

AGREEMENT ON THE INTERNATIONAL DOLPHIN CONSERVATION PROGRAM

36TH MEETING OF THE PARTIES

LA JOLLA, CALIFORNIA (USA)
24 OCTOBER 2017

DOCUMENT MOP-36-05

REPORT ON THE INTERNATIONAL DOLPHIN CONSERVATION PROGRAM

1. Introduction.....	1
2. The On-Board Observer Program	2
3. Dolphin mortality.....	3
4. International Review Panel	4
5. Tuna tracking and verification	5
6. Amendments and resolutions affecting the operation of the IDCP	5
7. Other functions performed by the Secretariat.....	5
8. Research.....	6

1. INTRODUCTION

In the eastern Pacific Ocean (EPO), schools of yellowfin tuna frequently associate with marine mammals, especially spotted, spinner, and common dolphins. When the purse-seine fishery for tunas in the EPO began around 1960, the fishermen found that their catches of yellowfin in the EPO could be maximized by setting these nets around a herd of dolphins and the associated school of tunas. However, releasing the dolphins while retaining the tuna proved more difficult, and in the early years of the fishery many dolphins died during this process. As techniques and equipment to solve this problem were developed, this mortality fell, gradually at first and dramatically in the 1990s, thanks to the combined efforts of the fishing industry, governments, the Inter-American Tropical Tuna Commission (IATTC), environmental organizations, and other interested parties.

The 1992 La Jolla Agreement provided a framework for international efforts to reduce this mortality, and introduced novel and effective measures as Dolphin Mortality Limits (DMLs) for individual vessels and created the International Review Panel to monitor the performance and compliance of the fishing fleet. The [Agreement on the International Dolphin Conservation Program \(AIDCP\)](#), which built on and formalized the provisions of the La Jolla Agreement, was signed in May 1998 and entered into force in February 1999. The Parties to the AIDCP committed to ensure the sustainability of tuna stocks in the eastern Pacific Ocean and to progressively reduce the incidental dolphin mortalities in the tuna fishery of the eastern Pacific Ocean to levels approaching zero and to avoid, reduce and minimize the incidental catch and the discard of juvenile tuna and the incidental catch of non-target species, taking into consideration the interrelationship among species in the ecosystem.

As of 31 August 2017, Belize, Colombia, Costa Rica, Ecuador, El Salvador, the European Union, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, the United States, and Venezuela have ratified or acceded to the Agreement. Bolivia and Vanuatu are applying the AIDCP provisionally. At the request of the Parties, the IATTC provides Secretariat support for implementation of the Agreement, including coordination of the On-Board Observer Program and the [Tuna Tracking and Verification System](#).

2. THE ON-BOARD OBSERVER PROGRAM

The IATTC observer program, along with the national observer programs of Colombia (Programa Nacional de Observadores de Colombia, PNOC), Ecuador (Programa Nacional de Observadores Pesqueros de Ecuador; PROBECUADOR), the European Union (Programa Nacional de Observadores de Túnidos, Océano Pacífico; PNOT), Mexico (Programa Nacional de Aprovechamiento del Atún y Protección de Delfines; PNAAPD), Nicaragua (Programa Nacional de Observadores de Nicaragua; PRONAON, administered by the Programa Nacional de Observadores Panameños, PRONAOP); Panama (PRONAOP), and Venezuela (Programa Nacional de Observadores de Venezuela; PNOV) compose the AIDCP On-Board Observer Program. Additionally, at its 82nd meeting in July 2011, the IATTC agreed on a [Memorandum of Cooperation](#) (MOC) with the Western and Central Pacific Fisheries Commission (WCPFC) for cross-endorsement of observers from the IATTC program and the WCPFC's Regional Observer Program to monitor vessels that fish or transit the high-seas Convention Areas of both organizations.

2.1. Observer coverage

In 2016 the Program placed observers aboard 99% of the trips by purse-seine vessels of carrying capacity greater than 363 metric tons (Class 6) in the Agreement Area, as required by the AIDCP. Three trips by Class-6 vessels operated in the Agreement Area without the required AIDCP observer (see minutes of the 61st meeting of the IRP).

In 2016, the Ecuadorian national program had a goal of sampling approximately one-third of the trips by its fleet, and the Colombian, European Union, Mexican, Nicaraguan, Panamanian, and Venezuelan national programs each had a goal of sampling approximately half of the trips by their respective fleets. The IATTC program covered the remainder of the trips of vessels from these seven fleets, plus all trips by vessels of other fleets, for a total of 60% of all observed trips.

During 2016, AIDCP observers departed on 880 fishing trips made in the Agreement Area by vessels operating under the flags of Colombia, Ecuador, El Salvador, European Union (Spain), Guatemala, Mexico, Nicaragua, Panama, the United States, and Venezuela (Table 1). WCPFC observers covered 12 trips by Class-6 vessels; of the rest, 26 trips were by vessels of 363 t or less: 3 by Class-5 vessels (273-363 t carrying capacity) and 19 by Class-4 vessels (182-272 t carrying capacity), under the exemption in Resolution C-13-01 that allows these vessels to fish for one trip during the closure if accompanied by an AIDCP observer. Also, at the request of the pertinent national authority, observers accompanied four trips by Class-5 vessels that did not fish for tunas, but that are included in the IATTC Regional Register as tuna purse seiners.

In addition to the above, in 2016 Ecuador started a voluntary observer program for tuna purse-seine vessels smaller than Class-6, using AIDCP observers, procedures, and protocols. The information collected from the 19 trips covered, 10 by Class-4 vessels and 9 by Class-5 vessels, was provided to the IATTC staff and incorporated into the IATTC observer database.

2.2. Observer training

The IATTC staff conducted an observer training course from 28 May to 8 June in Manta, Ecuador, for 17 attendees, 7 attendees from the Ecuadorian national program and 10 from the IATTC program.

A second observer training course was carried out by the IATTC staff from 21 November to 8 December, in Panama, Panama, for 10 attendees, 6 of them from the IATTC program and 4 for the Panamanian national observer program.

The staffs of the IATTC and WCPFC conducted an observer training course for 20 trainees of WCPFC regional observer programs. The session took place in Port Vila, Vanuatu, during 8-12 August. All costs for this training course were funded by the WCPFC.

3. DOLPHIN MORTALITY

3.1. Dolphin Mortality Limits (DMLs)

3.1.1. 2016 DMLs

The overall dolphin mortality limit (DML) for the international fleet in 2016 was 5,000 animals, and the unreserved portion of 4,900 was divided by 98 qualified vessels that requested DMLs. The average individual-vessel DML (ADML), based on 98 DML requests, was 50. No vessels renounced their DMLs. Six vessels that did not utilize their DMLs prior to 1 April were allowed to keep them for the remainder of the year under the *force majeure* exemption allowed by the AIDCP, but one of those did not utilize it. Two vessels lost their DML due to no utilization prior to 1 April. There were no requests for second-semester DML during the year, nor there were requests for a DML from the Reserve DML Allocation (RDA) managed at the discretion of the Director, pursuant to Annex IV.I.8 of the AIDCP. No vessel exceeded its DML in 2016. The distribution of dolphin mortalities in the fishery is shown in Figure 1.

3.1.2. 2017 DMLs

The Parties requested 100 DMLs for 2017 from the unreserved portion (4,900) of the overall fleet mortality limit. The utilization of the DMLs for the unreserved portion as of 7 September is as follows:

DML (Limit per vessel)	Assigned	Utilized by April 1	Re- nounced	Lost due to no utilization	Exempt due to <i>force majeure</i>
Full year (49)	100	89	0	6	5
Second semester	-	-	-	-	-
RDA	-	-	-	-	-

Five vessels that did not utilize their DMLs prior to 1 April were allowed to keep them for the remainder of the year under the *force majeure* exemption granted by the AIDCP. As of 7 September 2017, only 2 of these have made use of them.

During 2017, one vessel exceeded its DML. The national authority of the Party reallocated 18 additional dolphins to it from the total reallocated to its fleet, arguing that Annex IV.III.5 of the AIDCP prohibits reallocating dolphins to vessels only if they exceed a DML before 1 April, whereas this vessel did so after that date. The Parties, noting that the Agreement was created to reduce the incidental mortality of dolphins, and that cases such as this could undermine its effectiveness, asked the Secretariat to draft an amendment to the annex to eliminate the possibility of reallocating dolphins to a vessel that exceeded its DML in that same year (see minutes of the 61st Meeting of the IRP and the 35th Meeting of the Parties in July 2017).

