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VAQUITA: HOW HAVE WE FAILED YOU?



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GREENPEACE




THE OCEAN FOUNDATION





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1. INTRODUCTION



Photo
Alex Hofford



This report is about the facts and omissions that have led the vaquita to imminent extinction. Despite all the federal government's efforts and the large amounts of money that have been spent, at the time of this writing there are less than 30 vaquita. This report provides a brief review of the main events that have marked for good or bad the intervention of scientists, government officials and conservation groups, in the attempt to save an endemic, unique and emblematic species.

There are four fundamental periods:

The first is a period of unregulated fishing in the Upper Gulf of California where totoaba was fished profusely, with the incidental capture of vaquita, resulting in the population decline of this endemic porpoise and the establishment of a permanent totoaba ban in 1975.

A second period occurred from 1975 until year 2000 in which the protection and conservation measures of the Upper Gulf and its species were established. Totoaba and vaquita were considered as endangered, and were included in the Convention on International Trade in Endangered Species (CITES).¹ It should be noted that during 1996 to 2000, the fisheries agency was ruled within the environmental sector, by the Ministry of Environment, Natural Resources and Fisheries (Semarnap). Species surveys were initiated, protected areas were created and the first environmental law that dictates the protection and conservation of endangered species was created.

In 2000, the fishery agency came under the administration of the productive sector for food, within the Ministry of Agriculture, Livestock, Rural Development and Fisheries (Sagarpa), and outside the natural resources conservation agency, Semarnat. This fact marked a turn towards a clearly productive vision, with repercussions such as fishing overexploitation, fisheries brought to the limit of their capacity and conflicts with the environmental sector, in which the decline of the vaquita is an example of the fate of a species that, although endemic, has no commercial or fishing value.

¹ In 1975 the permanent ban of fishing was declared and, a year later, it appeared on the list of threatened and endangered species of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The third period analyzed in this report is the decade 2000-2011, it began when the University of Baja California (UABC) started an incipient breeding of totoaba in captivity for repopulation purposes. A marine refuge area was established, however it excluded approximately 40% of the vaquita population distribution. The International Committee for the Vaquita Recovery (CIRVA) also appeared as a scientific support group. In addition, restrictions were established for shrimp fishing in the Upper Gulf of California and the Federal Environmental Protection Agency (Profepa) initiates inspection and surveillance.

The fourth and final period (2012-2018) corresponds to the administration of Enrique Peña Nieto and is marked by a catastrophic event: the knowledge that the vaquita population has not only not recovered, but has drastically declined. It was gradually realized that totoaba were being fished profusely for its swimming bladder (buche), which is sold in the Asian market. What first appeared to be small-scale fishing of totoaba, was revealed in time to be fishing on a massive scale essentially for the Chinese market. Authorities were overwhelmed.

The most important response came in April 2015 with the publication of a Secretarial Agreement, which established a polygon exclusion of gillnets for two years but allowed the catch of Gulf Curvina that, according to the sixth report of the International Committee for the Vaquita Recovery Vaquita(CIRVA) could be used to as disguise for totoaba fishing.² Several agreements followed that tried to comply with the recommendations, but failed. The Comprehensive Strategy was announced to preserve the marine ecosystem of the Upper Gulf of California.³ That same year, Mexico made rapprochements with authorities from the United States and China, as part of a comprehensive strategy to protect the vaquita and the Comprehensive Care Program of the Upper Gulf of California.⁴ The decline continued without any change in trend, although totoaba fishing was considered a serious crime.⁵

In 2017 the government undertakes a desperate action named the Vaquita CPR Program (Conservation, Protection and Rescue), with the objective of capturing the surviving vaquita and relocating them to sea pens for captive breeding. The program ends after capturing a six-month-old calf and releasing it, and capturing a second calf that dies due to stress. The vaquita refuge area was not extended until 2018.

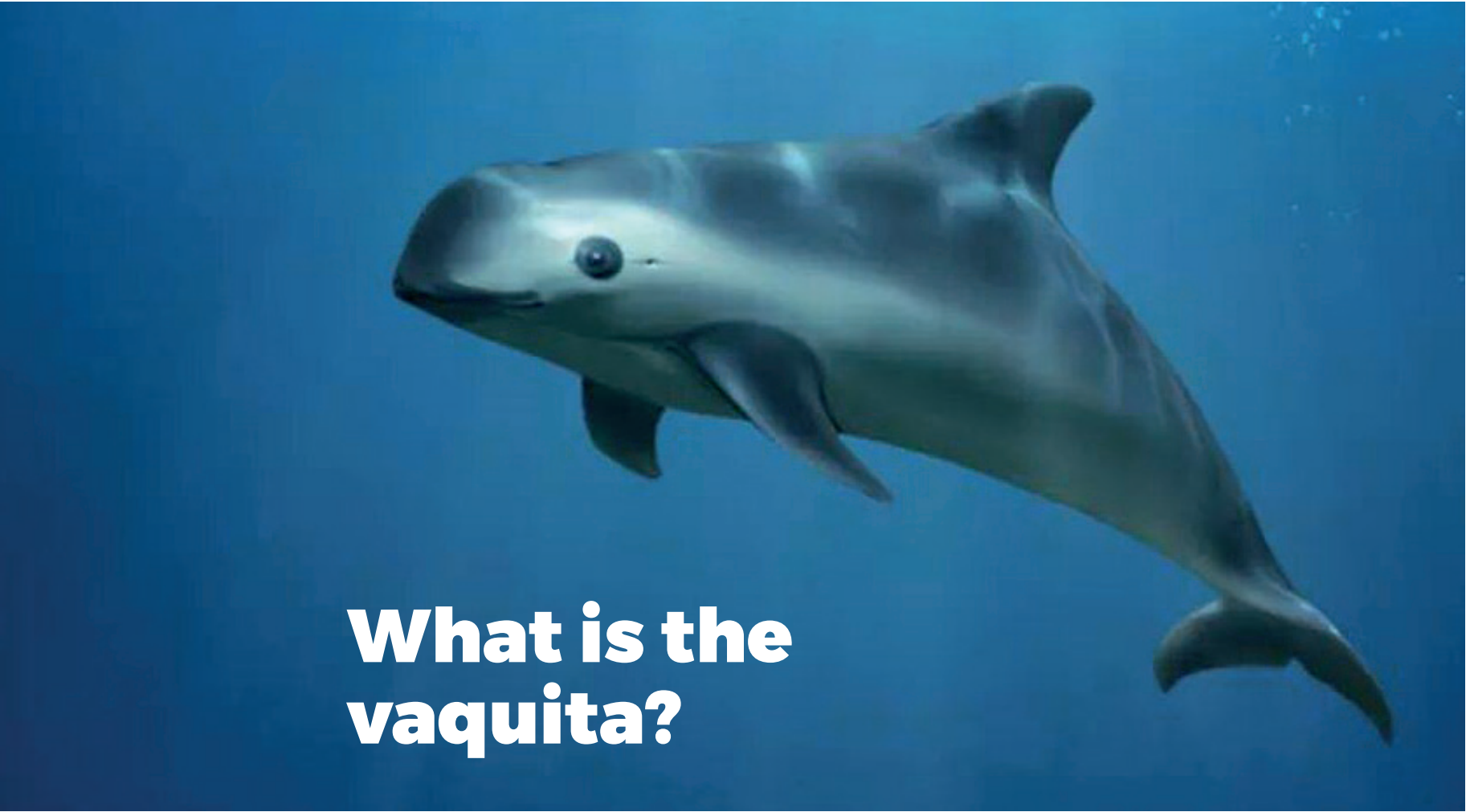
In 1997, the population of vaquita was estimated at 567, a number that fell to 245 in 2008 and to only 59 in 2015. CIRVA estimates that, between 2011 and 2016, the vaquita suffered an average annual rate of decrease of 39%, which corresponds to a decrease of the population of 90% in those five years. This annual decrease rate increased to 49% in 2015 and 2016. In its final report of 2015, CIRVA estimated that there were less than 30 vaquita and that at the current rate the vaquita would become extinct in a few years. That is why with a rate of decline of 49%, by the end of 2018 there could be less than 15 vaquita.

² CIRVA- 6. Final Report. May 22, 2015. p.3

³ April 16th 2015 in San Felipe, Baja California

⁴ Idem

⁵ On April 7, 2017, Official Gazette of the Federation (DOF) decree by which the article 420 is amended of the Federal Criminal Code and 2nd article was added to he Federal Law Against Organized Crime.



In its final report of 2015, CIRVA estimated that there were less than 30 vaquita and that at the current rate the vaquita would become extinct in a few years.

The vaquita is a marine mammal endemic to Mexico, which means that it lives exclusively in the country, specifically in the extreme north of the Gulf of California. It is the smallest of the porpoises known. The females reach up to 150 cm and the males 140 cm, while their weight varies from 7.8 kg in neonates to 55 kg in adult females. This species remained unknown to science until its first descriptions in 1958, when three vaquita skulls were analyzed.

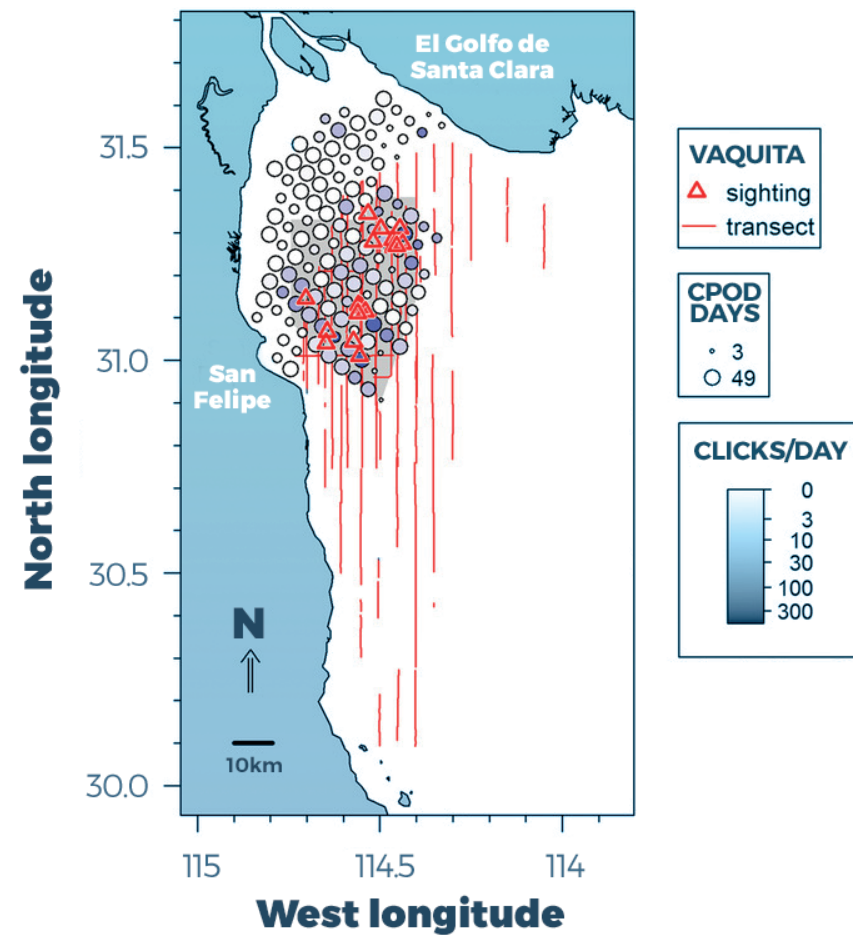
As a distinctive feature, the vaquita has a very special coloration in the dorsal portion: gray with its sides being a lighter gray, while its ventral part is white with elongated spots of pale gray color. Another unmistakable feature is a dark coloration that surrounds its eyes. In addition, it has dark patches on the lips, from which a thin and singular line forms that extends from the mouth to the pectoral fins⁶. The lifespan of the vaquita is estimated at 22 years. They reach reproductive maturity around 6 and females could have 5-7 offspring during their life⁷, with an estimate of one calf every two years. Their diet consists mainly of fish, squid and shrimp.

Currently, its distribution area is small: around 4 thousand square kilometers, in the upper part of the Gulf of California. It lives in warm and shallow waters, and prefers marine bottoms composed of clay and silt, to the sandy ones⁸. It is believed that previously the vaquita inhabited a larger area along the coast of Baja California, which has now been reduced to this small area (Map 1).

⁶ Program of Action for the Conservation of the Species: Vaquita (Phocoena sinus). Comisión Nacional de Áreas Naturales Protegidas de la Secretaría de Medio Ambiente y Recursos Naturales, México, 2008. http://www.conanp.gob.mx/pdf_especies/PACEvaquita.pdf (consultado el 5 de junio 2018).

⁷ Vidal, O. 1995. Population biology and incidental mortality of the vaquita, Phocoena sinus. Reports of the International Whaling Commission.

⁸ biodiversidad.gob.mx. (consulted June 5, 2018)



Vaquita and totoaba, a shared fate

Both the vaquita (*Phocoena sinus*) and the totoaba (*Totoaba macdonaldi*), both in danger of extinction and thus cataloged by the Norma- 059- SEMARNAT-2010, share the same distribution area, have a similar size and caught in the same type of nets.

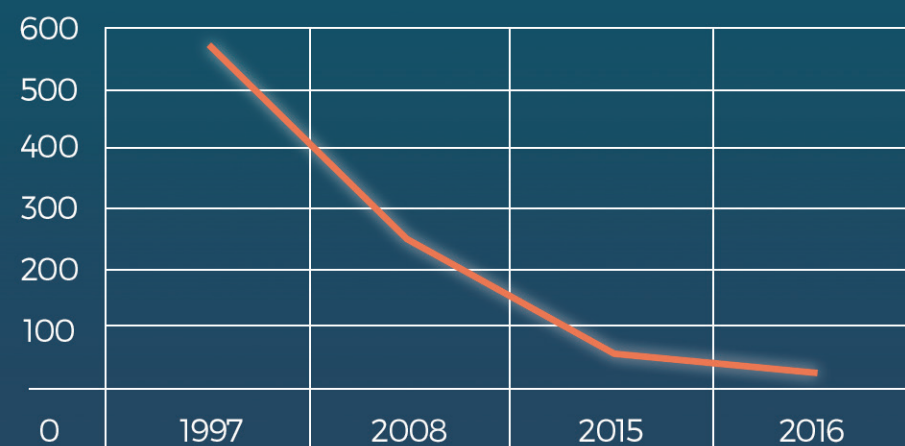
The totoaba is also an endemic fish of the area. Due to its large size and the taste of its meat, it was intensively caught in the first half of the 20th century for domestic consumption, specifically in the states bordering the Gulf of California. It is believed that its area of distribution was more extensive towards the south of the Gulf of California, but it has been reduced by fishing in the last century.

To fish totoabas "totoaberas" or gillnets were used⁹, that also unintentionally captured vaquita. Their deaths were collateral damage.

⁹ Gillnets are those that are designed to catch fish from the gills. The light or measurement between the warp of the mesh depends on the type and size of fish that is intended to be trapped.



VAQUITA POPULATION TREND, 1997-2016



Source: CIRVA 8,9.
Elaboration by Comarino

2. THREATS TO THE SURVIVAL OF THE VAQUITA



Gillnets are the primary cause of vaquita deaths in the Upper Gulf of California, Mexico.
Photograph: Chris Johnson



Vaquita trapped in totoaba gillnet.
Photo: Cristian Faesi, Omar Vidal

Background

Although various causes have been invoked to explain vaquita mortality, such as habitat degradation, reduction of Colorado River currents or chemical contamination, all have been ruled out by the International Vaquita Recovery Committee (CIRVA).) since its first meeting in January 1997, where it was established that the main cause of death is entanglement in fishing nets. This data, moreover, coincides with the scientific studies published up to 1995¹⁰, since then it was stated that of the vaquita found dead, 67% came from totoaba nets¹¹. In fact, in 8 necropsies of dead vaquita that were found between 2016 and 2017, the cause of death was identified as asphyxia due to being entangled in net¹² , however, each vaquita was found to have been healthy and well nourished, which rules out mortality due to the causes described above.

Fishing in the Upper Gulf of California (UGC)

Small scale fishing has been the main activity in the Upper Gulf of California area and those who carry it out are inhabitants of the three communities: San Felipe, Golfo de Santa Clara and Puerto Peñasco¹³.

