Thrane	TT-3026						1		3				
CLEARWATER 03	V6P218	LL	FM	FFA VMS										70	100		
DONG WON NO.637	DTBW8	LL	KR	FFA VMS										1			
GOANG SHING LIH	BK7364	LL	TW	FFA VMS										29	40		
GUAYATUNA UNO	HC4649	LL	EC	FFA VMS													2
KOVA	YJQU8	LL	VU	FFA VMS													1
KYUNG YANG NO.2	6NJH	LL	KR	FFA VMS												6	
LAKE GLORY	DSOC6	FO	KR	FFA VMS												5	
M.T. HAI SOON IX	9VPC	VOB	SG	FFA VMS													6
M.T. HAISOON 5	T3UM	VOB	KI	FFA VMS								3	7	3	2	2	4
MT. HAI SOON IX	T3ND	VOB	KI	FFA VMS										2			

NO. 335 ORYONG	6MNY	LL	KR	FFA VMS											6			
No.2 KYUNG YANG	6NJH	LL	KR	FFA VMS													7	122
NO.335 ORYONG	6MNY	LL	KR	FFA VMS											22			
NO.355 OYANG	6MNI	LL	KR	FFA VMS												6		
NO.801 ORYONG	DTBU7	LL	KR	FFA VMS											64			
NO.83 AGNES	6LIW	LL	KR	FFA VMS		1												
QUIN YUAN YU 010	BZZQ	LL	CN	FFA VMS				40										
SAJO COLUMBIA	6NJU	PS	KR	FFA VMS						3	42							
SHEN GANG FA 3	BZXD6	LL	CN	FFA VMS											40		22	
SHEN LIAN CHENG 707	BZXC7	LL	CN	FFA VMS											73	179		
SING FA CAI	BJ4452	LL	TW	FFA VMS												1		
TAI FU 102	BZSO8	PS	CN	FFA VMS												6	8	8
TAKATOYO MARU NO.38	JEZR	LL	JP	FFA VMS											49			
TAKE MARU NO.38		LL	JP	FFA VMS		60	29	22										
UGAVI DOS	HC4593	PS	EC	FFA VMS					7					11				
YUE NAN YU 182	BZXL65	LL	CN	FFA VMS													24	40
YUE YUAN YU 169	BZXL6	LL	CN	FFA VMS						22	185							