The Parties, noting a precedent in another national fleet, approved allocating a DML to a vessel that forfeited its full-year DML because it did not utilize it by 1 April, that requested a *force majeure* exemption after the deadline, after the unutilized DMLs had already been reallocated among the Parties, and that was not entitled to a DML from the RDA. The DML would be taken from those already allocated to other vessels of that national fleet.

3.2. Estimates of the mortality of dolphins in 2016 due to fishing

The estimate of the mortality of dolphins in the fishery in 2016 is 702 animals (Table 2), compared to 765 mortalities recorded in 2015. The mortalities for 1979-2016, by species and stock, are shown in Table 3, and the standard errors of these estimates are shown in Table 4. The mortalities of the principal dolphin species affected by the fishery have declined since the early 1990s (Figures 2-3). Estimates of the abundances of the various stocks of dolphins and the relative mortalities (mortality/abundance) are also presented in Table 2.

The number of sets on dolphin-associated schools of tuna made by Class-6 vessels was 11,219 in 2016, compared to 11,020 in 2015, and this type of set accounted for 42% of the total number of sets made by such vessels in 2016, compared to 41% in 2015. The average mortality per set was 0.063 dolphins in 2016,

compared to 0.069 dolphins in 2015. The trends in the numbers of sets on dolphin-associated fish, mortality per set, and total mortality in recent years are shown in Figure 3.

The catches of dolphin-associated yellowfin decreased by 11% in 2016, as compared to 2015. The percentage of the catch of yellowfin taken in dolphin sets was 65% of the total catch in 2016 compared to 71% in 2015, and the average catch of yellowfin per dolphin set was 12.8 t in 2016, compared to 14.7 t in 2015. The mortality of dolphins per metric ton of yellowfin caught was 0.0049 in 2016, compared to 0.0047 in 2015.

The long-term decrease in the mortality per set is the result of efforts by the fishermen to better manage the factors that bring about mortalities of dolphins. Indicative of this effort is the number of sets without mortalities, which has risen from 38% in 1986 to 96.4% in 2016, and the average number of dolphins left in the net after backdown, which has decreased from 6.0 in 1986 to 0.1 or less since 2001 (Table 5). The factors under the control of the fishermen which are likely to affect the mortality of dolphins per set include the occurrence of malfunctions, especially those which lead to net canopies and net collapses, and the time it takes to complete the backdown maneuver (Table 5). The percentage of sets with major mechanical malfunctions has decreased from an average of approximately 11% during the late 1980s to less than 5% during 1998-2016; in the same period, the percentage of sets with net collapses decreased from about 30% to less than 2% on average, and that of net canopies from about 20% to less than 2% on average. Although the chance of dolphin mortality increases with the duration of the backdown maneuver, the average backdown time has changed little since 1986.

3.3. Reports of dolphin mortality by observers at sea

The AIDCP requires the Parties to establish a system, based on real-time observer reporting, to ensure effective implementation and compliance with per-stock, per-year dolphin mortality caps. Observers prepare weekly reports of dolphin mortality, by stock, which are then transmitted to the Secretariat via e-mail, fax, or radio. In June 2003 the Meeting of the Parties adopted [Resolution A-03-02 on at-sea reporting](#), which makes the vessel personnel responsible for transmitting these reports. During 2016, the reporting rate averaged 99.6% (Table 6).

Since January 1, 2001, the Secretariat has been reporting weekly to the Parties the cumulative mortality for the seven stocks of dolphins most frequently associated with the fishery. The most recent reported mortalities are shown in Table 7.

4. INTERNATIONAL REVIEW PANEL

The International Review Panel (IRP) follows a general procedure for reporting the compliance by vessels with measures established by the AIDCP for minimizing the mortalities of dolphins during fishing operations to the governments concerned. During each fishing trip, the observer prepares a summary of information pertinent to dolphin mortalities, and this is sent to the government with jurisdiction over the vessel by the Secretariat. Certain possible infractions are automatically reported to the government with jurisdiction over the vessel in question; the IRP reviews the observer data for other cases at its meetings, and any cases identified as possible infractions are likewise reported to the relevant government. The governments report back to the IRP on actions taken regarding these possible infractions.

In 2016, the IRP consisted of 20 members: 16 representing Parties, 2 representing non-governmental environmental organizations, and 2 representing the tuna industry.

The IRP met in La Jolla, California, USA on 20 June and 10 October 2016.

The minutes of IRP meetings are available on the [IATTC website](#), along with the other documents posted for each set of meetings. Tables 8-9 and Appendix A of this report summarize possible infractions identified by the Panel at these meetings and subsequent action taken by the governments.

5. TUNA TRACKING AND VERIFICATION

The [System for Tracking and Verifying Tuna](#), established in accordance with Article V.1.f of the AIDCP, enables “dolphin-safe” tuna, defined as tuna caught in sets without mortality or serious injury of dolphins, to be identified and tracked from the time it is caught through unloading, processing, and sale. The Tuna Tracking Forms (TTFs), completed at sea by observers, designates the tuna caught as dolphin safe (Form ‘A’) or non-dolphin safe (Form ‘B’). This, in turn, allows for the verification of the dolphin-safe status of any tuna caught by a vessel covered by the AIDCP. This framework, administered by the Secretariat, also allows each Party to establish its own tracking and verification program, implemented and operated by a designated national authority. These programs include periodic audits and spot checks for tuna at the points of capture, landing, and processing, and also provide mechanisms for communication and cooperation between and among national authorities, and timely access to relevant data. Each Party is required to provide the Secretariat with a report detailing its tracking and verification program.

All trips by vessels fishing in the Agreement Area that began in 2016 with an IDCP observer aboard were issued TTFs.

6. RESOLUTIONS, AMENDMENTS, AND OTHER DECISIONS AFFECTING THE OPERATION OF THE IDCP

No new Resolutions, Amendments to the Agreement, or Annexes were adopted by the 34th and 35th Meetings of the Parties held in October 2016 and June 2017.

After discussing, during multiple meetings, two special cases from 2014 of unauthorized substitution of observers, observer fraud and impersonation, the Parties endorsed an IRP recommendation that additional guidelines be developed to prevent reoccurrences. The Secretariat developed “[Procedures for the allocation of an observer on board an AIDCP fishing trip and pursuant to IATTC Resolution C-09-04](#).” Following circulation for review and comment by the Parties, these procedures were posted to the [IATTC web site](#).

7. OTHER FUNCTIONS PERFORMED BY THE SECRETARIAT

7.1. Dolphin safety panel alignments

During 2016, the IATTC staff conducted six alignments of dolphin-safety panels (DSP) and inspections of dolphin rescue gear aboard purse-seine vessels.

7.2. Training and certification of fishing captains

The IATTC has conducted dolphin mortality reduction seminars for tuna fishermen since 1980. Article V of the AIDCP calls for the establishment, within the framework of the IATTC, of a system of technical training and certification of fishing captains. Under the system, the IATTC staff is responsible for maintaining a list of all captains qualified to fish for tunas associated with dolphins in the EPO. The names of the captains who meet the requirements are to be supplied to the IRP for approval and circulation to the Parties to the AIDCP.

The requirements for new captains are (1) attending a training seminar organized by the IATTC staff or by the pertinent national program in coordination with the IATTC staff, and (2) having practical experience relevant to making sets on tunas associated with dolphins, including a letter of reference from a captain currently on the List, the owner or manager of a vessel with a DML, or a pertinent industry association. These seminars are intended not only for captains, who are directly in charge of fishing operations, but also for other crew members and for administrative personnel responsible for vessel equipment and maintenance. The fishermen and others who attend the seminars are presented with certificates of attendance.

During 2016, four training seminars were held, three by the IATTC staff and one by the Mexican national program, with 158 attendees.

Date	Program	Location	Attendees
-------------	----------------	-----------------	------------------

8 January	PNAAPD	Mazatlán (Mexico)	82
12 January	IATTC	Manta (Ecuador)	38
2 February	IATTC	La Jolla (USA)	1
3 August	IATTC	Manta (Ecuador)	37

7.3. Statements of Participation

Statements of Participation are issued by the Secretariat on request to vessels that carry observers from the On-Board Observer Program. This statement certifies that the vessel has been participating in the IDCP, and that all its trips have been covered by observers; the second, issued to vessels of non-Parties, certifies only that all the vessel's trips have been covered by observers. During 2016, statements of the first type were issued for 150 fishing trips by vessels of Ecuador, El Salvador, the European Union, Guatemala, Mexico, Nicaragua, Panama, United States, and Venezuela.

8. RESEARCH

Figures 4-6 compare the spatial distributions of fishing effort in the Agreement Area by vessels carrying observers, in numbers of sets, by type, in 2015 and 2016. The patterns of all set types were largely similar in both years. Sets in the far west of the Agreement Area appear to have increased over time.