Fishing in the Upper Gulf of California is recognized as intensive and high impact fishing. 97% of the fishing and the permits granted are made with fishing gear

¹⁰ Vidal Omar. 1995. Report for the International Whaling Commission. Population Biology and Incidental Mortality of the Vaquita. Special Report. SC/42/SM24(Revised)

¹¹ CIRVA, Report from the first meeting. January 25-26 1997.

¹² The Totoaba Supply Chain- from Mexico ´s Totoaba cartels to China ´s Totoaba Maw Wholesalers an Illegal trade Killing the Vaquita. Elephant Action League. Julio 2018

¹³ AGREEMENT that temporarily suspends commercial fishing through the use of gillnets, trusses and / or longlines operated with smaller vessels, in the Northern Gulf of California. DOF: 10/04/2015

that involves nets. Only 3% of fishing is practiced without nets and is directed at species such as octopus, crab, clams, callus, etc. (See Figure 1).

The studies of D'Agrosa et al. that were reported to the International Whaling Commission, and carried out from January 23, 1993 to February 15, 2014, demonstrate that vaquita can be caught by any fishing gear. However, in the period under study, a fishing effort of 525 trips for shrimp, 50 for curvina, 390 for sierra (Spanish mackerel), 470 for sharks and rays, and 1,486 for milkfish was found in the Gulf of Santa Clara, which gives a total for 2,921 fishing trips. It also highlights the high shark fishery against a very low croaker. An important fact is that 92% of the vaquita incidental capture was with bottom nets and 8% in surface nets, 75% in drift nets and 25% in fixed nets.

Another study by D'Agrosa et al. documents that, in the years before 2000, the incidental mortality of vaquita in the Santa Clara Gulf reached 39 vaquita per year. The San Felipe fishing effort being very similar, we infer a very similar incidental fishing mortality of vaquita¹⁴. This study concludes that strict actions must be taken: “We strongly recommend the complete and permanent prohibition of gillnets in the area”.

There are currently 755 vessels registered, of which 64% belong to Santa Clara. However, the number of permits amounts to 494 for San Felipe and 907 for Santa Clara, with a total of 1,365 gill net capture permits, compared to those granted for other species that do not use gillnets, which are only 99.

From this it follows that, on average, each vessel in San Felipe has 1.6 permits, while in Santa Clara there are 2.01 per vessel. In reality, what happens is that the fishing authority has facilitated the homologation of permits, so that a single boat can obtain two permits, one for scaled fish and another for shrimp. This increases the fishing effort. In addition, this fact is aggravated when knowing that each boat operates, on average, with two 800 meter gillnets each (2015 data)¹⁵.

14 Caterina D'Agrossa, Cleridy E. Lennert, and Omar Vidal. Vaquita bycatch in Mexico's Small scale Gillnet Fisheries: Driving a Small Population to Extinction. Conservation Biology. Volume 14, No 4 August 2000. Pages 1110-1119

15 Expert Committee of Fishing Technologies (ECOFT), Alternative Gear to Gillnets in the Upper Gulf of California. (2004-2016) Nov 16 2017

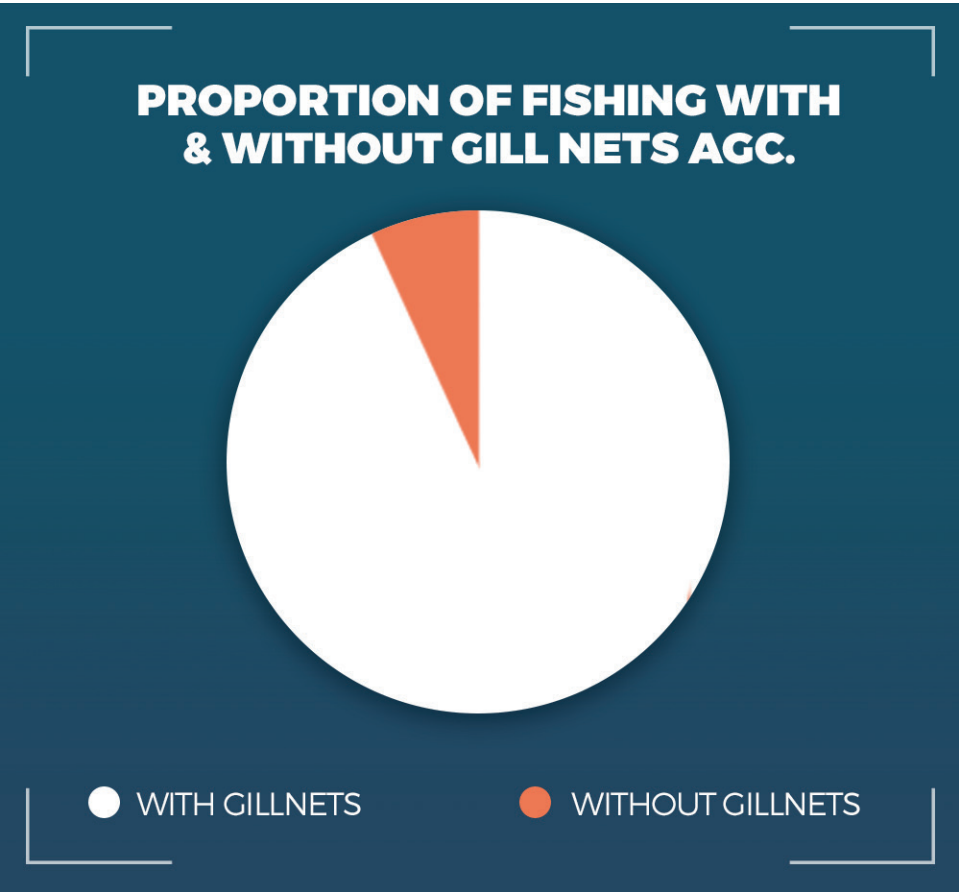


Figure 1. Source ECOFT 2017. Elaboration Comarino

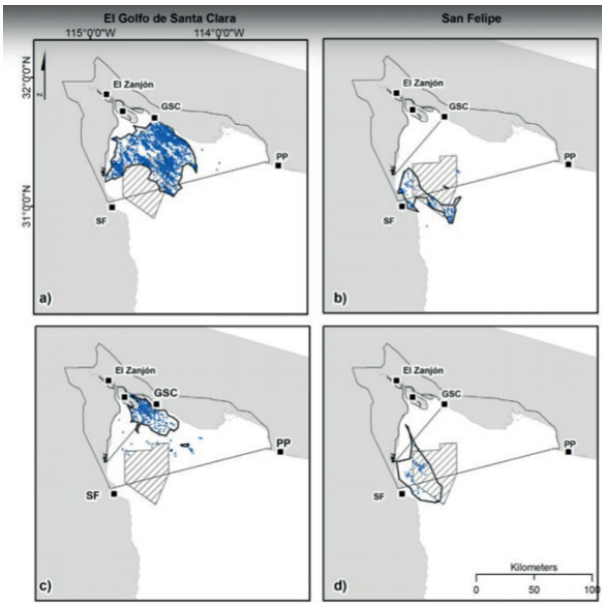
“We strongly recommend the complete and permanent prohibition of gillnets in the area”.



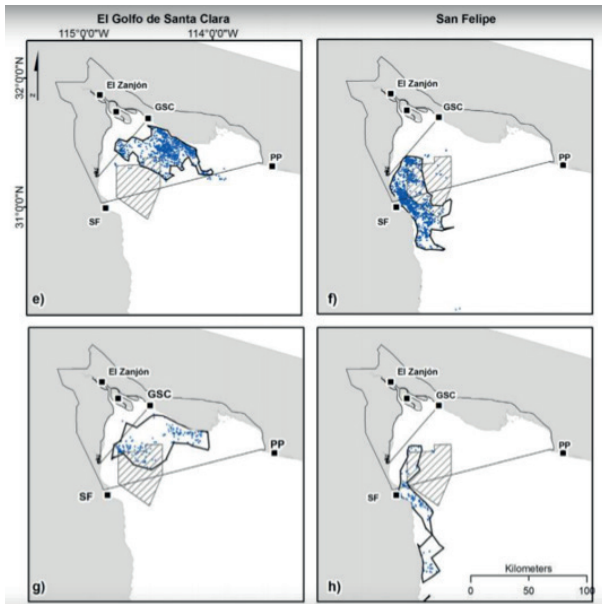
Spatial distribution of small scale fisheries in the UGC

A recent study shows that fishing activities are spatially differentiated between the fishermen of the Gulf of Santa Clara and those of San Felipe, with those of Santa Clara occurring in the northeast portion of the Vaquita Refuge Area and those of San Felipe in the southwest portion. In addition, the fishing seasons of Santa Clara are characterized by being sequential, according to said study. Shrimp fishing occurs in the months of September to March, followed by the Gulf curvina golfina, which decreases towards the end of April to give way to those of chano and sierra. These three seasons coincide with the reproductive periods of these species .

In contrast, the fishing dynamics in San Felipe are not as seasonal as that of Santa Clara, depending less on the reproductive seasons of the species. That is, they have species available every season, which allows relatively stable catches to be recorded throughout the year . (see maps 2 and 3). It can be observed that the four fisheries both affect and are within the polygon of the refuge area of the vaquita.



Map 2. Spatial distribution of fisheries for blue shrimp (a-b) and curvina golina (c-d) in the Upper Gulf of California



Map 3. Spatial distribution of shark (e-f) and sierra (g-h) fisheries in the Upper Gulf of California

Source: Erisman et al. (2015) A comparisons of fishing activities between two coastal communities within a biosphere reserve in the Upper Gulf of California Fisheries Research, 164 (2015). 254-26

Both in the studies conducted by Erisman et al. as in the maps, it is observed that the fishing of the four species impacts the original vaquita refuge area, decreed in 2005. However, despite the impact of the exploitation of the four species, the two most important fisheries in the Upper Gulf are shrimp and scaled fish.

Shrimp and scaled fish fishing

Shrimp appears as the most important commercial product for the small scale fisheries of the Upper Gulf¹⁸. This fishing was carried out with gillnets until 2013, when changes to regulations were promoted. Then fishing was suspended from 2015 to 2017 and the tasks to find alternative gear intensified.

Regarding shrimp fishing, it was shown that, from December 15 to 14, 2013, 4,079 trips were made in San Felipe, while 1,426 trips were made in the Gulf of Santa Clara from October 17 to 21. 2013. We cannot fail to point out that the National Fisheries Charter (CNP) indicates that shrimp management in the Pacific is at its sustainability limit¹⁹. It must be noted that shrimp fishing, by itself, does not capture vaquita in the same way as gillnets do. However, it is the large number of vessels using shrimp nets simultaneously which constitutes a wall of nets where the vaquita become entangled²⁰.

Fishing for bony fish has favored the use of gillnets. The most important species in this sector are Gulf curvina, chano and sierra . Although gill nets are easy to use and guarantee abundant catches, they are also less selective fishing gear and involve more bycatch of various species, from those not used commercially to endangered species such as dolphins, sea turtles. and in this case, of vaquita (see Figure 2).

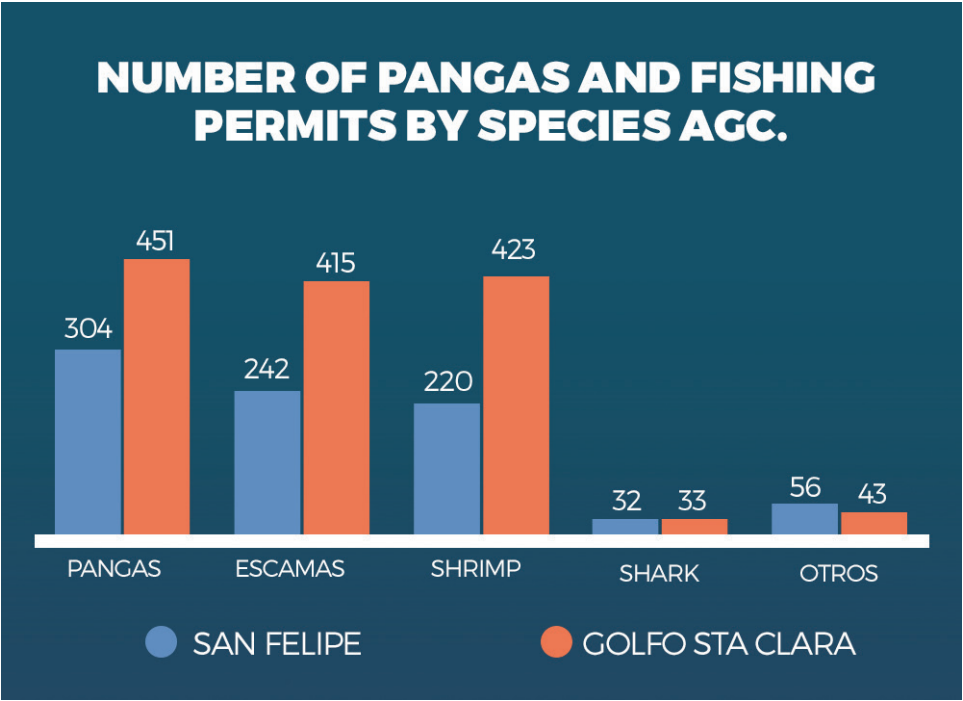


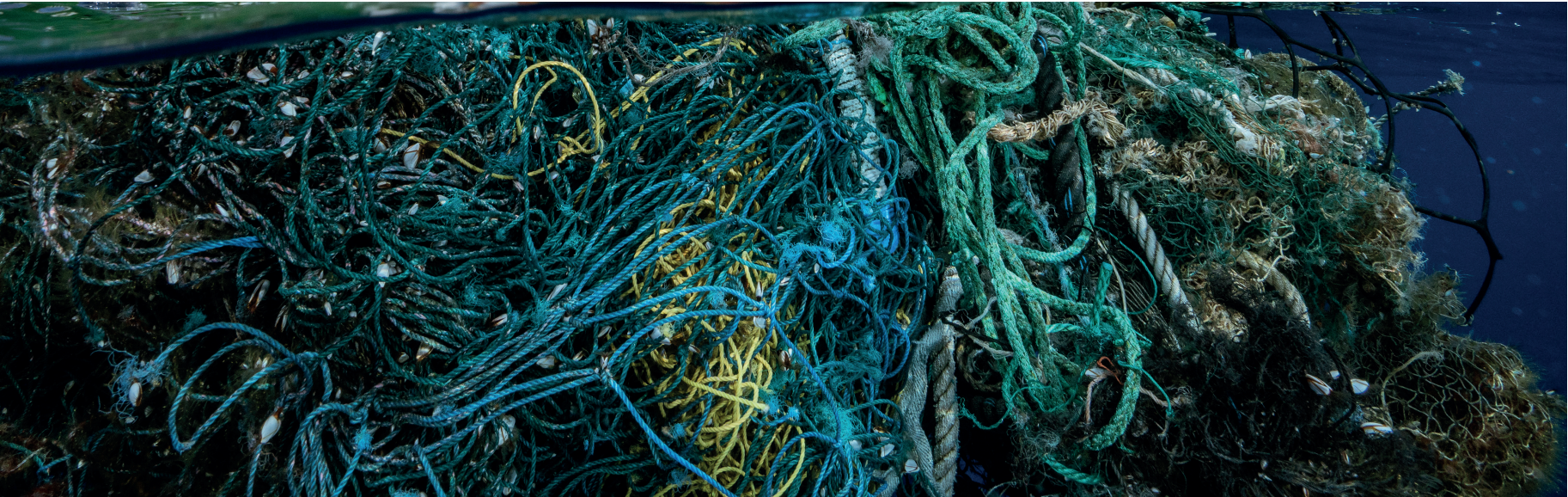
Figure 2. Source ECOFT 2017. Elaboration Comarino

18 Aburto-Oropeza, O.; López-Sagástegui, C.; Moreno-Báez, M.; Mascareñas-Osorio, I.; Jiménez-Esquivel, V.; Johnson, A.F.; Erisman, B. (2017). Endangered species, ecosystem integrity and human livelihoods. Conservation Letters. 0 (0) pp. 1-9.

19 Comarino-Greepeace: performance indicators of the fishery authorities in the Upper Gulf of California, confronting the problem of the vaquita (Phocoena sinus) 2017.