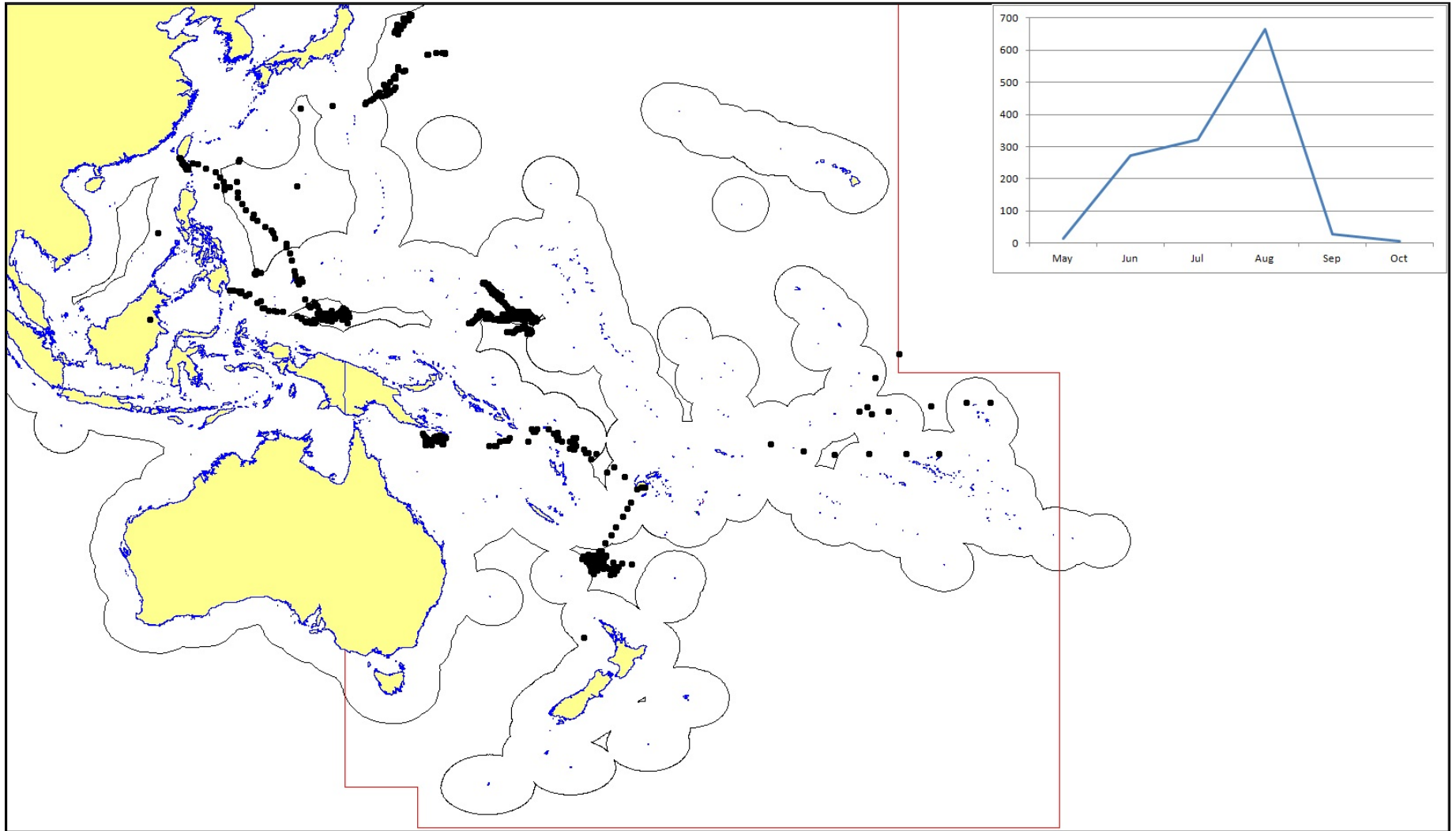
2012

Vessel Name	IRCS	Type	FLAG	Manufacturer	Model	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
CHING TSAI FA NO.11	BJ4626	LL	TW	Argos	Marge V2		3						
CHUNG YIH	BK7110	LL	TW	ARGOS	Marge V2								8
DAIKI MARU NO.7		LL	JP	JRC	JUE-75C						40	42	
HSIN CHI YU NO.11	BJ4725	LL	TW	Trimble	TNL7001		23						
JIN DER TSAI	BK7343	LL	TW	Thrane & Thrane	TT-3022D							4	122
JIN HO NO.33	BJ4621	LL	TW	Thrane & Thrane	TT-3026								91
JIN ROEI FWU NO.6	BJ4502	LL	TW	Thrane & Thrane	TT-3026								1
LIAO YUAN YU 98	BZYK6	LL	CN	Thrane & Thrane	TT-3022D							41	24
MAAN DAH FENG NO.2	BK6379	LL	TW	ARGOS	ARGOS		5						
ROEI SHING FUH NO.6	BK6863	LL	TW	Thrane & Thrane	TT-3026								1
SHIN JINN YIH NO.8	BJ4261	LL	TW	Thrane & Thrane	TT-3026S								1
SHIN TSAI FA NO.6	BJ4357	LL	TW	Thrane & Thrane	TT-3026S		3						
YI FENG NO.68	BJ4306	LL	TW	Thrane & Thrane	TT-3022D	2	9						
DONG WON NO.633	DTAN8	LL	KR	FFA VMS							21		
GILONTAS NO.386	BJ4691	LL	TW	FFA VMS		2	58						
GRACE 1	E5U2210	LL	CK	FFA VMS									16
GUI YUAN YU 60001	BZWZ32	LL	CN	FFA VMS			25	5					
HAI SOON IX	9VPC	VOB	SG	FFA VMS								4	1
HAI SOON 39	T3BH2	VOB	KI	FFA VMS					2	2		3	
HAI SOON 5	T3UM	VOB	KI	FFA VMS		1	4			2	3	3	3
HONGYANG 8	BBIW8	LL	CN	FFA VMS		12	22						
JIN SHENG NO.2	BZZX8	LL	CN	FFA VMS			83	25					
KOSHIN MARU NO.18		LL	JP	FFA VMS						24	10		
KOSHIN MARU NO.7	JLVW	LL	JP	FFA VMS					35				
LIAO YUAN YU 99	BZYK7	LL	CN	FFA VMS						45	29	84	
LU RONG YUAN YU 18	BBZN2	LL	CN	FFA VMS			1						
LU RONG YUAN YU 25	BZSI3	LL	CN	FFA VMS			1						
LU RONG YUAN YU 27	BBKF	LL	CN	FFA VMS			1						
MISS LUEN	V6P1833	LL	FM	FFA VMS			125			24			