In October 2016, the IATTC hosted a workshop on *Methods for Monitoring the Status of Eastern Tropical Pacific Ocean Dolphin Populations*, funded by the European Union and the Pacific Alliance for Sustainable Tuna, held in La Jolla, and attended by 21 invited participants from six different countries. The purpose of the workshop was to bring together experts in the fields of line-transect and mark-recapture surveys, abundance estimation and population modelling, and imagery, tagging and genetics, to discuss options for developing indices with which to monitor dolphin populations. Following upon the work of [Lennert-Cody et al. \(2016\)](#), the goal of the workshop was to identify methods, both conventional and novel, to collect fishery-independent data, for assessing the status of dolphin stocks. The questions to be addressed at the workshop included: 1) if no more fishery-independent, ship-based surveys could be conducted, what other existing methods could be used that would produce an estimate of abundance with a comparable coefficient of variation (CV)?; 2) are there new methods that could produce abundance estimates at a lower cost?; and 3) could the current fishery-independent ship-based survey methodology be improved?

[Three background documents](#) were prepared to facilitate the discussion: 1) a [review of historic and potential data sources](#), including IATTC and NMFS data on fisheries, life history, tagging, and genetics, and NMFS survey data (Scott *et al.*, in preparation for publication); 2) a [review of data analysis methods](#), including line-transect and mark-recapture (Lennert-Cody *et al.*, submitted for publication); and 3) a [review of contemporary cetacean stock](#) assessment models (Punt, submitted for publication).

The main discussion points, conclusions, and recommendations of the workshop are summarized in its draft [report](#). The participants concluded that ship-based line-transect surveys, although very costly, are currently the only reliable means of estimating abundance. If ship-based surveys are conducted in the future, it will be important to evaluate and adjust for imperfect detection of dolphin herds on the trackline, and to review the area covered by the survey and the stratification within the survey area. It will also be important to reduce variance in the abundance estimates through encounter-rate modeling and by pooling data over species to estimate the detection functions. With regard to alternatives to ship-based, surveys, it was noted that drone-based aerial survey technology is advancing rapidly and may become less expensive than ship-based surveys in the future, but research is needed before drone-based aerial imagery could be used to estimate abundance. A draft two-phase plan for research on the use of drones to conduct surveys was prepared. One of the key elements of the first phase would be to determine whether correction factors for covariate effects on dolphin detection in imagery (*e.g.*, due to animal's depth below the sea surface, or the sea state) can be estimated. Genetic mark-recapture and close-kin methods might also be less costly in the future than ship-based surveys, if samples were collected by fishery observers, but research is needed. The report includes a draft research plan for collecting genetic samples.

Scientists from the University of St. Andrews (Scotland), Bielefeld University (Germany), the US National Marine Fisheries Service, and the IATTC collaborated on a paper entitled “*Incorporating animal movement into distance sampling using dolphin movement data.*” The paper has been submitted for publication.

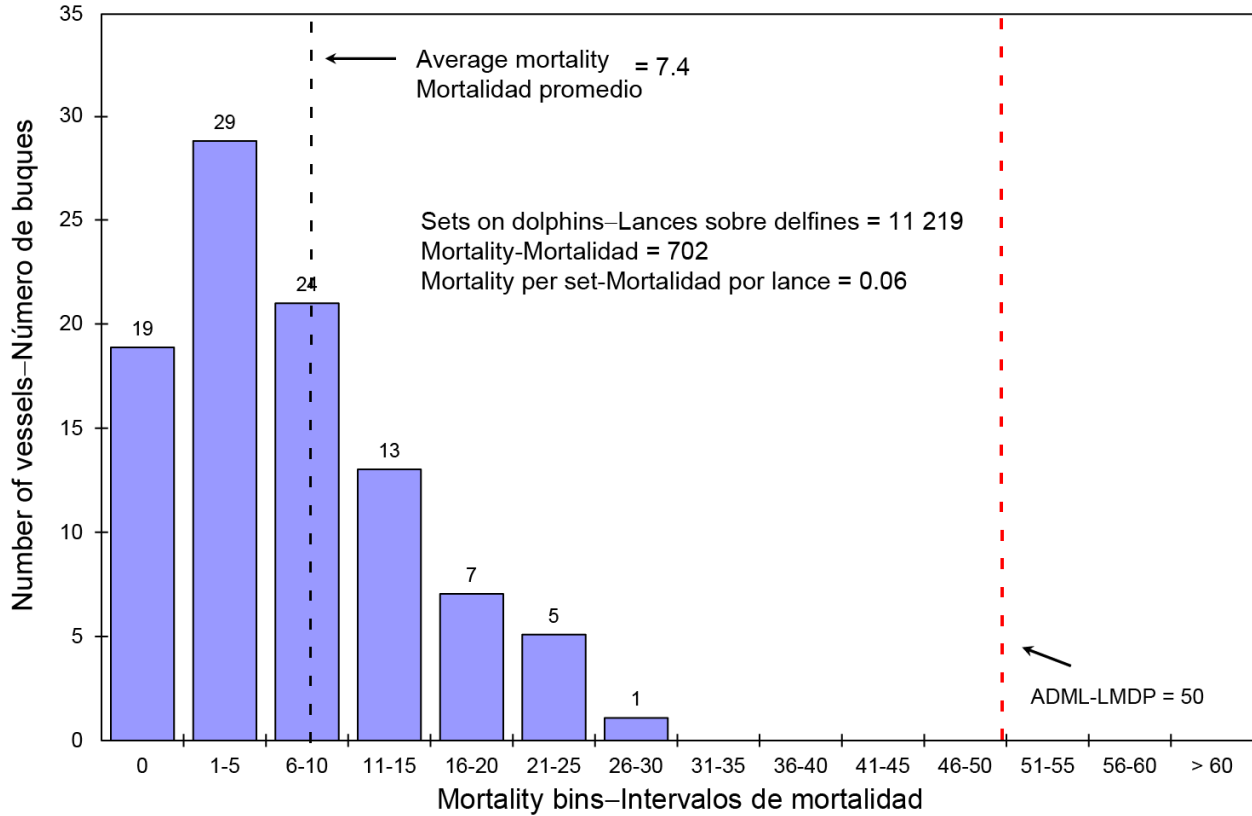


FIGURE 1. Distribution of dolphin mortality caused by vessels with DMLs during 2016.

FIGURA 1. Distribución de la mortalidad de delfines causada por buques con LMD durante 2016.