20 Comment by Enrique Sanjurjo of WWF at a press conference, on October 17, 2018, Museo de la Ballena. UNAM

21 Ismael Mascareñas Osorio. 2015. Fishing in the Upper Gulf of California: differences between San Felipe and El Golfo de Santa Clara. <http://gulfprogram.ucsd.edu/blog/la-pesca-en-el-alto-golfo-de-california-diferencias-entre-san-felipe-y-el-golfo-de-santa-clara/>



Fishing of Gulf curvina

The Gulf curvina golfina related to the totoaba and uses the same habitat. Gulf curvina fishing deserves special consideration, since it has been permanently authorized even though the CIRVA has recommended prohibiting its fishing because of its potential to mask the totoaba catch. ²²

In spite of the fact that the mandatory indications of the National Fisheries Charter order the reduction of the fishing for this species, compliance with this provision is difficult to document. However, an increase in catch can be perceived when considering the number of authorizations and tons allowed, since in 2017 a total of 4,300 tons was authorized, with which the quota increased almost 100% in only five years. (See Figure 3).

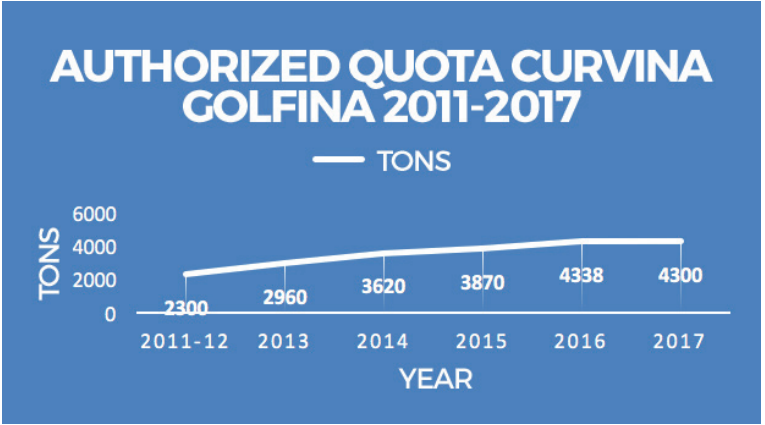


Figure 3. Source: Comarino-Greenpeace: indicators of the fishery authorities performance in the Upper Gulf of California, confronting the problem of the vaquitavaquita (Phocoena sinus) 2017

We must take into account that Gulf curvina fishing, until 2012, was included in the bony fish fishing, so there were no specific measures for this species. Since then, the Gulf curvina fishing done by the fishermen of the Gulf of Santa Clara, San Felipe and even those of the Cucapá people has been regulated and incorporated. This makes it difficult to calculate the specific weight of overfishing and, therefore, the increase in fishing effort. However, with the 2018 data an increase can be perceived and, consequently, that it must be limited and controlled.

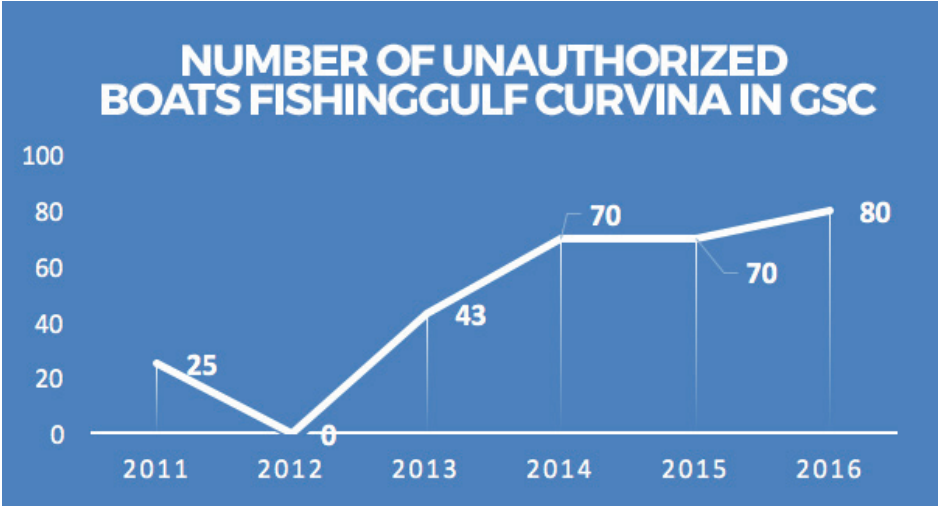
In 2018 an agreement was published that established quotas per vessel of 4,530 tons of whole weight, on the recommendation of Inapesca. This fishing could be done in a zone-corridor outside the protection polygon of the vaquita defined in the report CIRVA 10²³.

22 CIRVA 6, p. 3

23 http://www.dof.gob.mx/nota_detalle.php?codigo=5516132&fecha=14/03/2018. SAGARPA. ACUERDO which establishes the catch quota for the Gulf curvina golfina (Cynoscion othonopterus), in federal jurisdiction waters of the Upper Gulf of California and Delta del Río Colorado for the fishing season 2018.

It is important to mention that, in February of 2018, the fishing authorities convened the first Regional Consultative Committee of the Gulf curvina Golfina of the Upper Gulf of California, in Mexicali B.C.²⁴ The fishermen were informed at the time that a historical analysis of the catches of Gulf curvina and the composition of sizes had been carried out, of which a decrease was noted. Derived from the risk analysis, it was concluded that there is “a continuous decrease in the average size of the biomass in the last 7 years, which indicates a deterioration of the resource”²⁵. Despite this, a quota of 4.5 tons per vessel was authorized for 2018.

It is important to mention that the real fishing exceeds authorized fishing by at least 26%, according to data documented for the Gulf of Santa Clara. Albeit, real fishing has been increasing since 2013²⁶, doubling its volume in 2016 compared to 2015 (see Figure 4). In addition, illegal Gulf curvina fishing persists, at least in the Gulf of Santa Clara (GSC), through the mechanism of “cloning” of vessels²⁷.



Source: EDF Mexico. Environmental Defense Fund, México- (EDF), 18. Economic results of the Gulf curvina golfina season. Gulf of Santa Clara. Elaboration Comarino

Another relevant fact that has been documented is the fishing of Gulf curvina is not only for its meat, but also for the sale of the crawl (swim bladder), which is reaching ever higher prices, mainly in the Asian market. This is relevant since the Gulf curvina is related to the totoaba and after finding that the sale of its crop leaves better and better incomes to the fishermen, it is inferred that in the near future it could be a problem very similar to that of the totoaba if precautionary measures are not immediately taken. The economic income only for the crop of Gulf curvina has reached 48.5% of the total for the sale of this species. (See Figure 5)

24 Conapesca. Minutes of the First Regional Consultative Committee of the Gulf curvina Golfina of the Upper Gulf of California, Mexicali BC. February 16, 2018.

25 Idem

26 Environmental Defense Fund, México- (EDF), 18. Resultados Económicos de la temporada de Gulf curvina golfina. Golfo de Santa Clara, 2016 <http://mexico.edf.org/sites/mexico.edf.org/files/resultados-economicos.pdf>

27 Idem

Figure 4
Number of unauthorized boats fishing Gulf curvina in GSC 2011-2016

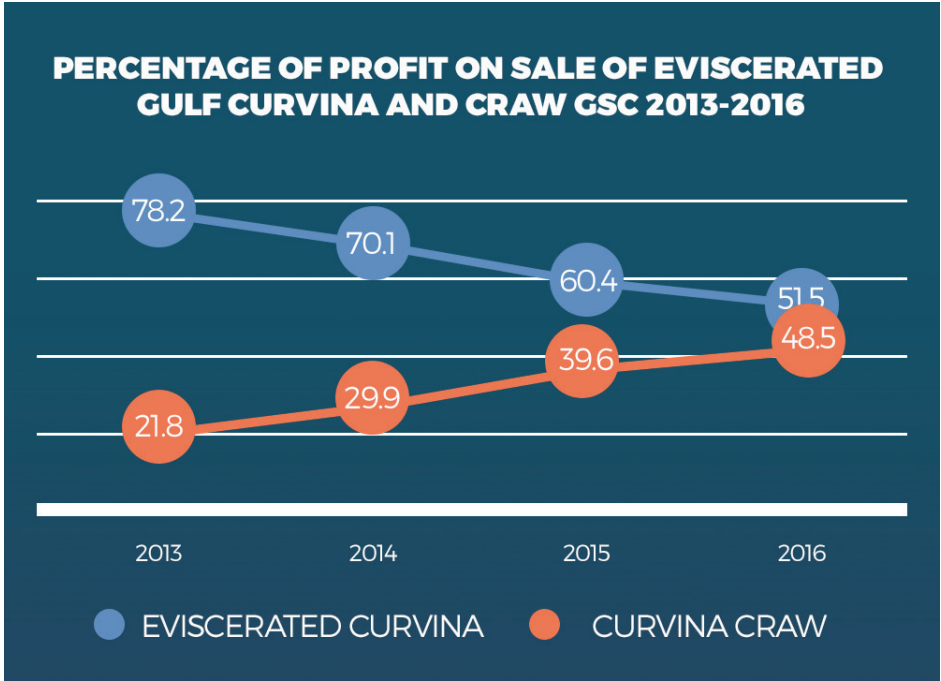


Figure 5
Source: EDF Mexico. Environmental Defense Fund, México- (EDF), 18. Economic results of the Gulf curvina golfina season. Gulf of Santa Clara. Elaboration Comarino

Fishing of totoaba

In addition to legal fishing, the illegal fishing of totoaba intensified approximately from 2011. Historically, this species had been fished with great productivity, so that if in 1934 719 tons of catch were registered, by 1942 it reached its maximum with 2,261 tons and afterwards its decline began. In 1958, only 280 tons were registered, and for 1975 only 60 tons,²⁸ which led to the definitive ban on fishing for totoaba.

After the 1975 closure, the illegal capture of totoaba decreased considerably. Although there was a small trade for meat consumption in the communities and surrounding states, it was not significant. It is known that the population of totoaba recovered significantly, in such a way that some fishing sectors requested that it be removed from category NOM 059 of species at risk in order to start their legal and controlled fishing.

This reality of illegal overfishing of the totoaba has led to the worsening of the problem of the vaquita, because when swimming together they share the same fate: being trapped in nets that have brought them to the brink of extinction.

Illegal fishing that impacts the totoaba is mainly done at night to avoid detection, replacing the colored buoys with styrofoam vessels, which make it almost impossible for the nets to be detected²⁹.

28 Vazquez Muñoz Carmen. 2010. Distribution and abundance of totoaba juveniles, in relation to environmental variables. Doctor of Science Thesis CIBNOR ENERO 2010. https://cibnor.repositorioinstitucional.mx/jspui/bitstream/1001/1053/1/valdez_c.pdf

29 Pliego-Moreno, V., Castillo-López, A., Castillo-López, J. E., Cuéllar, A. & Montiel-Bustos, R. P. (2016). Diagnosis of the state of inspection and surveillance regarding fisheries in the Upper Gulf of California. Ensenada, B. C.: Pronatura Noroeste, A. C.



Phantom nets

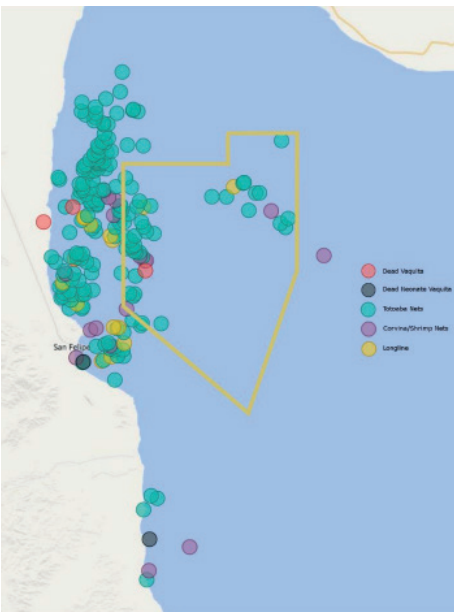
Such was the intensity of totoaba fishing that one of the most important actions taken has been the withdrawal of ghost nets. Organizations such as Sea Shepherd, Profepa, Conapesca and Semar have participated in these actions. In 2017 we worked on the withdrawal of nets for 140 effective days, achieving the annulment of 396 fishing gear. Of these, 51.5% remained active and 88% were for totoaba. The illegal nets added a total weight of 48 tons³⁰.

It is worth noting that all this happened two years after the prohibition of nets in the polygon and the implementation of the government strategy for the recovery of the vaquita. This fact indicates, at least, that the surveillance is insufficient, even though all this happens in a small area off the coast of San Felipe. (See Map 3).

Alternative Fishing Gear

There is evidence that various alternative fishing gears have been tested since 2004 and throughout all subsequent years. The WWF and Pronatura organizations participated in these tests in support of the authorities. Traps, trawl nets and small trawl nets (RS-INP-MX) were successfully tested and

³⁰ Semarnat, 2018. Let's save the Vaquita, The three pillars



Map 3. gillnet removal locations and annex to the Vaquita Refuge Area polygon

proved very useful. For bony fish, the best gear turned out to be centering and longlines, rigid traps and trawl nets for fish. The latter showed good performance and high selectivity.

The lack of adoption of alternative fishing gear has been due to several factors, including the lack of training for fishermen who agree to enter the tests. During the tests it was demonstrated that the skill of the fishermen is an important factor, if not determinant for the success of catches with small gillnets³¹.

There were also areas devoted to the experimentation of shrimp gear, which needed gillnet-free zones. However, cases were detected in which this agreement was not respected, so that the areas remained obstructed with gillnets and the test activities were not possible. In addition to this, cases were identified in which CONAPESCA delayed the issuance of experimental fishing catch permits for up to one month, which discouraged fishermen³².

The result is that there is still no alternative gear that guarantee high catch, coupled with low incidental catch, so that sufficient training is not given to potential users of such gear.

³¹ Expert Committee of Fishing Technologies (ECOFT), Alternative Gear to Gillnets in the Upper Gulf of California. (2004-2016) Nov 16 2017

³² Comarino-Greenpeace: indicators of the performance of the fishery authorities in the Upper Gulf of California, confronting the problem of the vaquita (Phocoena sinus) 2017

3. VAQUITA, PACE AND CIRVA



CIRVA

In 1997, during the 48th Plenary Meeting of the International Whaling Commission (IWC) in the United Kingdom, and as a result of the vaquita recovery strategy, the International Committee for the Recovery of the Vaquita (CIRVA) was created. This organism met for the first time in Ensenada, Baja California, from January 22 to 26, 1997. The meeting was headed by the president of the National Institute of Fisheries.

Since then, each session has been accompanied by a document numbered according to the order of the meetings, in which the conclusions reached are broken down. Below is a list of these reports.

CIRVA 1 (January, 1997). All the factors that could affect the low population of the vaquita were discussed, such as pesticides, the decrease of nutrients and habitat problems, ruling out biological and environmental causes. It is concluded that the main reason for the decrease of vaquita were gillnets. Since its first report, CIRVA recommended that the causes of bycatch should be eliminated and that existing legislation be strengthened. This document, estimated the vaquita population to be in the low hundreds.³³ Vaquita become entangled in gillnets used in both coastal and high seas fishing, whether legal or illegal. The overexploitation of totoaba fishing in the 1940s led to a period of mortality for both species, with of up to ten vaquita per day being recorded at the beginning of the 1970s.³⁴

CIRVA 2 (February, 1999). The Mexican government is urged to develop and test alternative fishing gear. A very important feature is that it recommends implementing a program that involves fishermen.

CIRVA 3 (January, 2004). Indicates that simultaneous measures should be taken to change gear, include fishermen participation and provide socioeconomic initiatives.

CIRVA 4 (February, 2012). Recommends the adoption of small trawls for shrimp fishing, as well as incentives to use them immediately. In addition, the development of alternative gear for fishing for bony fish. The vaquita population is estimated at 200 animals.

CIRVA 5 (July 2014). It is considered that approximately 50% of the 200 vaquita estimated in 2012 would have died in gillnets, leaving less than 100

³³ CIRVA 1. Scientific Report. 25-26 January 1997. Ensenada Baja California.Mexicio.Disponible at <http://www.iucn-csg.org/index.php/vaquita/>

³⁴ Urbán, R.J. y M. Guerrero-Ruiz. 2008. Ficha técnica de Phocoena sinus. En: Urbán R.J. (Comp.). Biological knowledge of marine mammal species, included in the Official Mexican Regulation-059-SEMARNAT-2001. Universidad Autónoma de Baja California Sur. Daa base SNIB-Conabio. Proyecto No. CK009. México.

vaquita. It is estimated that 25% of them are females of reproductive age.