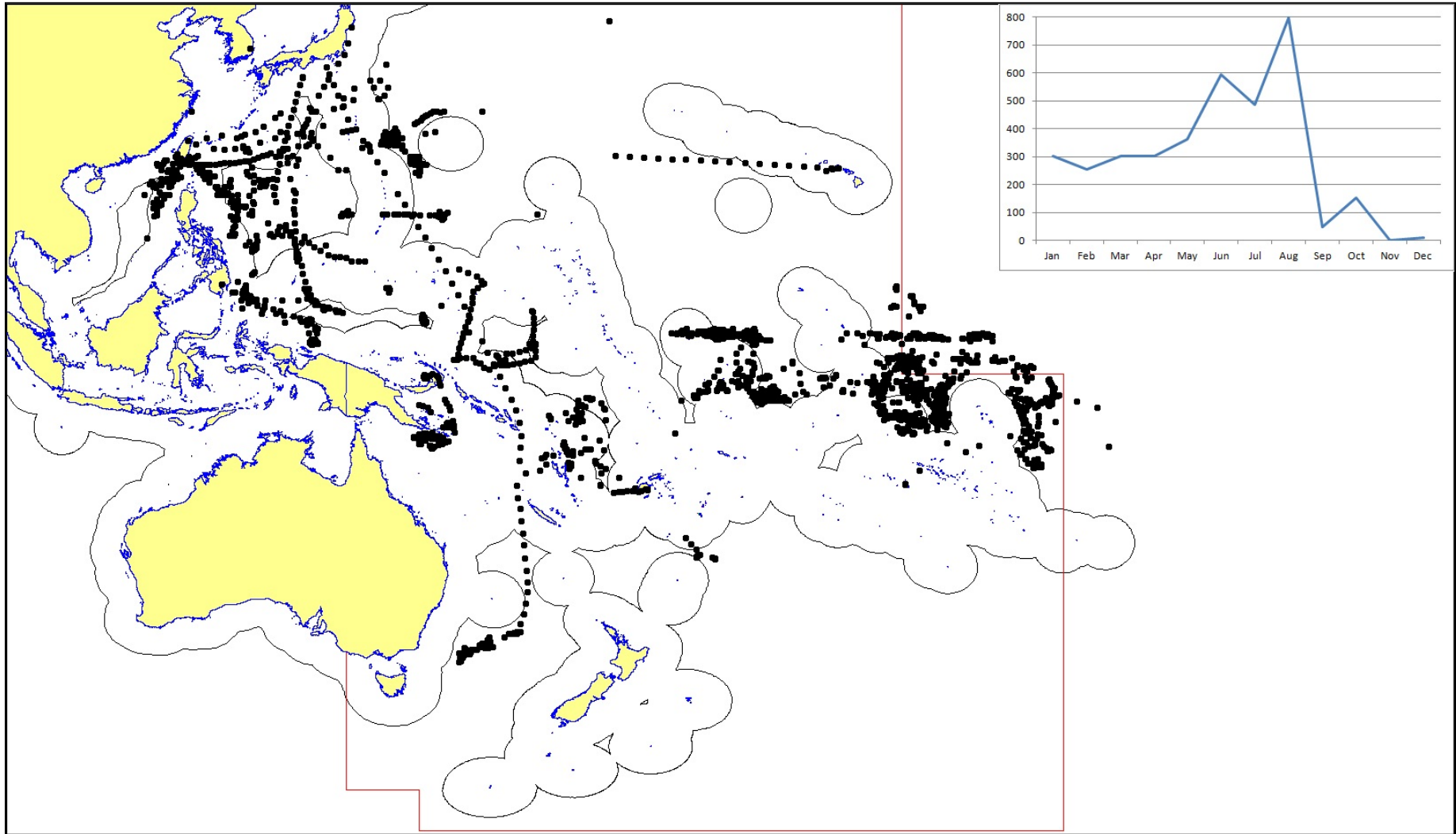


MOAMARI	T3JG	PS	KI	FFA VMS		2	21		36	6	10	2	5
NO. 307 OYANG	HLBO	LL	KR	FFA VMS		5							
RITUNA NO. 1	3DZF	LL	FJ	FFA VMS					1				
SHENG I TSAI NO.688	BG3685	LL	TW	FFA VMS		3	49						
TAI HONG 7	BZZO7	LL	CN	FFA VMS			16						
TAI JIANG	BZZO3	LL	CN	FFA VMS			16						
TAIWA MARU NO.8	JNJY	LL	JP	FFA VMS								8	
YUE NAN YU 179	BZXL63	LL	CN	FFA VMS								56	139
Zhong Rong 15	BBFB4	LL	CN	FFA VMS							10	1	
ZHONG RONG 5	BBEU1	LL	CN	FFA VMS			9						
ZHONG SHUI 601	BYLQ5	LL	CN	FFA VMS					16				
ZHONG SHUI 611	BYZB11	LL	CN	FFA VMS					14	2			
ZHONG SHUI 703	BZZZ7	LL	CN	FFA VMS					2				
ZHONG SHUI 710	BZZR9	LL	CN	FFA VMS					6				