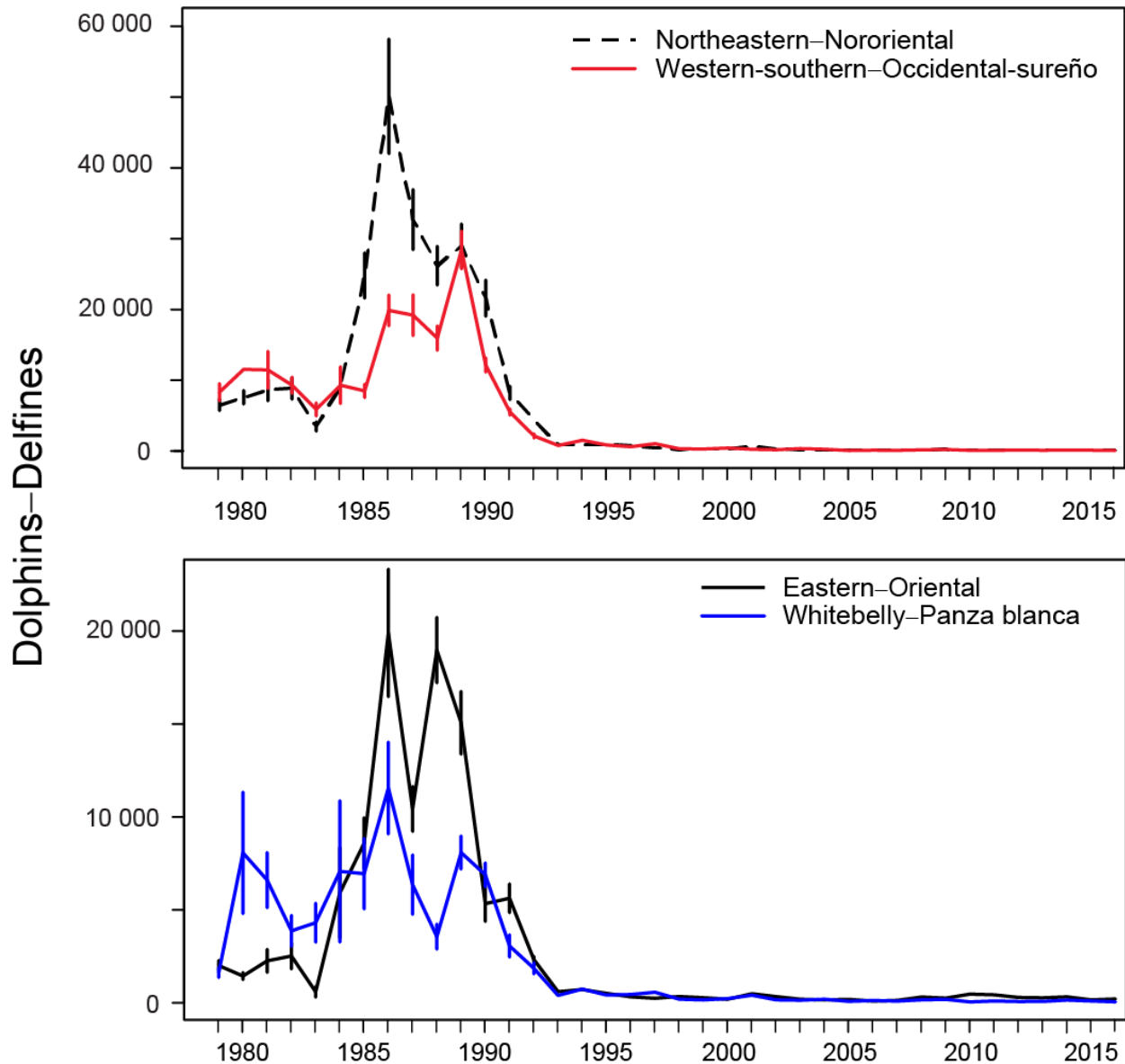


FIGURE 2. Estimated mortalities for the stocks of spotted (upper panel) and spinner (lower panel) dolphins in the eastern Pacific Ocean, 1979-2016. Each vertical line represents one positive and one negative standard error.

FIGURA 2. Mortalidad estimada de las poblaciones de delfines manchados (panel superior) y tornillo (panel inferior) en el Océano Pacífico oriental, 1979-2016. Cada línea vertical representa un error estándar positivo y un error estándar negativo.

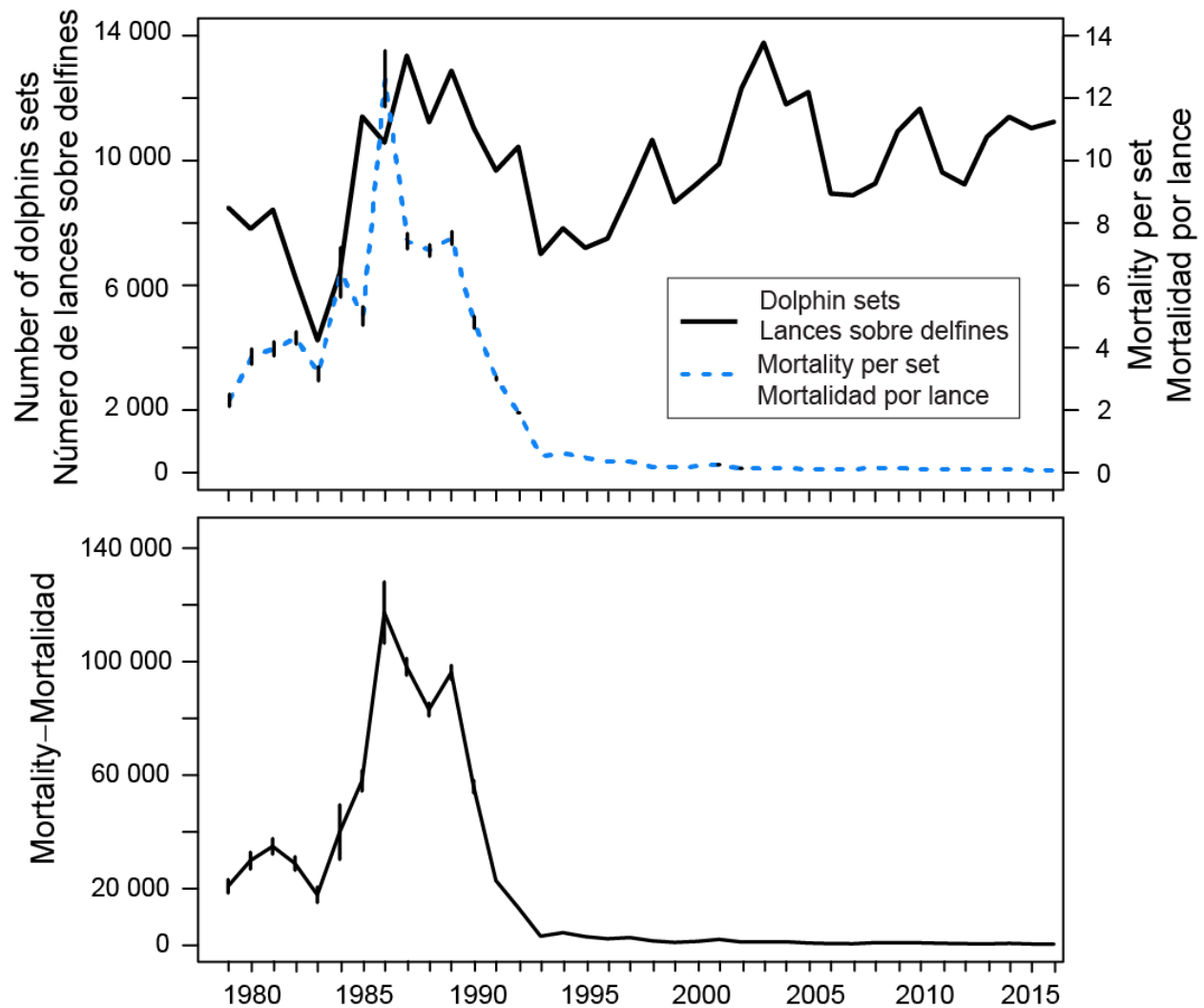


FIGURE 3. Total number of dolphin sets and average mortality per set (upper panel) and estimated total mortality (lower panel) for all dolphins in the EPO, 1979-2016. Each vertical line represents one positive and one negative standard error.

FIGURA 3. Número total de lances sobre delfines y mortalidad media por lance (panel superior) y mortalidad total estimada (panel inferior) para todas especies de delfines en el OPO, 1979-2016. Cada línea vertical representa un error estándar positivo y un error estándar negativo.

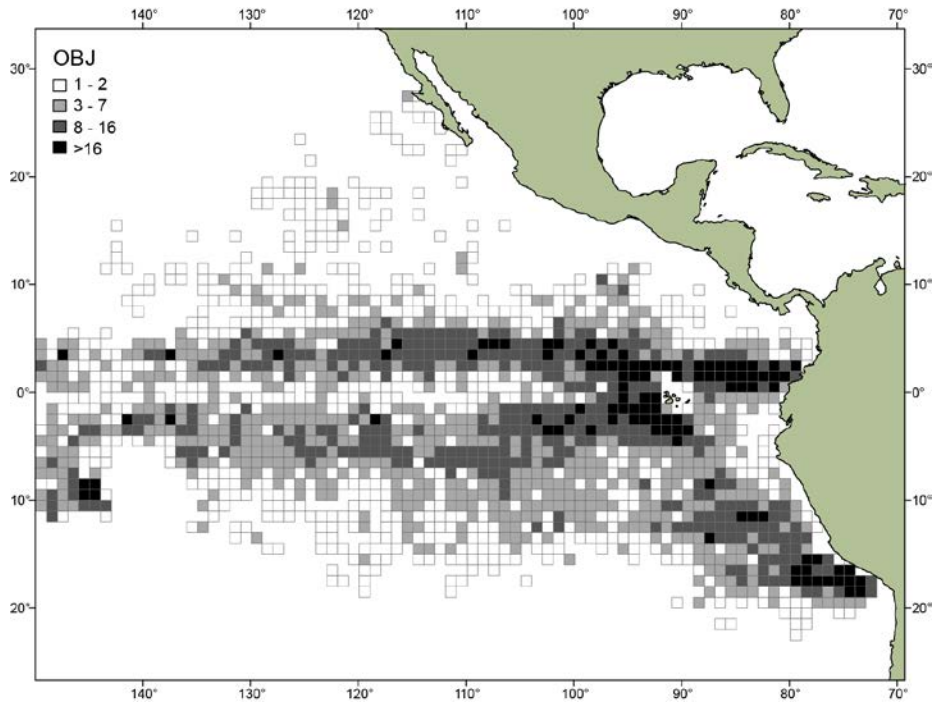


FIGURE 4a. Spatial distribution of sets on tuna associated with floating objects in the Agreement Area, 2015.