It is concluded that, even with the sum of all the efforts on the part of the different actors involved, the population continued to fall at a rate of 18.5%³⁵. According to this estimate, the species would probably become extinct in 2018 if the bycatch did not cease. Faced with this situation, the report urges the government of Mexico to be firm and enact emergency regulations, establishing gillnet exclusion zones that cover the vaquita's distribution area.

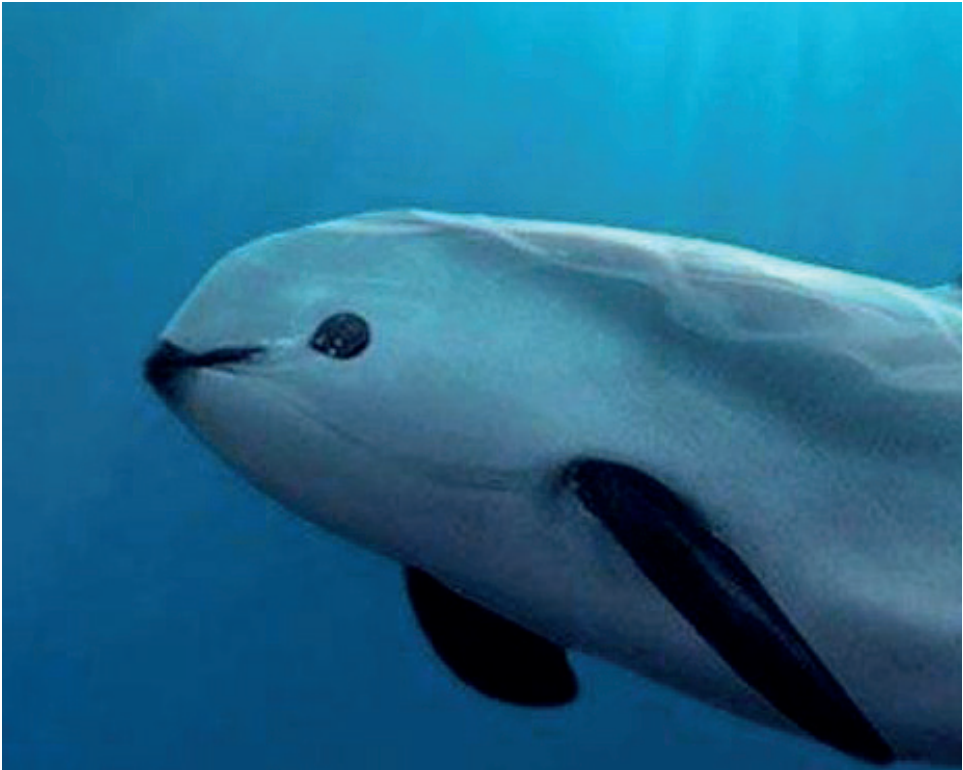
The document also reports that surveillance efforts at sea had failed: illegal fishing had not only been controlled but had increased in the range of the vaquita, due to the voracious fishing of totoaba, a species also in danger . At least since 2000, both the International

Whaling Commission and the CIRVA had made strong and repeated recommendations to eliminate gillnets throughout the distribution range of the species.

According to the report, it is not enough to eliminate illegal fishing but all gillnet fishing must be eliminated. Fisher must be prohibited from using, possessing and transporting gillnets within the distribution area, and an at sea surveillance program must accompany the prohibitions.³⁶

CIRVA 6 (May, 2015). By 2015, the population had been reduced to 97 vaquita, with fewer females in reproductive stage³⁷. At the sixth meeting of the CIRVA an annual rate of decrease of 31% is estimated between 2011 and 2014. Therefore, it is recommended that Mexico permanently prohibit fishing with gillnets or gillnets in the entire range of the vaquita³⁸. In addition to the accelerated rate of decline found between 2011 and 2014, CIRVA 6 identifies this same indicator by 42% between 2013 and 2014. The report emphasizes that a two-year suspension of gillnets is completely inadequate. It strongly recommends converting the two-year ban into a permanent one and calls for strengthening regulations and accelerating the introduction of alternative gear.

CIRVA 7 (May, 2016). From the review of the available data acquired via acoustic monitoring, the committee deduces that extinction is imminent. It is inferred that the vaquita has experienced a total decline of almost 98% between 2011 and 2015, with an annual loss of more than 20%. The result is that there are 60 vaquita left,³⁹ so it urges the Mexican



“According to this estimate, the species would probably become extinct in 2018 if the bycatch did not cease.”

35 <http://www.iucn-csg.org/wp-content/uploads/2010/03/Reporte-de-la-Quinta-Reunion-del-CIRVA.pdf>

36 <http://www.iucn-csg.org/wp-content/uploads/2010/03/Reporte-de-la-Quinta-Reunion-del-CIRVA.pdf>

37 http://apps1.semarnat.gob.mx/dgeia/informe15/tema/recuadros/recuadro4_2.html

38 https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2016_RES_017_ES.pdf

39 The data of 60 vaquita was obtained by the scientists of the Vaquita Marine International Expedition 2015, carried out from September 28 to December 3, 2015 and was based on the combined results of visual sightings by transect and acoustic monitoring. The previous abundance estimates were 567 vaquita in 1997; 245 in 2018; 245 en 2018.

government place a permanent ban on gillnet⁴⁰ . The report emphasizes that there are no reasons why the RS-INP-MX selective net is not being used and the urgent adoption of measures to use fishing nets that prevent the capture of the vaquita. For the first time, the CIRVA declares that ex situ conservation should begin to be considered. However, it is recognized that the capture of all the vaquita is not a viable conservation strategy and that above all fight should be for the protection in their natural habitat⁴¹.

CIRVA 8 (November, 2016). Results of the acoustic analysis of the monitoring program found that the vaquita population has declined by 90% in the last 5 years and that, between 2015 and 2016, there has been an annual loss of 49% Likewise, CIRVA estimates the survival of 30 vaquita and concludes that the situation is desperate despite the measures and efforts to conserve it. It recommends that the monitoring work continue in order to have an estimate of how many vaquita remain. The recommendation to prohibit purse-seine gillnets in Gulf curvina fishing is reiterated, since this fishing may mask totoaba fishing, as well as the possession and sale of gillnets on both sea and land. The development of alternative fishing gear is urgent. Finally, it estimates that given the situation it is recommended to make attempts to place vaquita in a temporary sanctuary, to protect them until they can be safely returned to the sea, taking into account that success could be impossible. However, the priority should be the reinforcement of prohibitions and withdrawal of gillnets⁴².

CIRVA 9 (April, 2017). It concludes that the vaquita is on the verge of extinction, illegal fishing continues at very high levels and that illegal fishermen operate openly day and night. The Sea Shepherd Conservation Society reports that it has retired 150 active gillnets “totoaberas” in a single season and that it has observed a lot of illegal fishing activity. The autopsies of four vaquita found dead - an adult male, a young female, a female fetus near term and a female headless breeding - reveal that they all had typical injuries of death by entanglement. Given the serious situation, CIRVA recommends the capture and reproduction in captivity in a temporary sanctuary as a desperate measure⁴³, the plan known by its acronym CPR (Conservation, Protection and Recovery).

CIRVA 10 (December, 2017).⁴⁴ It is reiterated that the status of the vaquita has worsened. Taking into account that by November 2016 there were approximately 30 individuals, the report concludes that the decline of the species continues. “Unless the decline stops by eliminating mortality in gillnets, the vaquita will be extinct in a few years”,⁴⁵ the document warns. Therefore, the only option to save the vaquita depends on the removal of all types of gillnets from the vaquita distribution area.



40 http://apps1.semarnat.gob.mx/dgeia/informe15/tema/recuadros/recuadro4_2.html

41 www.iucn-csg.org/wp-content/uploads/2010/03/CIRVA-7-Final-Report.pdf

42 www.iucn-csg.org/wp-content/uploads/2010/03/CIRVA-8-Final-Report.pdf

43 <http://www.iucn-csg.org/wp-content/uploads/2010/03/CIRVA-9-Final-Report-May-11-2017.pdf>

44 https://www.gob.mx/cms/uploads/attachment/file/294398/EXECUTIVE_SUMMARY_final.pdf

45 CIRVA 10. PAG 2. http://www.iucn-csg.org/wp-content/uploads/2018/01/CIRVA-10_final-report-2018.pdf



PACE-Vaquita

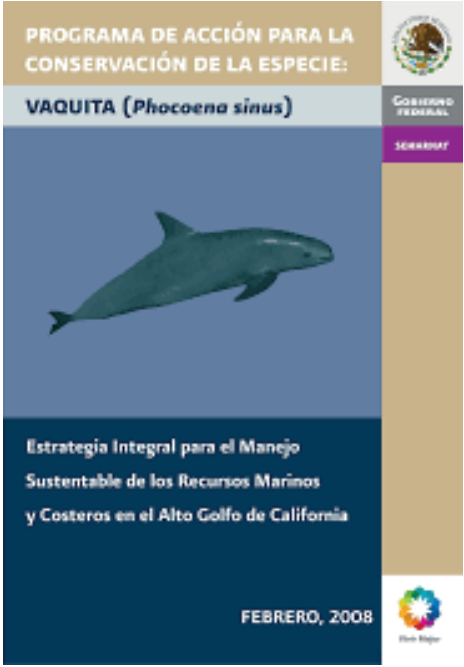
In February of 2008 the Program of Action for the Conservation of the Vaquita Species is published: better known as PACE-Vaquita. The program derives from provisions established in the General Law of Wildlife⁴⁶ and its execution falls to the National Commission of Natural Protected Areas (Conanp), a decentralized organ of Semarnat.

The PACE-Vaquita establishes the need to reduce the incidental capture of vaquita to zero, as well as extending its reserve further south to include the entire range of its distribution. It also includes eliminating gill and trawl nets within the reserve, experimenting with alternative fishing techniques, encouraging and generating alternative productive activities to fishing with nets in the communities, establishing exploitation rates prior to the fishing season, controlling fishing effort and establishing an official observer program on board major and minor fishing vessels. As a time horizon, the document states that this must be accomplished no later than 2012.⁴⁷

The PACE-Vaquita recognizes overfishing and illegal fishing in the Upper Gulf as the main threats, in addition to the use of bottom trawls that, on top of not being selective, contribute to the modification of soft bottom environments, which directly affect the communities of organisms that inhabit or live near the seabed.

46 General Law of Wildlife, Título VI, Capítulo 1. Priority Species and Populations at Risk for Conservation, Articles 56 and later, especially Art. 60 thereof. Available at: www.diputados.gob.mx/Leyes

47 Comarino-Greenpeace: indicators of the performance of the fishery authorities in the Upper Gulf of California, confronting the problem of the vaquita (*Phocoena sinus*) 2017



THE RECOMMENDATIONS OF THE PACE-VAQUITA ARE:

Reconversion of fishing gear in two possible ways:

1. Productive reconversion, consisting in the definitive termination or voluntary withdrawal of one or several permits with their respective vessels, in exchange for a cash subsidy, which could be invested in the development of an alternative economic activity to fishing.
2. Technological reconversion, which is the legal substitution of a fishing permit for catch with chinchorro or gillnet for another alternative gear permit (line, trap, nets, among others) in exchange for a subsidy for the improvement or modernization of the vessel and the inputs for its operation (in this modality, neither permits nor vessels are removed)⁴⁸.

The program establishes, a second phase:

- Eliminate trawling and gill nets in the entire distribution area of the vaquita, with compliance scheduled for 2012.
- Evaluate the state of the totoaba population, as well as identify market instruments for sustainable fishery products.
- Develop a formal training program in aspects of conservation and management, environmental education and ecotourism, in addition to specific basic education programs on the ecosystems of the Upper Gulf of California.

In February 2015 the Comprehensive Strategy for the Recovery of the Vaquita was announced, which allocates more than one billion pesos for activities associated with the conservation of both species. Based on this strategy, the polygon of protection in the AGC is extended, increasing from 126 thousand to 1 million 300 thousand hectares to guarantee the coverage of the distribution area of the species. Added to this is the temporary suspension for two years of commercial fishing with gill nets with exceptions Gulf curvina, chano and sierra, compensatory income measures are granted for fishermen and the night inspection is strengthened with support from Semar. The patrols would include 300 marines, 15 vessels and unmanned aircraft systems⁵⁰.

In general terms, there is congruence between the indications of the PACE and the recommendations of the CIRVA. However, the lag occurs in the implementation of the actions. In a previous work we described how the fishing authorities hampered the implementation of new fishing gear, the granting of permits, the issuance of standards and issued net fishing permits, instead of the measures requested^{51,52}.

48 Pronatura, 2016. Diagnóstico del Mecanismo Buy-Out como estrategia de conservación de la vaquita en el Golfo de California.

49 <https://www.gob.mx/semarnat/articulos/proteccion-de-la-vaquita-marina-compromiso-de-mexico> (consultado el 17 de junio de 2018)

50 Idem

51 On September 26, 2013, during the third meeting of the Advisory Commission of the Presidency, Conapesca announced the progress of the preparation of NOM 002 -SAG / PESC-2013 of shrimp fishing in which it is established that the chinchorro must be eliminated within three years (30% -30% -40%), however, at the same time WWF and Pronatura informed that Conapesca had granted fishing permits for shrimping with line chinchorro, that is, the art fishing gear that would be banned in three years, valid for four years, from September 2013 to September 2017, which would be in contravention of what was dictated by the Sixth Transitory Article of the regulation and before the entry into force of the same.

52 Comarino-Greenpeace: indicadores de la actuación de las autoridades pesqueras en el Alto Golfo de California, frente a la problemática de la vaquita (*Phocoena sinus*) 2017

4. THE ENRIQUE PEÑA NIETO ADMINISTRATION



Photo: National archive

Photo Cuartoscuro



The administration of President Enrique Peña Nieto began in 2012, the year in which there were 200 vaquita according to the CIRVA 4. In order to contextualize the decline of the vaquita during this period, the most relevant and significant aspects of this government are presented regarding the Vaquita.

Before starting the sexennium, Sagarpa had already published the Gulf curvina Golfina Fishing Management Plan,⁵³ that promoted the improvement of the the fishermen’s quality of life, seeking the right to access, use and enjoy preferentially the fishing resources.

In 2012, the Advisory Commission of the Mexican Presidency for the Recovery of the Vaquita was installed⁵⁴, in order to propose strategies, environmental, economic and social actions. The commission was made up of authorities from Semarnat, Conapesca, Inapesca, Profepa, Conabio, Inecc, Conanp, the presidencies of the Environmental Commissions of the Chamber of Deputies and Senators, IUCN specialists, CIRVA scientists, civil society organizations and representatives of the fishermen from San Felipe and the Gulf of Santa Clara.

This instance of high level and commitment had the power to recommend measures to be adopted by the president. Being an instance open to discussion, there were certainly strong statements, such as those referred to in our publication, “Indicators of the performance of fishery authorities in the Upper Gulf of California, confronting the problem of the vaquita” (Phocoena sinus) 2017 Unfortunately, what appeared to be a collegiate body and the missing link to make real advancements in the conservation of the vaquita, ended is session and disappeared without leaving records of its sessions beyond the third, which occurred on September 26 of 2013⁵⁵.

53 DOF: 06/11/2012: SAGARPA: Plan de Manejo Pesquero de Gulf curvina Golfina (Cynoscion othonopterus) del norte del Golfo de California.
54 <https://www.gob.mx/presidencia/articulos/mexico-tras-la-recuperacion-de-la-vaquita-marina>
55 Advisory Commission of the Presidency of Mexico for the Recovery of the Vaquita. Minutes. 26 de September 26, 2013

During 2012 and 2013 the magnitude of totoaba fishing for the Asian market is understood. In 2013 the Senate of the Republic approved a Point of Agreement that encourages the Federal Executive to expand the polygon of Refuge Area for the vaquita. The Senate also urges Sagarpa to update and publish the National Fisheries Charter⁵⁶, which it had not done since 2013.

In February 2015 the Comprehensive Strategy for the Recovery of the Vaquita and the Totoaba was announced, which was launched by the Office of Environmental Protection (Profepa). This strategy expanded the polygon of protection in the Upper Gulf of California, which increases from 126 thousand to 1 million hectares, with the intention of guaranteeing the coverage of the vaquita's distribution area. A fundamental part of the strategy indicated is that compensatory measures of one billion pesos are granted to fishermen.