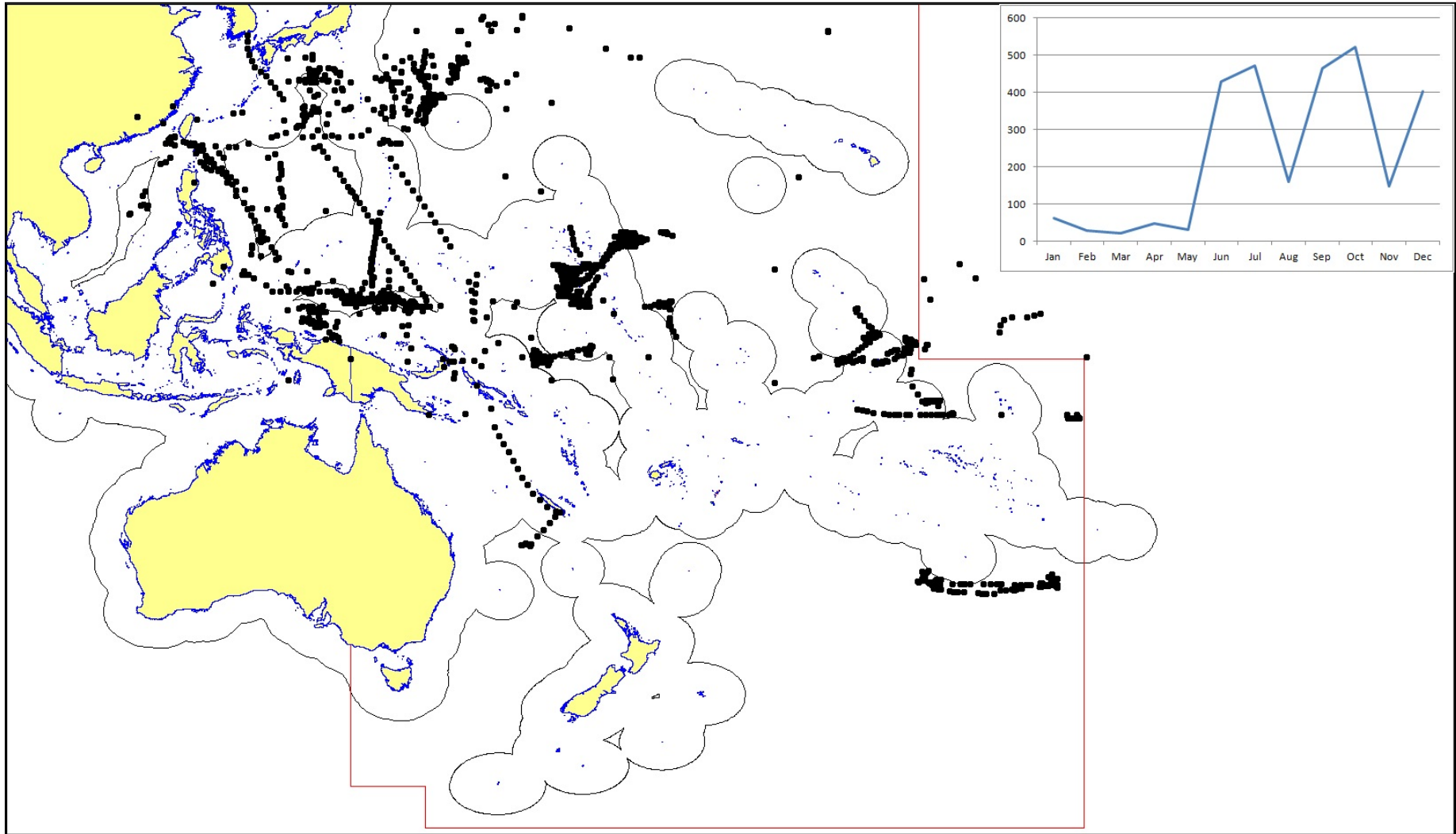
2009 plot of manual reports (this map represents 1,311 position reports from 20 vessels).



2010 plot of manual reports (this map represents 3,614 position reports from 84 vessels)



2011 plot of manual reports (this map represents 2,791 position reports from 77 vessels)



2012 plot of manual reports (data up to 31<sup>st</sup> August) (this map represents 1,531 position reports from 43 vessels)