FIGURA 4a. Distribución espacial de los lances sobre atunes asociados con objetos flotantes en el Área del Acuerdo, 2015.

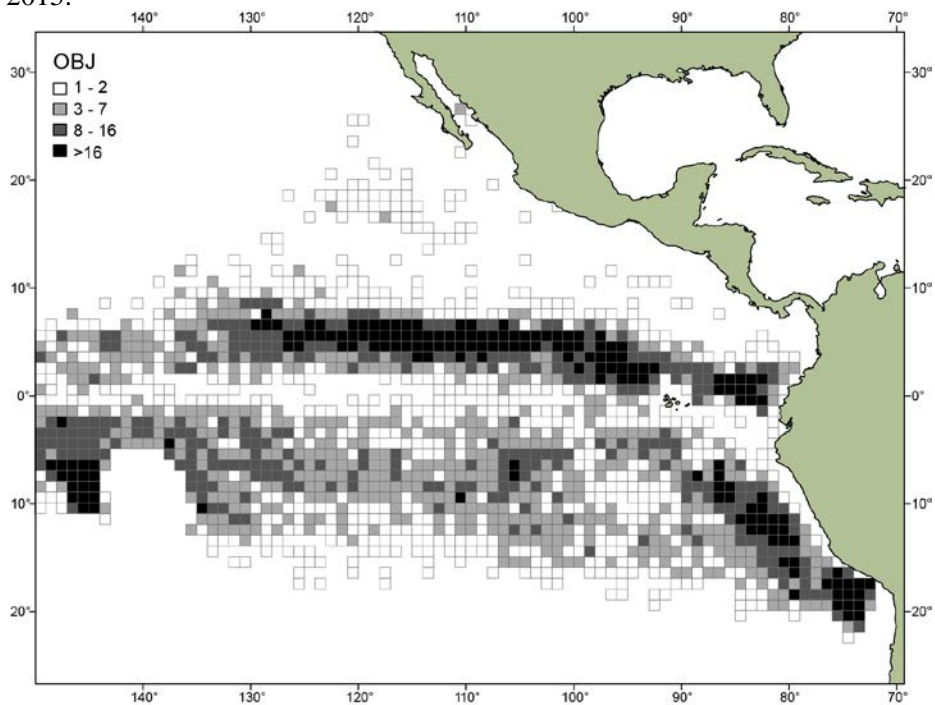


FIGURE 4b. Spatial distribution of sets on tuna associated with floating objects in the Agreement Area, 2016.

FIGURA 4b. Distribución espacial de los lances sobre atunes asociados con objetos flotantes en el Área del Acuerdo, 2016.

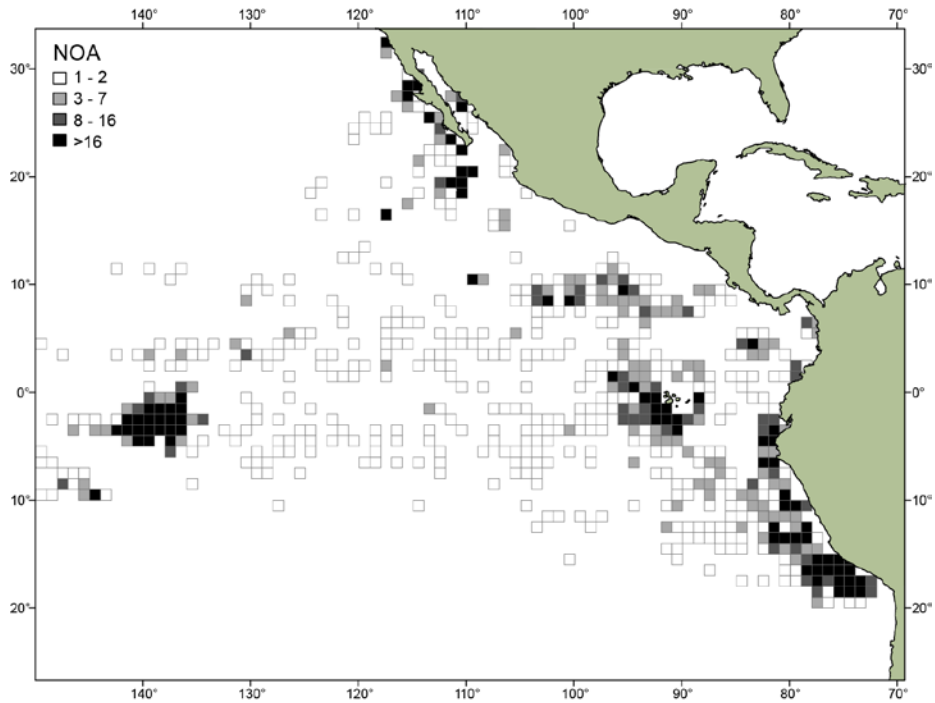


FIGURE 5a. Spatial distribution of sets on unassociated schools of tunas in the Agreement Area, 2015.
FIGURA 5a. Distribución espacial de lances sobre cardúmenes de atunes no asociados en el Área del Acuerdo, 2015.

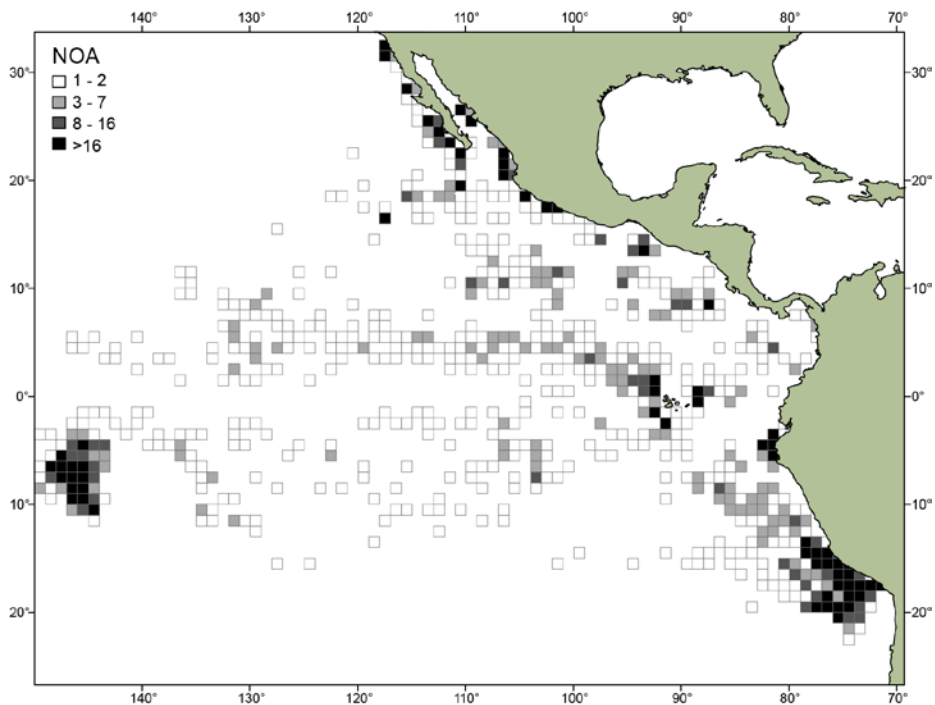


FIGURE 5b. Spatial distribution of sets on unassociated schools of tunas in the Agreement Area, 2016.
FIGURA 5b. Distribución espacial de lances sobre cardúmenes de atunes no asociados en el Área del Acuerdo, 2016.