In February 2015 the Comprehensive Strategy for the Recovery of the Vaquita and the Totoaba was announced, which was launched by the Office of Environmental Protection (Profepa). From this strategy the polygon of protection in the Upper Gulf of California was expanded, being increased from 126 thousand to 1 million hectares, with the intention of guaranteeing the coverage of the vaquita's distribution area. A fundamental part of the strategy indicated is that compensatory measures of one billion pesos be granted to fisherman⁵⁷. Night inspection is also strengthened with the support of the SEMAR, plus a patrol of 300 marines.⁵⁸

Notwithstanding the goodwill of the Strategy, the lack of human resources to be able to monitor the area and the deficiency in coordination with the municipalities and the security forces⁵⁹ helped to make inspection and surveillance weak, which has impeded compliance with the law. In March 2015, the Senate of the Republic urged the Federal Executive to request CITES to take the necessary measures so that China and the United States stop buying and trafficking illegal totoaba.

From September to December 2015 an expedition with researchers from Semarnat, Conabio and international institutions is carried out, highlighting among its results that there were approximately 60 vaquita. In 2016, an agreement was reached with the presidents of Mexico and the United States to coordinate efforts and, in this way, strengthen the results of the permanent ban on fishing with nets in the vaquita distribution zone in the Upper Gulf of California, in addition to reducing illegal fishing and totoaba traffic.

In Septiembre, 2016, Mexico achieves a consensus of the 183 signatory countries of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to join efforts and save the vaquita by reducing the demand and international traffic of totoaba fish.

⁵⁶ Approved by the Plenary in session held February 25, 2016.

⁵⁷ The Totoaba Supply Chain- from Mexico's Totoaba cartels to China's Totoaba Maw Wholesalers an Illegal trade Killing the Vaquita. Elephant Action League. Julio 2018

⁵⁸ <https://www.gob.mx/semarnat/articulos/proteccion-de-la-vaquita-marina-compromiso-de-mexico>

⁵⁹ Capacities for the conservation and sustainable use of biodiversity. CONABIO & PNUD, 2009. México

Near the Consag rocks, habitat of the vaquita



Photo: National archive

Avisibly more notorious action was announced jointly by President Enrique Peña Nieto, actor Leonardo DiCaprio and businessman Carlos Slim, as well as other senior officials of the Mexican government, in June 2017: the signing of the Memorandum of Understanding (MOU, by its acronym in English), under which a fund of one billion pesos was donated to help avoid the extinction of the vaquita.

These funds would be used to convert fishing gear, develop mariculture, stop illegal fishing, protect marine life (starting with the remaining vaquita), prohibit the use of gillnets throughout the range of the vaquita, combat the use of illegal nets, stop totoaba poaching and prohibit night fishing in the Upper Gulf of California. These objectives were to be accompanied by actions such as working with local communities to adopt responsible practices and accelerate the replacement gill nets with nets that do not endanger the vaquita.

Removal of ghosts nets

During the six-year period, ghost nets are removed in the Upper Gulf of California in collaboration with various actors, including the Sea Shepherd Conservation Society (SSCS), the organization that started Operation Miracle and the withdrawal of nets. The Whale Museum and Sciences of the Sea A.C. and the fishing organizations Pesca Alternativa of Baja California (Pesca ABC) and the Sociedad Cooperativa Islas del Golfo, as well as dependencies of the federal government: Semar, Sedena, Ineccc, Conanp, Profepa and Conabio.

In 2017 alone, 40 tons of gillnets are removed⁶⁰. The Whale Museum registers the removal of 10 tons of gill nets in only 21 days during 2016, while Semarnat reports the withdrawal of 518 pieces of illegal fishing gear, 220 of them still active, in the Alto Gulf of California for 2017⁶¹.



Between December 2017 and May 2018, 400 active totoaba nets are removed from the Upper Gulf and a small vaquita is found dead due to entanglement. Another 139 nets are removed in April 2018, more than in any other month during the totoaba season. In total, 451 tons of nets have been seized in the last two years.⁶² These seizure figures confirm the lack of compliance with the 2015 agreement that, allowing for exceptions, favors this blunt fact: nets are still being placed to catch totoabas in the Upper Gulf of California.

Official Mexican Regulation labeled Totoaba

In September 2018 the Official Mexican Regulation NOM-169-SEMARNAT-2018 was published, which established the marking specifications for specimens, parts and derivatives of totoaba (*Totoaba macdonaldi*) from management units for the conservation of wildlife to allow their traceability . This Regulation is published in order to track the export of totoaba through CITES. Earth Ocean Farms is the only company that has been shown to comply with the specifications.

Population study of totoaba

According to Inapesca in 2017, at least 1,400 tonnes of totoaba were illegally caught. This means that in spite of having a millionaire budget in surveillance, 21 thousand totoabas were illegally captured last year, which caused almost the extinction of the vaquita. The Final Evaluation Report of the Population of Totoaba in the Gulf of California , dated February 2018, indicates: A conservative estimate of the number of totoabas captured in 2017 indicates that the number could have exceeded

60 <http://www.mexicoambiental.com/vaquita-marina-retiran-50-toneladas-de-redes-agalleras-el-ultimo-ano-en-el-alto-golfo-de-california/>
61 <https://www.gob.mx/semarnat/articulos/reforzamos-proteccion-de-la-vaquita-marina?idiom=es>
62 <http://www.eluniversal.com.mx/nacion/retiran-451-redes-de-pesca-en-alto-golfo-de-california-semarnat>
63 http://www.dof.gob.mx/nota_detalle.php?codigo=5539493&fecha=28/09/2018
64 <https://cites.org/sites/default/files/eng/com/sc/70/E-SC70-62-02.pdf>

21,000, most of them breeding adults. The total weight of these organisms could be 1,400 tons. In these calculations the fishing effort estimated in number of boats, gear per boat and totoabas per gear was taken into consideration. This information comes from informal conversations and field observations. The objective of the study is to demonstrate the recovery of the species, to be able to allow sport fishing with hooks and to reduce the pressure on the vaquita. It establishes that the existing average total biomass is 38 thousand 683 tons, which are around 580 thousand specimens.

It also says that illegal fishing makes the totoaba particularly vulnerable, a phenomenon that has been exacerbated in the last 4 or 5 years and whose effects are already seen in the totoaba population. “This capture regime is not sustainable,” the study concludes.



Agreements

In April 2015, the federal government issues a Semarnat-Sagarpa Intersecretarial Agreement, through which it temporarily suspends commercial fishing with gillnets, lines and / or longlines in smaller vessels in the area described, for a period of two years⁶⁵. The Gulf curvina golfina fishery with purse seines (mesh size 14.6 cm and a maximum length of 293 meters) or hand lines is exempted from this provision.

This agreement tried to cover a large area, beyond the vaquita refuge, however it has important gaps that invalidated the intention. Such as establishing a short and limited season, in which the results obviously could not be estimated. The exclusion was made only for smaller vessels, leaving the larger ones free to navigate, which can be used for illegal fishing. It did not address the repeated recommendations of the CIRVA, in the sense of prohibiting not only the use of nets in the marine area, but also the manufacture, possession, sale and commercialization of gill nets in terrestrial areas, with which fishermen could, as they did, display their nets in the backyards where no authority could act. Nor did it prohibit night fishing, nor navigation in the most critical sites, as had been requested.

But the worst omission of this agreement was not prohibiting fishing nets absolutely. When making an exception for the Gulf curvina fishing, which occurs in the same area and season of the totoaba, the fishing of the latter is favored, as established by CIRVA ⁶⁶, 4 vaquita were entangled nets during Gulf curvina fishing season. The totoaba is still intensely fished.

On June 30, 2017, an agreement was published that permanently prohibited drift nets (including gillnets) and (long lines) operated passively, where the nets are left floating unattended overnight, as well as transporting them, whether by sea, land or air. It also prohibited night fishing activities (from 9:00 p.m. to 5:00 a.m.), established disembarkation areas for authorized vessels in San Felipe, Santa Clara and Bajo Río, as well as monitoring systems, and required the reporting of fishing gear losses⁶⁷. This agreement helps to comply with the recommendations of the CIRVA, establishing smaller vessel schedules.

On April 11, 2017 an inter-secretarial agreement was published restricting navigation, fishing activities and nautical tourism in the Upper Gulf of California polygon, with the exception of those that aimed to preserve the

65 DOF:10 April 2015. UERDO whereby commercial fishing is temporarily suspended through the use of shoring and / or longlines operated with smaller vessels, in the Northern Gulf of California.
66 CIRVA 7. “During the 2016 Gulf curvina season 3 dead vaquita were found by gillnets”, p.5
67 DOF. 30 de junio del 2017. SEMARNAT-SAGARPA. AGREEMENT that prohibits gear, systems, methods, techniques and schedules for carrying out fishing activities with smaller vessels in marine waters of federal jurisdiction of the United Mexican States in the Northern Gulf of California.

vaquita⁶⁸. This prohibition was only applicable for the period from October 11 to December 17 of the same year. Clearly, this agreement protects the activities of the CPR (Capture, Protection and Recovery) Project, which would take place within these dates.

Finally, on April 20, 2018 the agreement was published that extends the polygonal area of the vaquita refuge to an area of 11 thousand 358 km2, to allow and promote the protection and recovery of vaquita and totoaba⁶⁹. More than 10 years after the recommendation of the CIRVA and six years after the request of the Senate of the Republic, the measure basically consists of a minimum extension towards the east, towards San Felipe. It should be noted that a free area is left off the coast that will serve as a “corridor” for Gulf curvina fishing. It is striking that this corridor is a strip that is used for Gulf curvina and totoaba fishing, so there is still a gap and a consequent risk during the Gulf curvina fishing. In short, the agreements issued by the Executive lacked the force of a total ban, and it was not until the drastic loss of vaquita that the government took more drastic measures.

The agreements were issued by various agencies, however Semarnat had the power to do so since, in the case of endangered species, in marine protected areas and in the refuge area, they were under the authority of this secretariat. However, it seems that it gave up its power under pressure from the fishing authorities. Everything indicates Semarnat feared fulfilling a task that demanded greater responsibility from these authorities to fulfill their functions and exercise their authority fully.

Semarnat has the power to impose bans and other environmental instruments on species under its jurisdiction, such as the vaquita and the totoaba, but had ceded its power in favor of Conapesca. In this way, the latter had been the predominant actor in the implementation of fishing instruments, with an enormous resistance to the conservation of the vaquita, whereas Semarnat is co-responsible for this extinction by omission.

Official Regulations

On July 11, 2013, the Official Mexican Regulation NOM-002-SAG / PESC-2013 was issued, in order to regulate the exploitation of shrimp species in federal jurisdiction waters in Mexico. In a previous work it had been mentioned that Conapesca had issued fishing permits for shrimp with net fishing (non-selective gear), which would remain in force one year after the issuance of this regulation. This was denounced in the third session of the aforementioned Advisory Commission, which showed that the same agency (Conapesca) was working on a Norm to avoid incidental capture while issuing permits that favored it and went beyond. Published in the Official Gazette of the Federation on July 3, 2015, the Official Mexican Regulation Norm NOM-062-SAG / PESC-2014 regulates the use of the Location and Satellite Monitoring System of Fishing Vessels, since this constitutes a way to follow the effective fishing effort in the fisheries by geographical area. Consequently, it is very useful for the management of fisheries.

On March 14, 2018, a draft of Official Mexican Standard PROY-NOM-169-SEMARNAT-2018 was published, which established the marking specifications for specimens, parts and derivatives of totoaba from the management units (UMA) for the wildlife conservation.

The project provides general guidelines for the traceability of the totoabas produced in the UMA, allowing the identification of the legal provenance through genetic marking by genetic typing and an identification code⁷⁰. Its final version has not yet been published, but this regulation is focused on controlling the legal trade of totoaba from the UMA and its subsequent export.

68 DOF 11/10/17 AGREEMENT that restricts navigation, fishing activities and nautical tourism, in the indicated polygon within the Region known as Upper Gulf of California, in order to carry out actions to preserve the vaquita(Phocoena sinus).
69 DOF. May 26 2018. Agreement Establishing the Expansion of the Polygon of the Refuge Area Established by Agreement of September 8, 2005, in the Area Located Between the Coasts of the States of Sonora and Baja California, in the Upper Gulf of California, as well as Measures Emergency For The Protection And Recovery Of The Vaquita (Phocoena sinus) Y De La Totoaba (Totoaba macdonaldi)
70 DOF: 14/03/2018. PROJECT Official Mexican Norm PROY-NOM-169-SEMARNAT-2018, That establishes the specifications of marking for the specimens, parts and derivatives of totoaba (Totoaba macdonaldi), coming from Units of Management for the Conservation of Wildlife

Vaquita CPR Program (Conservation, Protection, Recovery)

The vaquita capture program was planned for the period from October 12 to November 10, 2017. Based on a recommendation from CIRVA, it was carried out in accordance with the standards of marine mammal capture. It managed to capture two vaquita. Both, in good condition, were taken to a marine corral where they would stabilize. The first capture, made on October 18, is a six-month-old female (a calf), which has to be released because of signs of stress. She is released at night and her fate is unknown.

The second, captured on November 4, is a mature female. It is captured at 4:20 pm, but must be released for showing abnormal behavior, such as erratic swimming. Its situation worsens in the liberation, for this reason the decision is made to recapture it. After suffering an acute pulmonary edema post-capture, i finally has a cardiac arrest. In the treatment, diverse drugs were administered to it, during which diazepam (2 times), furosemda, antibiotic and steroids were emphasized, in addition an ultrasound is performed on it. It is declared dead at 22:21. That is, he only survived six hours to capture⁷¹. The autopsy shows that there was stress myopathy.

This leads to the definitive suspension of the CPR Program. Considering these antecedents, it is evident that the administration of Enrique Peña Nieto leaves unfinished business behind and unfinished work for an emblematic species. It is also clear that the high risk of extinction for the vaquita is still present and that the environmental authorities have ceded their authority in favor of the fishing authorities and their productivist vision of wildlife.

Trafficking of totoaba and its legalization

As we mentioned earlier, at the end of 2012 it became clear that the extraction and trade of totoaba had grown abruptly,⁷² induced by the demand of its swim bladder (popularly known as buche) in Chinese markets, which caused a large increase in the pressure of illegal fishing⁷³.

According to the Secretary of the Navy, the illegal trafficking of totoaba is more profitable than cocaine trafficking⁷⁴, for which they pay between 7 thousand and 14 thousand US dollars per kilo on the black market. Also, according to a report by the Elephant Action League⁷⁵ (EAL), the totoaba’s crop is now more expensive than gold. The consequence of these prices is that drug traffickers from Baja California, some fishermen from San Felipe and Santa Clara, and Chinese traders from Tijuana and Mexicali are involved in the traffic.

71 To see the full capture review, see CIRVA 10, Anexos C y D.Disponible en: http://www.UICN-csg.org/wp-content/uploads/2018/01/CIRVA-10_final-report-2018.pdf
72 CIRVA (2014), a 12.
73 CIRVA (2014; véase también Dongguan Zhang, la demanda china de vejigas natatorias, branquias y aletas de tiburón catastróficos a los recursos del océano, Gran Época (May 20 th, 2013) (where black market of bladders is indicated Totoaba is “furious” in China). Available at :<http://www.epochtimes.com/gb/13/5/20/n3874902.htm> (en chino).
74 Alert SEMAR That the illegal traffic of Totoba already exceeds: profits of the transfer of cocaine <http://audio.noticiasmvs.com/#!/noticias/trafico-ilegal-de-Totoaba-supera-ganancias-del-trasiego-de-cocaina- SEMAR-289.html>
75 OPERATION FAKE GOLD. The Totoaba Supply Chain – From Mexico’s Totoaba Cartels to China’s Totoaba Maw Wholesalers. An Illegal Trade Killing the Vaquita <https://elephantleague.org/operation-fake-gold/>





The totoaba supply chain begins in the Upper Gulf of California, where some fishing cooperative owners and local fishermen illegally capture it. The swim bladder is extracted from the totoaba on the boats and the corpse is thrown back into the water. The product is delivered to a crew that waits on land with vehicles, which pay up to \$ 5,000 per kilo of crop.

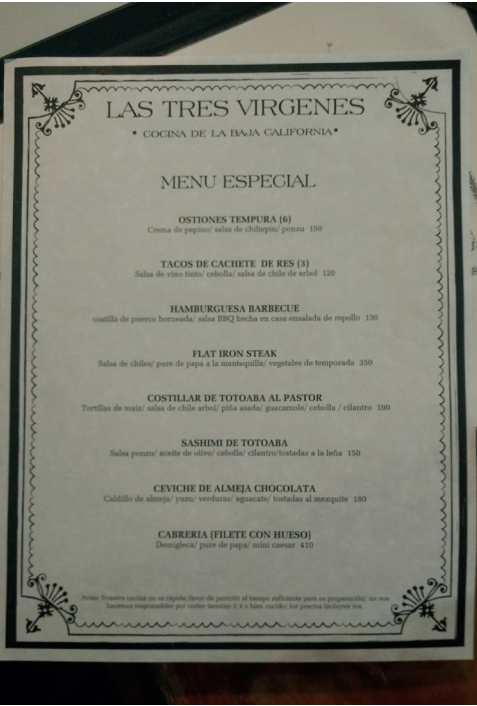
According to EAL, it is estimated that more than 80% of all fishermen in San Felipe are illegally fishing totoaba. Another report⁷⁶ indicates that the criminal structure that operates totoaba traffic in San Felipe is made up of around 80 members directly or indirectly. According to information from police and the military, there are municipal agents, ministerial officials among them and more than 50 fishermen who daily extract hundreds of specimens for illegal sale on the black market⁷⁷.

From the coasts of the Upper Gulf, the swim bladders are taken to Mexicali, Tijuana, Ensenada and Calexico, where they are sold and transported with “mules”. These are smuggled into China at times through transit countries such as South Korea, Japan, Taiwan and the United States. It is in these intermediate populations where the fresh crop is prepared to move it to a place of drying. The buyer weighs the swim bladders and pays from \$3,500 to \$100,000 per kilogram for them. Afterwards the swim bladders are packaged so they can be transported discreetly, usually inside compartments hidden in cars or vans, tied to someone’s body, in bags, or in any hidden place that is available.

Faced with such a sophisticated organization, stopping the threat to the vaquita necessarily implies an intelligence investigation to dismantle the criminal and financial structure of illegal totoaba trafficking, something that the previous government had not done.

⁷⁶
⁷⁷ Cartel del Mar: fishermen, thugs, police and even officials. Monday, August 13, 2018 13:00. Zeta weekly.

Photo courtesy of Customs and Border Protection / Archive



Totoaba dish and menu from a restaurant in La Paz, BCS.

Authorization for the extraction, breeding, fattening and marketing of totoaba

Although the species is considered in danger of extinction and its fishing is prohibited since 1975, the previous administration granted permits for the extraction, cultivation and commercialization of totoaba, endorsed by several provisions of the General Law of Wildlife⁷⁸ without even knowing the state of the population of this species.

At present, there are six records of environmental management units (UMA) of totoaba in Mexico granted by the Semarnat⁷⁹: a) the Biotechnology Unit in Fish Farming of the Autonomous University of Baja California (UABC)⁸⁰, b) Earth Ocean Farms SA de CV⁸¹, c) The Reproductive Center of Marine Species of the State of Sonora (known by its acronym Cremes in Spanish)⁸², d) Pacific Aquaculture S. de RL de CV, e) Fruits of the Sea section Altata Bay, y f) Cygnus Ocean Farms SA de CV/DENEB⁸³.

Of the above, the UABC is the one that has more years of experience in the development of aquaculture technology for totoaba and, until now, has contributed to the repopulation of totoabas through the release of juveniles in the Upper Gulf. Meanwhile, other UMAs are selling totoaba meat to retailers in such quantities that it is possible to find it on the menu of some restaurants in cities such as La Paz, Los Cabos (BCS) and Mexico⁸⁴, thus creating a market for an endangered species. (See Figure X).



⁷⁸ Request under the Transparency Law 0001600180917
⁷⁹ Request under the Transparency Law 0001600180917
⁸⁰ n Effort to Save totoaba. <http://oceanologia.ens.uabc.mx/~ubp/INVESTIGACION.html>
⁸¹ Historical repopulation of the totoaba in Baja California Sur: an extraordinary alliance between the government and the private sector to protect endangered species. <http://www.earthoceanfarms.com/es/recursos>
⁸² Preliminary Results of Totoba Reproduction. <http://www.iaes.gob.mx/index.php?pag=iii-resultados-preliminares>
⁸³ Totobas that sells restaurant in Polanco, are legal: Semarnat. Ernesto Méndez. Virutas de embalaje. <http://www.excelsior.com.mx/comunidad/2017/04/19/1158657>
⁸⁴ Totobas that sells restaurant in Polanco, are lega: Semarnat. Ernesto Méndez. Virutas de embalaje. <http://www.excelsior.com.mx/comunidad/2017/04/19/1158657>

This is due to the fact that the General Law for Wildlife also authorizes the commercial exploitation of endangered species, if they are reproduced in captivity through an environmental management unit.(UMA). (Art. 39, LGVS)⁸⁵

Derived from this, the owners of the UMA are authorized to carry out the fattening, commercialization, repopulation, as well as conservation actions for totoaba. However, facilities are only required to use 20% of juvenile production for repopulation purposes⁸⁶. And, given that the rest can be commercialized, it is possible to affirm that the main purpose of the UMA is the sale of the totoaba specimens, instead of the recovery of their population. From 2014 to September 2017, these UMAs have released more than 200 thousand totoabas in the Upper Gulf of California⁸⁷, however, there is no evaluation of the survival rates of the released fish.

So far, Semarnat has authorized a permit for parental extractio⁸⁸ of 60 totoabas at Earth Ocean Farms, SA de CV, and eight permits for the scientific collection⁸⁹, that altogether they add up to 170 totoabas for the Center of Biological Investigations of the Northwest, 300 totoabas for the Autonomous University of Baja California (UABC) and, more recently, 175 totoabas to the National Institute of Fishing (Inapesca) to realize an evaluation of the population.

Social panorama in the Upper Gulf

According to the National Council for the Evaluation of Social Development Policy (CONEVAL), the state of Baja California has a generally been lagging behind in terms of education which has affected almost 475 thousand people, with a population of 633 thousand inhabitants lacking access to health services and 326 thousand without access to quality homes according to 2015 data⁹⁰.

These were the towns of San Felipe in Baja California, Puerto Peñasco and the Gulf of Santa Clara in Sonora. Originally, these localities were born as fishing villages for the exploitation of totoaba, shark, cabicucho and shrimp. However, each one has a different economic structure, because both fishing and tourism are central activities for San Felipe and Puerto Peñasco, while almost 80% of Santa Clara’s income comes from small scale fishing.

85 In addition, Article 129 of the Wildlife Law Regulation establishes that: “The extractive use of parental material of specimens, parts or derivatives of species in any category of risk, may be authorized when a percentage of the material obtained is used for reintroduction or repopulation.”

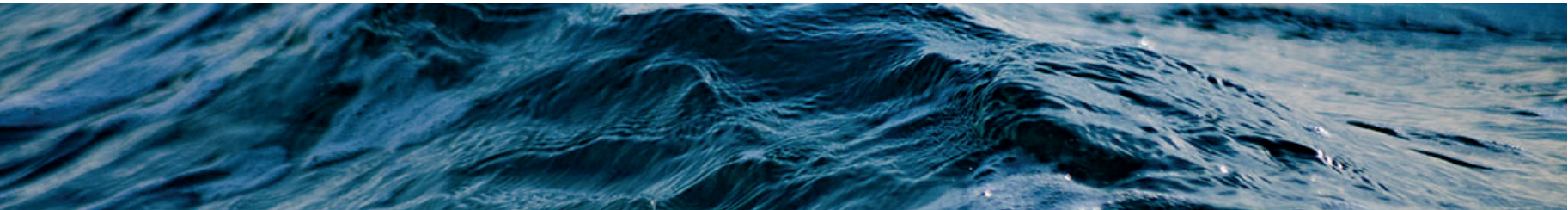
86 Art. 129, fauna y Reglamento de la Ley

87 Totobas that restaurant in Polanco sell are legal: Semarnat. Ernesto Méndez. Virutas de embalaje. <http://www.excelsior.com.mx/comunidad/2017/04/19/1158657>

88 SGPA / DGVS / 06042/12 dated 20 / July 20/ 2012, SGPA / DGVS / 05697/13 dated July 10 2013, SGPA / DGVS / 02151/14 dated March 19, 2014

89 SGPA / DGVS / 09313/10 dated April 13, 2010, SGPA / DGVS / 05508/11 dated July 25, 2011, SGPA / DGVS / 00039/13 dated January 8, 2013, SGPA / DGVS / 07301 / 14 dated 13 de April 13, 2010, SGPA / DGVS / 00230/14 dated 13 de April, 2014, SGPA / DGVS / 02069/15 dated February 24, 2015, SGPA / DGVS / 00492/16 dated January 26 , 2016, SGPA / DGVS / 12939/16 dated November 24, 2016

90 https://www.coneval.org.mx/coordinacion/entidades/BajaCalifornia/PublishingImages/CS_BC_1015.jpg



According to the last census in 2010 the town of San Felipe had a population of 16,702 inhabitants. It was founded in the 1930s due precisely to fisheries, mainly totoaba. However, it has good tourism potential, as it has potable water service (at least in the center), several hotels and restaurants. In San Felipe there were a total of 3,610 homes. Of these, 108 had a dirt floor and about 448 consisted of a single room; 3,289 homes had sanitary facilities and 3,237 had access to electric lights⁹¹. A total of 806 young people between 15 and 24 years of age had attended school, while the average schooling among the population was 8 years.

The state also has 25 television broadcast stations, in addition to postal service, and telephone and internet service⁹². San Felipe has a port that has conditions to ship light cargo on ships of up to 400 tons. It has airports located in Mexicali and San Felipe. There are also accessible land routes, in such a way that you can communicate with the entire state through them. In what is referred to as the Gulf of Santa Clara, it is a town in the municipality of San Luis Río Colorado, in northwest Sonora. Its main activity is fishing, since there does not seem to be a possibility for tourism. According to INEGI data, their degree of marginalization is very low.

The municipality of San Luis Río Colorado had a population of 1,683 men and 1,503 women, giving a total of 3,967⁹³ people. There were a total of 860 houses, of which 122 had a dirt floor. The majority of these houses had sanitary facilities and 725 were connected to electricity.⁹⁴ Puerto Peñasco, in Sonora, is the most inhabited city of the three mentioned in this section. It is a city bordering the United States and has become an important point for tourism. This has benefited the city; it has made it grow, and generated new urban jobs. On the other hand, it has also generated other types of problems, such as the increase in social inequality and poverty.

It is clear that Puerto Peñasco has grown significantly and, as a consequence, has faced problems generated by the increase in population, such as the scarce availability of water, the collection and disposal of solid waste. In 2015, 17,566 private homes existed. 92.4% of the population had piped water, either inside the house or community. 98% had electricity and 67.5% had access to the public network. The rest had a septic tank or biodigester. There has been an increase in the demographic growth in these localities, therefore an increase in the demand for public services, having in the first place scarce availability of water, together with problems of garbage collection.⁹⁵ In terms of ethnic and cultural composition, the urban settlements of San Felipe, the Gulf of Santa Clara and Puerto Peñasco concentrate the largest population of the Cucapa (around 150 people), one of the almost 60 original peoples of Mexico.

Due to some of the features described here, which reveal a certain degree of economic precariousness, we emphasize the imperative need to support fishing communities in the face of an eventual ban on fishing. Unfortunately, investment in infrastructure, services, the diversification of economic activities and income, the promotion of tourism and the sustainable aquaculture of species that are not at risk have not been pursued. This governmental inertia closes the vicious circle, whose main victim has been the vaquita.

91 <http://www.nuestro-mexico.com/Baja-California/Mexicali/San-Felipe/>

92 <https://digaohm.semar.gob.mx/cuestionarios/cnarioSanfelipe.pdf>

93 <http://www.microrregiones.gob.mx/catloc/contenido.aspx?refnac=260550011>

94 Idem

95 http://www.datatur.sectur.gob.mx/ITxEF_Docs/SON_ANUARIO_PDF.pdf

5. INTERNATIONAL ACTIONS AND ORGANIZATIONS



Lugar habitat de la vaquita, falta credito.



Boycott and fishing embargo⁹⁶

The international organizations Natural Resources Defense Council (NRDC), Animal Welfare Institute (AWI) and Center for Biological Diversity (CBD) began a boycott against Mexican shrimp in March of 2017. In May of 2017 they submitted a petition to the United States government to prohibit the importation of fish and shellfish from Mexico, which are caught with deadly gill nets in the vaquita's habitat. This was done under the provisions of the Marine Mammal Protection Act, invoking damage to the vaquita beyond US standards. These non-governmental organizations also requested the embargo of fish and shellfish from fisheries that cause damage to the vaquita.

This request, reiterated in December of 2017⁹⁷, is supported by the United States Marine Mammal Protection Act, which requires the US government to prohibit imports of fish and shellfish from other countries that at the time of their capture kill marine mammals incidentally, which is what happens with the vaquita.

In the last five years the population of vaquita suffered a decrease of 90% resulting in as few as 15 vaquita being left. According to scientists, this iconic animal will be extinct in 2020 if fishing practices do not change. This is why the scientific community continues to recommend the permanent prohibition of all gillnets in the vaquita habitat.

Finally, in July 2018, the United States International Commercial Court ordered the administration of President Donald Trump to prohibit imports of fish and shellfish extracted with gillnets in the vaquita distribution area. The US court holds that the risk of the extinction is greater than the costs of the embargo. The number of permissible dead vaquita has been exceeded and the species is on the verge of extinction, therefore the embargo proceeds legally. This suspension was ratified by the Court of Appeals of the Federal Circuit of the United States on November 28, 2018, which prohibits the import to the United States of all types of shrimp, Gulf curvina, sierra and chano, from the habitat of the vaquita⁹⁸.

⁹⁶ Center for Biological Diversity, Petition for Certification of Mexico pursuant to the Pelly Amendment for Trade in Violation of the Convention on International Trade in Endangered Species (Sept. 29, 2014). Available at: http://www.biologicaldiversity.org/species/mammals/vaquita/pdfs/Totoaba_Pelly_Petition_9_29_14.pdf

⁹⁷ https://act.biologicaldiversity.org/onlineactions/QLAcHJqn1EW5CyDVJUjnkA2?sourceID=1004352&utm_source=ad&utm_medium=website&utm_campaign=currentalerts

⁹⁸ https://www.biologicaldiversity.org/species/mammals/vaquita/pdfs/Order-Denying-Stay-11-28-18.pdf?sourceID=1004352&utm_source=ad&utm_medium=website&utm_campaign=currentalerts

Unesco⁹⁹

The Convention for the Protection of the World Cultural and Natural Heritage¹⁰⁰, signed in 1972, is the main legal instrument of UNESCO to preserve the most important and irreplaceable natural and historical sites in the world.

In 2004, Mexico requested that the area known as Protected Natural Islands and Areas be registered as part of the World Heritage list. The application was accepted in 2005 when the area called “Propiedad”, which includes 1.8 million hectares in the Gulf of California, 224 islands and islets and 270 kilometers of coastal areas, was declared a World Heritage Site.

According to the evaluation of the International Union for the Conservation of Nature (IUCN), it is a geological and oceanographic area with unique characteristics, including immense marine productivity, considered to be one of the highest in the world’s oceans. In addition, according to the organization, the area contains 39% of the marine mammals of the world, among which the vaquita stands out as one of the rarest in the world.

UNESCO notes that the listing is based on: (1) the “unique example” of the Propiedad, “bridge islands”, “oceanic islands” and “oceanic processes”, (2) the “surprising natural beauty of the Propiedad”, and (3) in an important way, the “extraordinary diversity of terrestrial and marine life” of the Propiedad, which is a “high priority for the conservation of biodiversity”. In 2015 the organizations Animal Welfare Institute (AWI) and Center for Biological Diversity (CBD), requested the Unesco World Heritage Committee to declare the Islands and Protected Natural Areas of the Gulf of California “la Propiedad” as “endangered”, including the vaquita habitat, where poor fishing practices are leading the porpoise to extinction. The “endangered” category would facilitate technical assistance and the flow of funds for conservation.