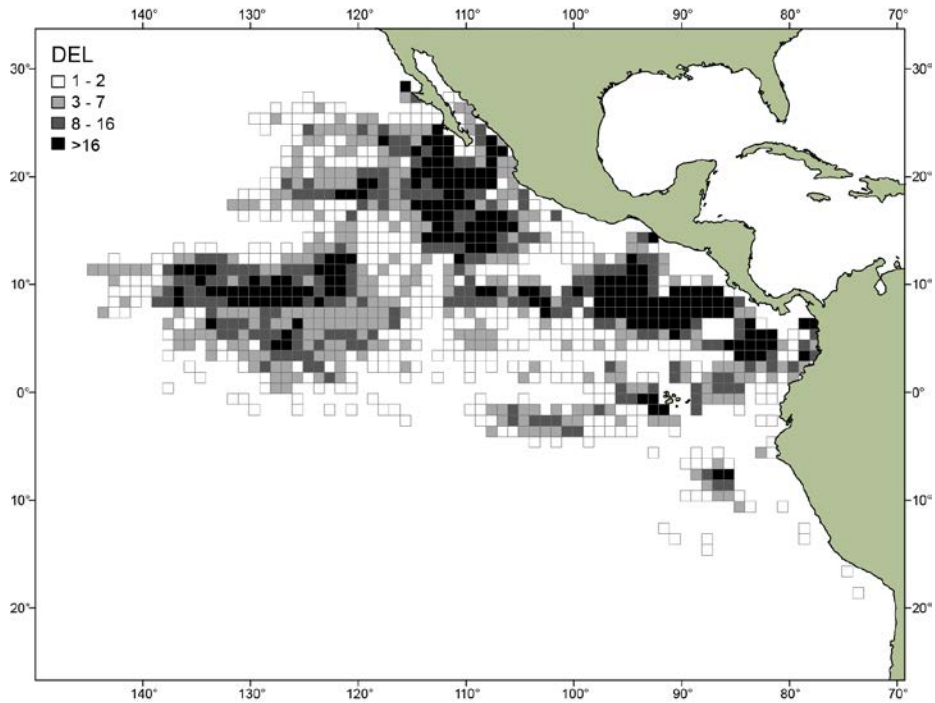


FIGURE 6a. Spatial distribution of sets on tuna associated with dolphins in the Agreement Area, 2015.
FIGURA 6a. Distribución espacial de los lances sobre atunes asociados con delfines en el Área del Acuerdo, 2015.

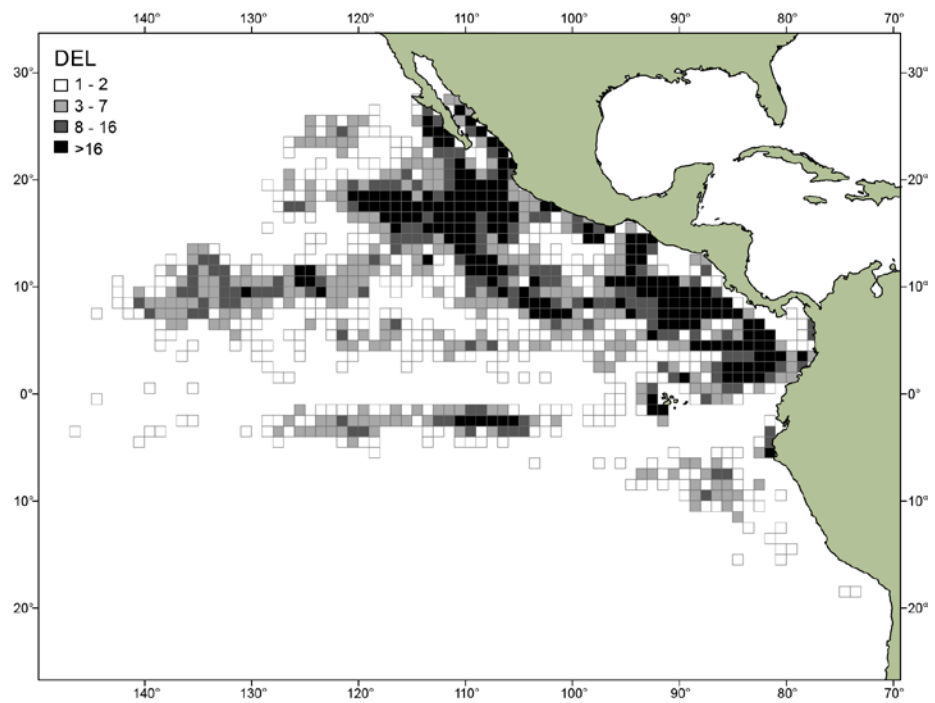


FIGURE 6b. Spatial distribution of sets on tuna associated with dolphins in the Agreement Area, 2016.
FIGURA 6b. Distribución espacial de los lances sobre atunes asociados con delfines en el Área del Acuerdo, 2016.

TABLE 1. Coverage of vessels by the On-Board Observer Program of trips initiated during 2016 with activity in the Agreement Area.

TABLA 1. Cobertura de buques por el Programa de Observadores a Bordo de viajes iniciados durante 2016 con actividad en el Área del Acuerdo.

Pabellón-Flag	Viajes-Trips	Programa-Program		% obs.	
		Nacional-National	CIAT-IATTC		
Clase 6-Class-6					
Colombia	COL	45	24	21	100
Ecuador	ECU	350	119	231	100
EU-UE (España-Spain)	ESP	13	7	6	100
Guatemala	GTM	4		4	100
México	MEX	212	110	102	100
Nicaragua	NIC	23	11	12	100
Panamá	PAN	76	38	38	100
Perú	PER	21		20	95.2
El Salvador	SLV	14		14	100
United States-Estados Unidos	USA	54	12 ¹	40	93.3
Venezuela	VEN	45	19	26	100
Subtotal		857	328	514	99.6
Clase 5-Class-5					
Colombia	COL	3	2	1	-
Perú	ECU	4		4	-
Clase 4-Class 4					
Colombia	COL	1		1	-
Ecuador	ECU	18	6	12	-
Todas clases-All classes					
Total		883	334	532	

¹Covered by WCPFC observers-Cubiertos por observadores de la WCPFC

²The AIDCP requires 100% coverage only on Class-6 vessels – El APICD requiere 100% de cobertura solamente para buques de clase 6

TABLE 2. Estimates of mortalities of dolphins in 2016, population abundance, and relative mortality, by stock.

TABLA 2. Estimaciones de la mortalidad de delfines en 2016, la abundancia de las poblaciones, y la mortalidad relativa, por población.

Species and stock	Mortality	Population abundance	Relative mortality (%)
Especie y población	Mortalidad	Abundancia de la población	Mortalidad relativa (%)
Offshore spotted dolphin—Delfín manchado de altamar ¹			
Northeastern—Nororiental	127	911,177	0.01
Western/southern—Occidental y sureño	111	911,830	0.01
Spinner dolphin—Delfín tornillo ¹			
Eastern—Oriental	243	790,613	0.03
Whitebelly—Panza blanca	89	711,883	0.01
Common dolphin—Delfín común ²			
Northern—Norteño	82	449,462	0.02
Central	36	577,048	<0.01
Southern—Sureño	9	1,525,207	<0.01
Other dolphins—Otros delfines ³	5		
Total	702		

¹ Logistic model for 1986-2006 (IATTC SAB-07-05);

¹ Modelo logístico para 1986-2006 (CIAT SAB-07-05)

² Weighted averages for 1998-2003 (IATTC Special Report 14: Appendix 5)

² Promedios ponderados para 1998-2003 (Informe Especial de la CIAT 14: Anexo 5)

³ "Other dolphins" includes the following species and stocks, whose observed mortalities were as follows: Risso's dolphin (*Grampus griseus*), 1 and unidentified dolphins, 4.

³ "Otros delfines" incluye las siguientes especies y poblaciones, con las mortalidades observadas correspondientes: delfín de Risso (*Grampus griseus*), 1 y delfines no identificados, 4.

TABLE 3. Annual estimates of dolphin mortality, by species and stock, 1979-2016. The estimates for 1979-1992 are based on a mortality-per-set ratio. The mortalities for 1993-2016 represent the sums of the observed species and stock tallies recorded by the IATTC and national programs. Mortalities for 2001-2003 have been adjusted for unobserved trips of vessels over 363 t carrying capacity.

TABLA 3. Estimaciones anuales de la mortalidad de delfines, por especie y población, 1979-2016. Las estimaciones de 1979-1992 se basan en una razón de mortalidad por lance. Las mortalidades de 1993-2016 son las sumas de las mortalidades por especie y población registradas por los programas de la CIAT y nacionales. La mortalidad de 2001-2003 fue ajustada para viajes no observados de buques de más de 363 t de capacidad de acarreo.