Meeting 41 of the World Heritage Committee in Paris, 2017

In March 2016, the World Heritage Committee (CPM) authorizes a committee of experts to assist Mexico to verify the conditions the Propiedad and fishing in the Upper Gulf. The committee recommended listing the Propiedad as “endangered” at the meeting to be held in Paris in 2017. However, due to intense lobbying by Mexico, the Committee postpones the designation “endangered”. Instead the CPM decided to give recommendations to be attended to in one year, among which are:

1. Immediately establish a permanent ban on the use of gillnets (including the sale, manufacture, possession and use of all gillnets on land and at sea) in the vaquita refuge and the suspension zone for nets and longlines.
2. Establish a viable program, within one year, that develops alternative fishing gear that does not cause the entanglement of marine mammals and other species.
3. Streamline and simplify procedures for compliance with established regulations and their processing throughout the chain of compliance and enforcement.
4. Seek the necessary and urgent cooperation at the highest level of the Chinese government to stop the consumption and demand for totoaba. Similarly seek cooperation with the United States to stop the transit of swim bladders through its ports, as well as with all other countries of destination



and transit identified in this illegal trade. In particular, implement the recommendations formulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

5. Continue with successful programs aimed at strengthening the participation of local communities in the protection of the Propiedad and their transition to sustainable livelihoods, as well as programs to adapt to climate change.
6. Accelerate the successful transition from unregulated fisheries to regulated fisheries that adhere to clear guidelines for sustainable capture.

Meeting 42 of the CPM, Bahrain 2018¹⁰¹.

The World Heritage Committee (CPM) postponed for another year the decision to enlist the Islands of Mexico and the Protected Areas of the World Heritage Site of the Gulf of California as “endangered”. Recognized the value of gillnet bans, the increase in net recovery operations, the progress made in coordinating different agencies in streamlining compliance with regulations, as well as the efforts made to address illegal international totoaba trade through bilateral channels and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and appreciated the unprecedented level of financial and operational resources made available by the State for these efforts.

However, it reiterated its concern about the critical status of the vaquita population - recognized as part of the “exceptional universal value” of the Propiedad in the Gulf of California - and insufficient progress in the development and introduction of multiple and viable alternative fishing gear that do not endanger the vaquita and other marine mammals, such as sharks and non-target turtles.

The Committee took note of the conclusion of the 2018 mission, which stated that it is too early to determine whether the efforts made by Mexico have avoided the risk of extinction for the vaquita and postponed its decision on the possible inscription of the Propiedad to the the World Heritage Endangered List until the 43rd session to be held in 2019, when more data is available for the 2018-2019 season, and from CITES.

Likewise, it requested the acceleration of the development of alternative gear, on the recommendation of ECOF¹⁰², and transform economic compensation into incentives for the development and use of alternative gear. It is also requested that prohibitions by presidential decree or law be placed on the use of nets. It insisted on involving local communities in the “ Propiedad” protection program, as well as developing a management scheme with a formal coordination structure¹⁰³.

⁹⁹ United Nations Educational, Scientific and Cultural Organization (Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura). It is a UN body that was founded in 1945 and has its headquarters in Paris, France. The Convention recognizes that natural and cultural heritage “is increasingly threatened with destruction”. Accordingly, the Convention establishes a system whereby “the international community as a whole should participate [s]” in the “collective protection of cultural and natural heritage of exceptional universal value”. There are currently 191 Parties to the World Heritage Convention, including Mexico

¹⁰⁰ <http://whc.unesco.org/archive/convention-es.pdf>

¹⁰¹ <http://whc.unesco.org/archive/2018/whc18-42com-18-en.pdf>

¹⁰² Expert Committee on Fishing Technologies, by its official name in English is a committee tha was created in July 2016 with fishery experts from Mexico, the United States, Canada, Scotland, Denmark, Sweden and Finland.

¹⁰³ <http://whc.unesco.org/archive/2018/whc18-42com-18-en.pdf>

International Union for the Conservation of Nature (IUCN)¹⁰⁴

IUCN issued document WCC-2016-Res-017-SP Measures to prevent the extinction of the vaquita (Phocoena sinus), in 2016, in which it urges the government of Mexico to:

- a. Establish the permanent prohibition of gillnets throughout the range of the vaquita;
- b. Accelerate the implementation of Official Mexican Regulation NOM-002-SAG / PESC-2013 and the use of small shrimp trawlers as an alternative to gillnets throughout the shrimp fishery of the Upper Gulf of California;
- c. Use international assistance to increase funding and streamline research on other technologies and techniques of finfish fishing to facilitate and accelerate the implementation of alternatives to gillnets.
- d. Review current programs to ensure that full compensation is given to fishermen and communities that support safe alternatives to vaquita;

The document encourages all organizations, states, sponsors, fishing gear manufacturers and importers of fish and shellfish to support the Mexican government, provide technical and financial support to eliminate gillnets and promote economic alternatives and forms of fishing that are innocuous for the vaquita.

It also urges all governments and competent international organizations, particularly CITES and Interpol, to assist all countries where totoaba products are found in markets or in transit - including Mexico, the United States and other countries - to combat the illegal trade in totoaba products.¹⁰⁵

International Whaling Commission (CBI)

In October 2016, the plenary session of the International Whaling Commission adopted a resolution proposed by Austria, Belgium, Czech Republic, Croatia, Denmark, Estonia, Estonia, Finland, France, Germany, Hungary, Italy, Luxembourg, Poland, Holland, Ireland, Slovenia , Spain, Switzerland, the United Kingdom and the United States of America, by means of which it urged the government of Mexico to eliminate any exception to the prohibition of nets that could facilitate the illegal fishing of totoaba and to prohibit any type of nets in the vaquita range.¹⁰⁶

104 <https://www.iucn.org>. IUCN is the world authority on the situation of the natural world and the necessary measures to safeguard it. Its experts are organized into six commissions dedicated to the survival of species, environmental law, protected areas, social and economic policy, ecosystem management, education and communication.

105 https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2016_RES_017_ES.pdf

106 International Whaling Commission. IWC/66/20 Rev Agenda Item 6.7. Draft Resolution on the Critically Endangered Vaquita



Ariadna
Zamudio.
Comarino

CITES¹⁰⁷

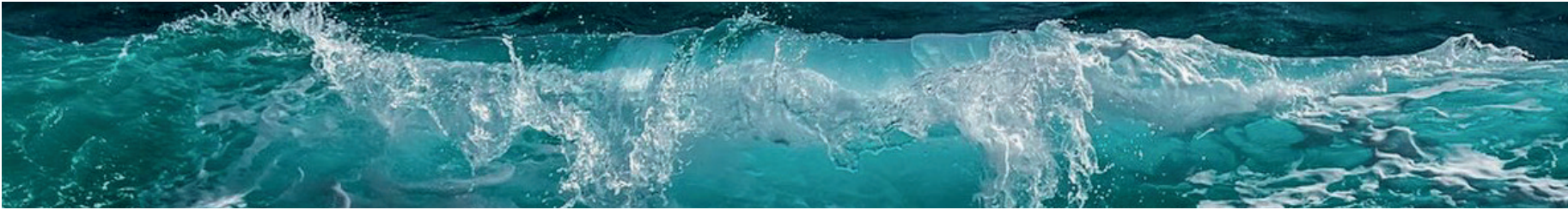
Promotion of commercial totoaba aquaculture for export

The Mexican company Cygnus Ocean Farms SA de CV - which already has an UMA and a permit for aquaculture promotion has also obtained an environmental impact authorization from Semarnat for a totoaba commercial aquaculture project off the coast of Guaymas, Sonora¹⁰⁸.

The company seeks “the validation and technological development for the cultivation of totoaba (Totoaba macdonaldi) in floating cages, in order to achieve economic viability of production and possible commercialization in domestic and foreign markets.” The expected annual production of totoaba is 1,700 tons using 240 cages, covering an area of 4 thousand hectares. In return, it aims to release newly hatched and 7-month-old fry, without assessing their subsequent survival - despite the high mortality at these ages - and without follow-up methodology. In other words, their interest is purely commercial.

107 Convention on International Trade in Endangered Species of Wild Fauna and Flora, know by its acronym CITES in English

108 PAF / DGOPA / -143 / 2016 Folio: 143/2016



This project is approved despite the opinion against it of the Deputy General Directorate of Aquaculture Research of the National Institute of Aquaculture and Fisheries (Inapesca) and the Scientific and Higher Research Center of Ensenada (Cicese), which states that:

“It is important to specify that in the first stage of the project, the company will buy eggs, larvae and juveniles from the governmental entities (Institute of Aquaculture of the State of Sonora) or academic (Autonomous University of Baja California) that currently produce fingerlings for fattening and that among their commitments the release of totoabas for repopulation has already been established. For this reason, the fulfillment of this activity is outside the framework of the technological development project for fattening and will therefore depend on the construction of a laboratory for the production of fingerlings, which in turn will have to be the subject of another environmental impact evaluation process...”¹¹⁰

On May 30, 2018 the CITES secretariat announced that, in accordance with Res. Conf. 12.10, the Mexican government had requested the registration of the operation of captive breeding of *Totoaba macdonaldi* for commercialization by the company Earth Ocean Farms, which currently has an environmental management unit (UMA) authorized for fattening in La Paz, Baja California Sur¹¹¹. However, countries such as the United States, Israel, Seychelles Islands and Libya express their opposition to the registration of this facility, for the following reasons:

Illegal trade of totoaba is on the rise

Despite its efforts, the Mexican government has been unable to stop the capture and illegal trade of totoaba bladders.

Bladders are still seized, demonstrating an active illegal market. Research conducted by the Environmental Investigation Agency (EIA) has found a route for totoaba bladders from the Gulf of California to Mexico City and then to China by air. In an investigation conducted in 2016, the EIA revealed the Chinese city of Shantou, in Guangdong province, as an illegal trade center. In June 2016, a merchant told the EIA that he had 700 totoaba in reserve. By monitoring online activities in 2017, the EIA demonstrated that “the illegal trade in totoaba in China had continued without interruption since its last report in September 2016”¹¹². Therefore, the request of the Mexican government to register a captive breeding facility of an endemic species subject to illegal trade is unprecedented, and should not be supported by the CITES parties.

- **The registration of the installation would conflict with existing CITES directives to reduce supply and demand, and would complicate the application of the law.**

Recognizing “the danger of totoaba and its serious consequences for the vaquita”, resolution Dec. 17.147 instructs the parties to “eliminate the supply and demand of totoaba”. Authorizing the legal market for totoaba bladders would open a new supply line while legitimizing the consumption of the bladder, probably increasing the demand, in contravention of the directives of the parties.

¹¹⁰ Resolutivo. Número de proyecto 26SO2017P0062

¹¹¹ Notificación a las partes No. 2018/054 <https://www.cites.org/sites/default/files/notif/E-Notif-2018-054.pdf>

¹¹² Disponible en: https://eia-international.org/wp-content/uploads/EIA_Ocean_report_briefing_Vaquita_Final.pdf

The opening of a legal market also complicates and challenges the application of the law, as it can provide cover for the black market. The captive totoaba and the illegal one are visually indistinguishable. Likewise, the captive totoaba can be used to “wash” the one illegally captured. For this reason, the approval of the registration of the installation in these circumstances constituted a very dangerous precedent.

- **With less than 15 vaquita remaining, there is no acceptable risk**

The vaquita, a CITES Appendix I species that drowns in the nets used to capture totoaba, is on the verge of extinction. There are probably less than 15 vaquita and, at the current rate of decline, the species will be extinct by the year 2020. With the extinction and the next season of totoaba on the horizon, the following year could determine the fate of the vaquita. Therefore, the parties should not support this risky proposal.

- **Mexico’s request does not comply with CITES standards**

Second generation: Resolution Res. Conf. 10.16 defines “captive-bred” to refer to specimens born in captivity, where the animals of breeding “have produced offspring of second generation (F2) or subsequent generations (F3, F4, etc.) in a controlled environment.” The request, filed in May, states that F2 “will be produced” in June 2018. Thus, the application for registration did not show that an F2 “had been produced”.

The products: Res. Conf. 12.10 requires that registration requests describe the “type of product” that will be marketed. However, the request did not clearly indicate if the totoaba bladders would be marketed. The request indicated that exports will include whole fish, fillets and “fresh, frozen and dehydrated products”. Likewise, it points out that “the wet weight of the swim bladder represents 1 to 1.7% of the live weight of the whole fish”, this being the only mention of bladders in the application.

Res. Conf. 12.10 requires that the facility “make a lasting and significant contribution in accordance with the conservation needs of the species in question.” The lawsuit indicates that the facility has released 45 thousand totoaba juveniles, but it does not indicate survival or how the release site was chosen.

Appropriate labels and security: The application proposes genetic marks and QR codes. Genetic labeling can be an appropriate marking system for the commercialization of totoaba parts. However, this method of marking is only effective if there is sufficient capacity and funding to control the product of transit to consumers and ensure that the sample is from captive breeding and is not a wild caught specimen. The Mexican customs agency (General Customs Administration) lacks the capacity to carry out genetic readings.

The QR coding method poses security problems because such codes can be replicated, copied or reused, thus allowing illegal trade in totoabas parts. The application also does not describe the inspection process at the installation to avoid possible washing.

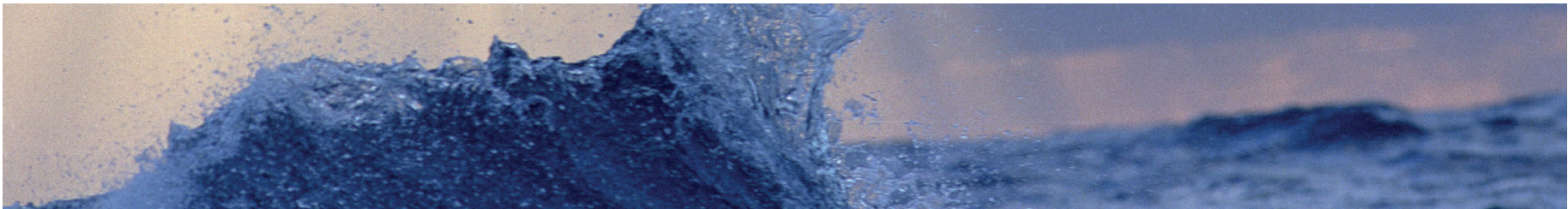
Thus, if Mexico succeeds in “lowering” the totoaba from Appendix I to II or seeks a CITES registration of the totoaba breeding facilities in captivity, thereby

allowing regulated trade in the species or its parts and products, the attitude of consumers can undermine the benefits of a supposed conservation of wild totoaba when legalizing their commerce. It is known that consumers prefer products caught in wild compared to species bred in captivity, and consider them to be better tasting, and in terms of aphrodisiac properties more powerful, effective or pure. This would be a challenge that the intended upbringing could not solve¹¹³.

Likewise, the Mexican government is sending contradictory messages to China and other CITES countries, specifically when it calls for increased efforts to stop illegal trade and the sale of totoaba products while, at the same time, making promises and taking steps to legalize the totoaba trade and the promotion of sport fishing, which could result in the increase in the availability of swim bladders for the black market trade.

Finally, and critically, due to the fact that the meat and bladders of totoabas reared in captivity and legally acquired would be visually and genetically identical to products of illegal origin, it would be extremely difficult for officers to differentiate between products. In fact, any legal trade in totoaba and its products would facilitate the illegal “washing” of totoaba swim bladders caught in wildlife as legal. If prices decrease with commercialization, the product would also become accessible to a wider group of consumers with lower income, which would allow a new consumer base for the purchase of bladders.

113 CITES AC17, Inf. 6 (2001); CIRVA (Comité Internacional para la Recuperación de la Vaquita). 2014. Informe de la Quinta Reunión del Comité Internacional para la Recuperación de la Vaquita. Ensenada, Baja California, México, 8-10 de julio de 2014, no publicado informe, 38pp., A los 5, 12.



SUBSIDIES

2015-2017 financial compensation program during the prohibition

The National Commission of Aquaculture and Fisheries (Conapesca) defines economic compensation programs as a support scheme that directly benefits the producers of the sector, in order to compensate for fishermen's and aquaculturists' low annual income received in times of scarce production, as a consequence of affectations by meteorological factors and / or regulatory measures.