	Offshore spotted ¹		Spinner		Common			Others	Total
	North-east-ern	Western-southern	Eastern	White belly	Northern	Central	Southern		
	Manchado de altamar ¹		Tornillo		Común			Otros	Total
	nor-oriental	Occidental y sureño	Oriental	Panza blanca	Norteño	Central	Sureño		
1979	4,828	6,254	1,460	1,312	4,161	2,342	94	880	21,331
1980	6,468	11,200	1,108	8,132	1,060	963	188	633	29,752
1981	8,096	12,512	2,261	6,412	2,629	372	348	367	32,997
1982	9,254	9,869	2,606	3,716	989	487	28	1,347	28,296
1983	2,430	4,587	745	4,337	845	191	0	353	13,488
1984	7,836	10,018	6,033	7,132	0	7,403	6	156	38,584
1985	25,975	8,089	8,853	6,979	0	6,839	304	1,777	58,816
1986	52,035	20,074	19,526	11,042	13,289	10,884	134	5,185	132,169
1987	35,366	19,298	10,358	6,026	8,216	9,659	6,759	3,200	98,882
1988	26,625	13,916	18,793	3,545	4,829	7,128	4,219	2,074	81,129
1989	28,898	28,530	15,245	8,302	1,066	12,711	576	3,123	98,451
1990	22,616	12,578	5,378	6,952	704	4,053	272	1,321	53,874
1991	9,005	4,821	5,879	2,974	161	3,182	115	990	27,127
1992	4,657	1,874	2,794	2,044	1,773	1,815	64	518	15,539
1993	1,112	773	725	437	139	230	0	185	3,601
1994	847	1,228	828	640	85	170	0	298	4,096
1995	952	859	654	445	9	192	0	163	3,274
1996	818	545	450	447	77	51	30	129	2,547
1997	721	1,044	391	498	9	114	58	170	3,005
1998	298	341	422	249	261	172	33	100	1,876
1999	358	253	363	192	85	34	1	62	1,348
2000	295	435	275	262	54	223	10	82	1,636
2001	592	315	470	374	94	205	46	44	2,140
2002	435	203	403	182	69	155	3	49	1,499
2003	288	335	290	170	133	140	97	39	1,492
2004	261	256	223	214	156	97	225	37	1,469
2005	273	100	275	108	114	57	154	70	1,151
2006	147	135	160	144	129	86	40	45	886
2007	189	116	175	113	55	69	95	26	838
2008	184	167	349	171	104	14	137	43	1,169
2009	266	254	288	222	109	30	49	21	1,239
2010	170	135	510	92	124	116	8	15	1,170
2011	172	124	467	139	35	12	9	28	986
2012	151	187	324	107	49	4	30	18	870
2013	158	145	303	111	69	0	8	7	801
2014	181	168	356	183	49	13	9	16	975
2015	191	158	196	139	43	21	12	5	765
2016	127	111	243	89	82	36	9	5	702

¹ Estimates for offshore spotted dolphins include mortalities of coastal spotted dolphins.

¹Las estimaciones de delfines manchados de altamar incluyen mortalidades de delfines manchados costeros.

TABLE 4. Standard errors of annual estimates of dolphin species and stock mortality for 1979-1994, and 2001-2003. There are no standard errors for 1995-2000 and after 2004, because the coverage was at or nearly at 100% during those years.

TABLA 4. Errores estándar de las estimaciones anuales de la mortalidad de delfines por especie y población para 1979-1994, y 2001-2003. No se cuenta con errores estándar para 1995-2000 y después de 2004, porque la cobertura fue de 100%, o casi, en esos años.

	Offshore spotted		Spinner		Common			Other
	North-east-ern	Western-southern	Eastern	Whitebelly	Northern	Central	Southern	
	Manchado de altamar		Tornillo		Común			Otros
	Nor-oriental	Occidental y sureño	Oriental	Panza blanca	Norteño	Central	Sureño	
1979	817	1,229	276	255	1,432	560	115	204
1980	962	2,430	187	3,239	438	567	140	217
1981	1,508	2,629	616	1,477	645	167	230	76
1982	1,529	1,146	692	831	495	168	16	512
1983	659	928	284	1,043	349	87	-	171
1984	1,493	2,614	2,421	3,773	-	5,093	3	72
1985	3,210	951	1,362	1,882	-	2,776	247	570
1986	8,134	2,187	3,404	2,454	5,107	3,062	111	1,722
1987	4,272	2,899	1,199	1,589	4,954	2,507	3,323	1,140
1988	2,744	1,741	1,749	668	1,020	1,224	1,354	399
1989	3,108	2,675	1,674	883	325	4,168	295	430
1990	2,575	1,015	949	640	192	1,223	95	405
1991	956	454	771	598	57	442	30	182
1992	321	288	168	297	329	157	8	95
2001	3	28	1	6	7	7	-	1
2002	1	2	1	1	1	1	1	1
2003	1	1	1	1	-	1	1	-

TABLE 5. Percentages of sets with no dolphin mortalities, with major gear malfunctions, with net collapses, with net canopies, average times of backdown (in minutes), and average number of live dolphins left in the net at the end of backdown. 1986-2008 data are from trips observed by the IATTC program only; data after 2008 include trips covered by national programs.

TABLA 5. Porcentajes de lances sin mortalidad de delfines, con averías mayores, con colapso de la red, con abultamiento de la red, duración media del retroceso (en minutos), y número medio de delfines en la red después del retroceso. Los datos de 1986-2008 provienen de viajes observados por el programa de la CIAT solamente; los datos posteriores a 2008 incluyen viajes observados por los programas nacionales.

	Sets with zero mortality (%)	Sets with major malfunctions (%)	Sets with net collapse (%)	Sets with net canopy (%)	Average duration of backdown (minutes)	Average number of live dolphins left in net after back-down
	Lances sin mortalidad (%)	Lances con averías mayores (%)	Lances con colapso de la red (%)	Lances con abultamiento de la red (%)	Duración media del retroceso (minutos)	Número medio de delfines en la red después del retroceso
1986	38.1	9.5	29.0	22.2	15.3	6.0
1987	46.1	10.9	32.9	18.9	14.6	4.4
1988	45.1	11.6	31.6	22.7	14.3	5.5
1989	44.9	10.3	29.7	18.3	15.1	5.0
1990	54.2	9.8	30.1	16.7	14.3	2.4
1991	61.9	10.6	25.2	13.2	14.2	1.6
1992	73.4	8.9	22.0	7.3	13.0	1.3
1993	84.3	9.4	12.9	5.7	13.2	0.7
1994	83.4	8.2	10.9	6.5	15.1	0.3
1995	85.0	7.7	10.3	6.0	14.0	0.4
1996	87.6	7.1	7.3	4.9	13.6	0.2
1997	87.7	6.6	6.1	4.6	14.3	0.2
1998	90.3	6.3	4.9	3.7	13.2	0.2
1999	91.0	6.6	5.9	4.6	14.0	0.1
2000	90.8	5.6	4.3	5.0	14.9	0.2
2001	91.6	6.5	3.9	4.6	15.6	0.1
2002	93.6	6.0	3.1	3.3	15.0	0.1
2003	93.9	5.2	3.5	3.7	14.5	<0.1
2004	93.8	5.4	3.4	3.4	15.2	<0.1
2005	94.9	5.0	2.6	2.7	14.5	<0.1
2006	93.9	5.7	3.3	3.5	15.8	<0.1
2007	94.2	5.1	1.6	3.4	15.2	<0.1
2008	92.4	4.9	2.9	3.7	16.1	0.1
2009	93.3	5.2	1.8	3.1	16.7	<0.1
2010	94.1	4.7	1.3	2.4	16.2	<0.1
2011	94.0	4.1	1.9	2.1	16.3	<0.1
2012	94.5	4.3	1.9	1.5	16.5	<0.1
2013	95.4	4.2	1.3	1.3	15.4	<0.1
2014	95.5	3.7	1.3	1.3	16.2	<0.1
2015	96.4	4.3	1.1	1.2	15.4	<0.1
2016	96.4	3.8	0.9	0.9	15.2	<0.1

TABLE 6. Weekly reports of dolphin mortality received, 2016.**TABLA 6.** Informes semanales de mortalidad de delfines recibidos, 2016.

	Program	Required	Received	%		Program	Required	Received	%	
COL	IATTC	218	218	100		NIC	IATTC	128	126	98
	National	255	255	100			National	68	68	100
ECU	IATTC	1,443	1434	99		PAN	IATTC	239	239	100
	National	807	792	98			National	247	247	100
EU (ESP)	IATTC	37	37	100		PER	IATTC	54	54	100
	National	35	35	100		SLV	IATTC	78	78	100
GTM	IATTC	36	36	100		USA	IATTC	266	266	100
MEX	IATTC	714	714	100			WCPFC	67	67	100
	National	785	785	100		VEN	IATTC	187	187	100
							National	186	186	100
Total								5,888	5,862	99.6

TABLE 7. Preliminary reports of the mortalities of dolphins in 2017, to 3 September.**TABLA 7.** Informes preliminares de las mortalidades de delfines en 2017, hasta el 3 de septiembre.

Species and stock	Total mortality	Limit	Used (%)
Especie y población	Mortalidad total	Límite	Usado (%)
Offshore spotted dolphin – Delfín manchado de altamar			
Northeastern--Nororiental	67	793	8.4
Western-southern--Occidental-sureño	118	881	13.4
Spinner dolphin – Delfín tornillo			
Eastern--Oriental	191	655	29.2
Whitebelly--Panza blanca	54	666	8.1
Common dolphin – Delfín común			
Northern--Norteño	27	562	4.8
Central	2	207	1.0
Southern--Sureño	3	1,845	0.2
Others and unidentified--Otros y no identificados	10		
Total	472	5,000	9.4

TABLE 8. Summary of possible infractions identified by the International Review Panel at its 59th and 60th meetings, June and October 2016.

TABLA 8. Resumen de posibles infracciones identificadas por el Panel Internacional de Revisión en su 59^a and 60^a reuniones, junio y octubre de 2016.

INFRACCIONES MAYORES / MAJOR INFRACTIONS:	
Viaje sin observador Trips without an observer	3
Viajes con lances en delfines sin LMD asignado Trips with dolphin sets but no DML assigned	0
Viajes con capitanes no incluidos en la lista del APICD Trips with captains not on the AIDCP list	2
Viajes sin paño de protección de delfines Trips without a dolphin safety panel	2
Lances intencionales después de alcanzar el LMD Intentional sets made after reaching the DML	0
Lances o cazas con uso de explosivos Sets or chases with use of explosives	0
Lances sobre stocks o tipos de manadas prohibidas Sets on banned stocks or school types	0
Lances sin retroceso Sets without a required backdown	0
Lances con embolsamiento o salabardeo de delfines Sets with dolphin sack-up or brail	1
Lances sin evitar herir o matar delfines Sets with unavoided dolphin injury or mortality	0
Total	8
OTRAS INFRACCIONES / OTHER INFRACTIONS:	
Viajes sin balsa Trips without a required raft	8
Viajes con < 3 lanchas rápidas y/o sin bridas de remolque Trips with < 3 speedboats and/or missing towing bridles	4
Viajes sin reflector de alta intensidad Trips without a required high-intensity floodlight	4
Viajes sin máscaras de buceo Trips without required facemasks	2
Lances nocturnos (ocurrieron en dos viajes) Night sets (occurred in two trips)	0
Lances sin rescate adicional Sets without required deployment of rescuer	0
Lances sin rescate después del retroceso Sets without continued rescue effort after backdown	0
Viajes con lances sobre delfines antes de la notificación del LMD Trips with dolphin sets before the DML notification	0
Total	18
Casos de interferencia al observador Cases of observer interference	4
Viajes revisados en estas reuniones Trips reviewed in these meetings	875
Lances sobre delfines revisados en estas reuniones Dolphin sets reviewed in these meetings	10,424
Lances accidentales revisados en estas reuniones Accidental sets reviewed in these meetings	5

TABLE 9. Responses for six types of possible infractions identified by the International Review Panel at its 59th and 60th meetings.

TABLA 9. Respuestas para seis tipos de posibles infracciones identificadas por el Panel Internacional de Revisión en su 59^a y 60^a reuniones.

	No. de casos	Sin respuesta	Respuestas						Total
			Bajo investigación ¹	No hubo infracción	Infracción: sin sanción	Infracción: aviso	Infracción: sanción ²		
	No. of cases	No response	Responses						Total
			Under investigation ¹	No infraction	Infraction: no sanction	Infraction: warning	Infraction: sanction ²		
HOSTIGAMIENTO AL OBSERVADOR – OBSERVER HARASSMENT									
ECU	2	0	-	2	0	0	0	0	2 (100%)
PAN	1	1	(100%)	0	0	0	0	0	0 -
Total:	3	1	(33%)	2	0	0	0	0	2 (67%)
USO DE EXPLOSIVOS – USE OF EXPLOSIVES									
<i>Ningún caso identificado durante el periodo de este informe</i>									
<i>No identified cases during this report period</i>									
LANCES NOCTURNOS– NIGHT SETS									
<i>Ningún caso identificado durante el periodo de este informe</i>									
<i>No identified cases during this report period</i>									
PESCAR SIN OBSERVADOR – FISHING WITHOUT AN OBSERVER									
PER	1	0	-	0	1	0	0	0	1 (100%)
USA	2	0	-	2	0	0	0	0	2 (100%)
Total:	3	0	-	2	1	0	0	0	3 (100%)
PESCAR SOBRE DELFINES SIN LMD – FISHING ON DOLPHINS WITHOUT A DML									
<i>Ningún caso identificado durante el periodo de este informe</i>									
<i>No identified cases during this report period</i>									
LANCES SOBRE DELFINES DESPUES DE ALCANZAR EL LMD-- SETS ON DOLPHINS AFTER REACHING DML									
<i>Ningún caso identificado durante el periodo de este informe</i>									
<i>No identified cases during this report period</i>									

Appendix A.

POSSIBLE INFRACTIONS IDENTIFIED BY THE IRP

Brief descriptions of government actions taken, as reported to the Secretariat by September 12, 2017, are included. If no action is listed for a possible infraction, the Secretariat has not received a response from the government.

Abbreviations: DSP = Dolphin Safety Panel

COLOMBIA			
<i>Vessel</i>	<i>IRP recno</i>	<i>Review date</i>	<i>Identified infractions</i>
COL 1	2015-738	2016/06	1) 1 Trip without a required high intensity floodlight
ECUADOR			
<i>Vessel</i>	<i>IRP recno</i>	<i>Review date</i>	<i>Identified infractions</i>
ECU 1	2016-518	2016/10	1) 1 Set with dolphin sack-up or brail Action taken: 1) Confirmed infraction.
ECU 2	2015-871	2016/06	1) 1 Trip without a required raft
ECU 3	2016-514	2016/10	1) 1 Trip without a required raft Action taken: 1) Confirmed infraction.
ECU 4	2016-357	2016/10	1) 1 Case of observer interference Action taken: 1) The government is investigating the possible infractions.
ECU 5	2016-247	2016/10	1) 1 Case of observer interference Action taken: 1) The government is investigating the possible infractions.
ECU 6	2016-025	2016/06	1) 1 Trip without a required raft
		2016/06	2) 1 Trip without a required high intensity floodlight
		2016/06	3) 1 Trip without required facemasks
ECU 7	2016-031	2016/06	1) 1 Trip without a required raft
		2016/06	2) 1 Trip with < 3 speedboats and/or missing towing bridles
	2016-300	2016/06	1) 1 Trip with captain not on the AIDCP list
		2016/06	2) 1 Trip without a required raft
		2016/06	3) 1 Trip with < 3 speedboats and/or missing towing bridles
ECU 8	2016-036	2016/06	1) 1 Trip without a required raft
		2016/06	2) 1 Trip with < 3 speedboats and/or missing towing bridles Action taken: 1), 2) The government is investigating the possible infractions.
	2016-397	2016/10	1) 1 Trip without a required raft
		2016/10	2) 1 Trip with < 3 speedboats and/or missing towing bridles
		2016/10	3) 1 Trip without required facemasks Action taken: 1), 2), 3) Confirmed infraction.
ECU 9	2015-842	2016/06	1) 1 Case of observer interference
MEXICO			
<i>Vessel</i>	<i>IRP recno</i>	<i>Review date</i>	<i>Identified infractions</i>
MEX 1	2016-369	2016/06	1) 1 Trip without a dolphin safety panel Action taken: 1) The government is investigating the possible infractions.
	2016-456	2016/06	1) 1 Trip without a dolphin safety panel Action taken: 1) The government is investigating the possible infractions.
MEX 2	2015-700	2016/06	1) 1 Trip without a required raft Action taken: 1) The government is investigating the possible infractions.
PANAMA			
<i>Vessel</i>	<i>IRP recno</i>	<i>Review date</i>	<i>Identified infractions</i>
PAN 1	2016-022	2016/06	1) 1 Trip without a required high intensity floodlight
PAN 2	2016-139	2016/10	1) 1 Case of observer interference
PERU			
<i>Vessel</i>	<i>IRP recno</i>	<i>Review date</i>	<i>Identified infractions</i>
PER 1	2016-767	2016/10	1) 1 Trip without an observer

Action taken: 1) After investigating, the Fishing National Authority decided that no infraction occurred. The National Authority indicated, and documented, that the vessel was fishing Mackerels (*Scomber japonicus peranus*).

UNITED STATES			
<i>Vessel</i>	<i>IRP recno</i>	<i>Review date</i>	<i>Identified infractions</i>
USA 1	2016-750	2016/10	1) 1 Trip without an observer Action taken: 1) The government is investigating the possible infractions.
	2016-751	2016/10	1) 1 Trip without an observer Action taken: 1) The government is investigating the possible infractions.
VENEZUELA			
<i>Vessel</i>	<i>IRP recno</i>	<i>Review date</i>	<i>Identified infractions</i>
VEN 1	2015-829	2016/06	1) 1 Trip with captain not on the AIDCP list Action taken: 1) The government is investigating the possible infractions.
VEN 2	2016-328	2016/10	1) 1 Trip without a required high intensity floodlight