However, these millions of pesos spent have been misused through non-transparent welfare policies, for the purchase of power within an environment that gives rise to corruption, where millions can be hoarded by a few people, while the fishermen, who really go out fishing, see little or no benefited. We see this at present with the compensation that was granted during 2015 to the fishermen of the Upper Gulf of California, in Sonora and Baja California.

The program of “social compensation for the temporary suspension of fishing to aid in the conservation of the vaquita in the Upper Gulf of California” was presented by President Enrique Peña Nieto in April 2015. Originally the Secretariat of Social Development (Sedesol) dispersed the resources, not the Secretariat of Environment and Natural Resources (Semarnat), nor the National Fisheries Commission (Conapesca). The National Commission of Protected Natural Areas (Conanp) began granting this compensation in 2016.

Due to this, the Center for Biological Diversity (CBD) requested from Sedesol, through the transparency portal, the list of beneficiaries and the amounts paid to them throughout the year 2015¹¹⁴. Given this, the agency responds with partial and imprecise information, which leads to continuing the investigation and consequently, an appeal to the response. Therefore, the National Institute of Transparency, Access to Information and Protection of Personal Data (INAI) had to instruct that the complete information be granted, which is very revealing.¹¹⁵

When the ban was established, it was announced that 525 million pesos (mdp) would be allocated in the first year, however in 2015, only 338 million pesos were disbursed. From the information provided, it can be reported that 17,052 payments were made from May 8 to December 31, 2015. Among these there are 2,706 people included in the compensation payment registry; the vast majority of people received 4,000 pesos a month and a single person received 2,227,000 pesos a month.

114 Número de presentación 0002000055316

115 Resolución 2812/16 RDA se puede consultar en: <https://goo.gl/JD5Vhb>

The amount awarded to each person depended on the category, of which there are three:

- a) Productive Chain.- People who depend on fishing indirectly received from 4 thousand to 48 thousand pesos per month, per person.
- b) Fishermen.- They received from 8 thousand to 48 thousand pesos per month, per person; Y
- c) Permit holders.- The holders of one or more fishing permits, depending on the number of permits they have and have accumulated over the years, received from 4,000 to 2,227,000 pesos per person, per month. (See Annex 2 with lists of principal beneficiaries).

These figures are unequal and unfair, and the criteria for the three categories are not clear. Although permit holders in theory have to distribute the money among the fishermen who work for them, it is not a transparent process and that money is not audited. It is not clear who is included as a fisherman in the compensation and is also receiving compensation from the permit holder, so the same people may be being compensated twice. To add to the irregularity, there are fishermen who did not enter the compensation scheme. In fact, there is a group that has been testing alternative fishing gear that does not harm the vaquita and is not on the list. Also, there are fishermen who receive economic compensation and who have been caught for illegally fishing totoaba.

Due to what is stated the above, it is worthwhile to let people know who is monopolizing these subsidies. Out of a total of the 17,052 people registered in the program, 13 individuals accounted for 20% of all the money distributed in 2015, and it is unknown how it was distributed, if this really happened. (See Table).

It is obvious that for some it is insufficient and for others it is absurdly excessive, and contradicts the words of Peña Nieto when he announced the aid saying:

“...for the communities of fishermen, that due to this imposed prohibition must continue having a fair and dignified income that allows them to continue in some other activity, and to continue fishing by means of alternative methods that are sustainable”.

So much money spent in this way does not ensure the conservation of the species. This is demonstrated by the fact that although more than 300 million pesos were invested for the Upper Gulf in 2015 at least 3 vaquita were killed that year due to illegal fishing, which reduced the population to less than 15 individuals. The fact that resources were not transparent and used as welfare policies, instead of incentives for fishermen who demonstrate good practices, only worsened the situation.

Fisheries policies must be aimed at the conversion of fishing gear into gear that does not harm the species at risk, and at fishing regulations and conservation instruments that benefit fishing. Money must be spent on these objectives, however most of the resources go to subsidies that do nothing but encourage

corruption, overexploitation of fishing resources and bad fishing practices that harm species at risk of disappearing.

Based on the information provided in 2015 and 2016¹¹⁶, it's clear that

- 17,052 payments were made from May 8 to December 31, 2015.
- 2,706 people are included in the list of compensatory payments.
- The minimum and maximum amounts are respectively 4,000 and 2,226 999 pesos per month for a single person.
- The quantity depends on the category:
 - “Productive Chain “or people who depend on fisheries indirectly: From 4,000 to 48,000 pesos per month
 - Fishermen: From 8,00 a 48,000 pesos per month
 - “Permit holder” or holders of fishing permits, depending on the number of permits they received: From 4,000 to 2,226,999 pesos per month
- The amounts given are unequal and unfair, and the criteria for the three categories is unclear.
- Even though “permit holders” have to distribute the money among fishermen who work for him or her, it is not a transparent process and the money is not audited.
- It is not clear who is included as a “fisherman” and who is receiving compensation as a “permit holder”, so the same person can be compensated twice.
- Out of a total of 17,052 people, 13 accumulated 20% of all the money.

116 Respuesta 2812/16 <https://goo.gl/ZoJHNn> y <https://goo.gl/LU8M1H>



COMPLIANCE WITH THE LAW

Regarding compliance with the law in everything related to the conservation of the vaquita, we note first of all the omission to fully comply with the various legal provisions that were enacted over the years in order to protect, conserve and recover the vaquita that lives in the Upper Gulf of California. The result of this omission is that the vaquita is at imminent risk of extinction.

On June 2, 1993 the region known as the Upper Gulf of California and the Colorado River Delta, located in the waters of the Gulf of California and the municipalities of Mexicali, was declared a protected natural area, with the character of a biosphere reserve. The region is composed of a core zone called the Delta del Río Colorado, with an area of 164,779-75-00 hectares and a buffer zone of 769,976-50-00 hectares. This decree was based on the fact that the area has a biological value, due to the representative and endemic fauna that must be preserved, particularly for its threatened and endangered species.

A total and indefinite ban of hunting and capture of the species vaquita (*Phocoena sinus*) and totoaba (*Totoaba macdonaldi*) is decided upon, so that the fishing authority must establish seasons and closed areas for species and fisheries not included in the decree. Although, it is true that the authority has established fishing zones and non-fishing seasons, these have been unsuccessful and insufficient because there was no prohibition on fishing in the area where most vaquita lived, so Semarnat, Conapesca and Inapesca are responsible for this imminent extinction.

Even though the Reserve Management Program included different actions, all aimed at avoiding alterations, degradations and deterioration in the area, as well as promoting the maintenance of the general and endemic biodiversity and species in danger of extinction in particular, the environmental authorities did not comply with these provisions.

The vaquita is listed in the Official Mexican Regulation 059, under the category of “endangered”,¹¹⁷ which forces the agency to ensure its conservation and protection. However, this obligation has not been met.

According to CIRVA estimates, the annual average rate of decrease in the vaquita population reached 49% between 2015 and 2016. Projecting that same rate until 2018, there would be less than 15 vaquita.

¹¹⁷ Article 58 of the General Law of Wildlife, defines: Endangered species, as those [species or populations] whose distribution areas or size of their populations in the national territory have drastically decreased putting their biological viability at risk in all their natural habitat, due to factors such as the destruction or drastic modification of habitat, unsustainable use, diseases or predation, among others.

The author organizations of the Vaquita Protection Program for the Refuge Area (published in December 2005) emphasize that the guidelines state that “productive activities carried out in the Refuge Area must avoid the mortality of specimens of vaquita and its possible extinction.”

This work takes into account the fishing intensity within the Upper Gulf of California in general and within the Vaquita Refuge in particular, documented by a panel of experts and accredited scientists.

It is also revealed that the control of productive activities for the recovery of the species has not been clear or sufficient, that the inspection and surveillance has been deficient, that compensation amounts have been discretionary and not very transparent. All this has resulted in zero results at the level of protection of the species. The strongest proof of this is that the vaquita have declined more than 80% in the last administrative period.

Similarly, recommendations are repeatedly documented on the need for Conapesca, in coordination with local governments and within the framework of its powers, to strengthen the process of individualization of fishing permits, in order to avoid incidental capture of the vaquita.

Likewise with the need to observe within the framework of the law the elimination of the use of gillnets throughout the refuge area, the elimination of fishing practices with passive nets, the establishment of an exclusion polygon for fishing with any type of nets, either trawl or gill net, limit the fishing season according to the technical evaluation, and limit the fishing effort of Gulf curvina, as mandated in the National Fisheries Charter. None of this has been done in a satisfactory manner.

In a previous work¹¹⁸ it was documented that for 2010 the fishing effort units (UDEP, considered per boat) had increased in the Gulf of Santa Clara community, where according to Pronatura data the fleet consisted of 425 UDEP instead of the 274 that should have existed. Given that the issuance of new permits is the exclusive competence of Conapesca, it can be inferred that this agency granted new fishing permits after the first year of the PACE-Vaquita expedition.

Likewise, the Fisheries Management is an instrument of fisheries policy defined in the General Law of Fisheries and Sustainable Aquaculture (LGPAS), focused on regulating and managing fishing activities, inducing sustainable use in a manner consistent with the ecological ordering as defined in the General Law of Ecological Equilibrium and Environmental Protection (LGEEPA). In this way, there must be harmony between both systems, especially if there is a protected natural area and or species in danger of extinction. The ecological ordinance is a binding instrument, which means that its enforcement is mandatory. However, the environmental and fisheries authorities have also been failing to comply.

In December 2006, the Marine Ordinance for the Gulf of California was published, which states that Sagarpa, in coordination with Semarnat, must strengthen actions that have the minimum environmental impact in the area. In other words, it establishes that; species and the populations at risk

“According to CIRVA estimates, the annual average rate of decrease in the vaquita population reached 49% between 2015 and 2016.”

¹¹⁸ Comarino- Greenpeace, Op. cit.

- including the vaquita - are not affected, the control of the fishing effort, the sustainability of the fishing activities, minimizing the incidental capture and optimizing the target catch. In short, the ordinance has not been fulfilled, because the federal government has ignored it.

Additionally, Semarnat has been erratic in distributing the compensations discretionally, without first having control of fishing in the area. It had also been reluctant in decreeing an extension of the vaquita’s refuge polygon, doing so very late, when it had the elements to decree it years before, as indicated in the present study.

One more failure on the part of CONAPESCA has been the updating of the National Fisheries Charter (CNP) A mandatory update should have been carried out in 2012 but was not done until 2018. since this Charter is binding on the decision making of the fishing authority, such as the adoption and implementation of measures to control the fishing effort, among others.

Finally, in 2016, the authors of this document, together with more than 40 national and international organizations, delivered a letter to the Presidency of the Republic requesting acceptance of the attached proposal for a draft secretarial agreement, in which the entire the surface area of the restriction polygon be adopted as an extended Refuge Area, and all the restrictive measures recommended by the CIRVA and the International Whaling Commission were included.

This proposal prohibits the possession and transportation of any fishing gear, as well as its use in any type of fishing, for any species and in any type of fishing vessel; night navigation of fishing boats is prohibited and measures are dictated that should be adopted by the Protection Program and that were missing in the 2015 Agreement. The proposal was delivered to the General Directorate of Wildlife of Semarnat, by representatives of Comarino, Greenpeace and the Center for Biological Diversity on October 2, 2017. Although the draft Secretariat Agreement was not adopted, many of the proposed measures were introduced in the 2018 Agreement, but in a minimum extension of the polygon.



CONCLUSIONS AND LESSONS LEARNED

In spite of the multiple legal ordinances, legislations, programs and committees created in more than two decades, the population of vaquita continues to decline steadily. As a result, it is likely that there are currently fewer than 15 vaquita.

Threats to this species continue while the recommendations of the Vaquita Species Conservation Action Program (PACE-Vaquita), as well as the International Committee for Vaquita Recovery (CIRVA) the World Heritage Committee are of Unesco, IUCN, IWC, CITES, or even the Memorandum of Understanding signed with the Leonardo Di Caprio Foundation have not been complied with. These instruments have been consistent in the diagnosis of the problem and in the urgent recommendations of measures to prevent the extinction of the vaquita and to implement alternative economic measures for the affected fishing communities.

These recommendations agree on one point; that illegal fishing, overfishing, inadequate fishing gear, depletion of species, incidental capture and collateral damage are eminently fishing problems, which have not been addressed properly.

Fishing in the Gulf of California has been intense since 1993. Several researchers have shown that the great intensity of fishing with nets in the Upper Gulf has not respected the existence of the vaquita, since the four largest fisheries enter the refuge area of this species.

The fact that the Gulf curvina has been fished for many years without any specific regulation, under the generic term “bony fish”, and its gradual



regulation in the last five years has made it difficult to delimit if the fishing effort has increased, since various control mechanisms have been put in place. Even so, signs of overexploitation have been seen. 26% of its fishing is illegal, besides that the price of its crop is quoted at practically the same amount as its meat and its trade is in the Asian market. These signs demand that attention be paid to prevent an somewhat controlled fishery from falling into anarchy, replicating the case of totoaba.

The most recent studies continue to document that the shrimp and Gulf curvina fisheries, fundamentally, but also those of the shark and sierra, are carried out within the vaquita refuge area and outside its larger distribution area off San Felipe. The fact that tons of ghost nets continue to be removed demonstrates that the Mexican government has been inefficient and ineffective in complying with recommendations to avoid the vaquita’s extinction; and in the best case scenario, has acted years after urgent recommendations were made. In other words, what is needed is not more regulations but compliance of the regulations that already exist. Palliative measures have been applied, such as the removal hundreds of nets at sea, instead of applying really preventive measures, such as the prohibition of possession, manufacturing, trade, display of nets and transport by land, sea or even by air. The agreements have not been conclusive and surveillance has been insufficient.

Illegal totoaba fishing occurs in a limited marine space a little larger than the current vaquita polygon, almost the size of Querétaro or Tlaxcala, the smallest states in the country. There is no clear explanation of why a small area of brutal, open and rampant poaching has not been able to be patrolled other than the inefficiency of the federal government as a whole or by the corruption at all levels of the predominant agencies.

The data reveal that the 1975 totoaba ban did work, so that it recovered and has been able to withstand the intense illegal fishing and traffic from 2012 to 2018. We can conclude that bans work when they are enforced in a firm and determined manner.

During an attempt to regulate fishing in Mexico, the change of the presidential administration in 2000 transferred the fishing and aquaculture sector to the food production sector, along with those of livestock and agriculture (Sagarpa). This moment marked a deviation towards the mentality of production of tons of fish, which still prevails today. Conservation was taken out of the hands of officials whose duty was just that. One of the consequences we are witnessing is the imminent extinction of the vaquita, due to the failure and negligence of the fishing authorities.

The strategy of Peña Nieto’s administration was based on compensation, net extraction and surveillance at sea, in addition to agreements that persistently

left loopholes that facilitated totoaba extraction and vaquita deaths. There were not enough preventive measures until 2018.

It highlights the lack of coordination between the authorities involved, since illegal totoaba fishing continues, while there have been no real alternatives to generate permanent income and thus a decent standard of living for the affected fishing localities.

While it is true that there have been serious attempts to implement alternative fishing gear since 2004, these have been unsuccessful or insufficient since the authorities have not been clear or forceful. Regarding the fishermen, it was found that the lack of skill is an important factor for the success or failure of the experimental gear that have been suggested as an alternative to those that have decimated the vaquita. It requires presence, and constant and efficient training by the authorities.

The Mexican government has been erratic in preventing illegal trade in totoaba. Even before corroborating the magnitude of illegal totoaba fishing and without knowing the state of the population, it granted permits to extract adult totoabas for commercial breeding, thus promoting a legal trade in totoaba meat - which had not existed in the country since its closure 1975 - in cities such as La Paz, Los Cabos and Mexico City. Until then, any trade was illegal and easy to control by the authorities. Thus Semarnat created a legal trade impossible to differentiate from illegal.

This error continued and reached international proportions as seen by the international trade of the totoaba’s swim bladder. Granted that the strategy was well intentioned, it was mismanaged, and to this day there is no control over totoaba fishing.

In addition, in order for Mexico to legally export totoaba bladders, the government would have to seek several changes to current CITES requirements, including moving the species to Appendix II of this convention. This will require time and a substantial effort, and may not be approved by the other member countries. Meanwhile, if national regulations are changed to legalize the sale of wild totoaba or its products, local demand for meat could increase along with expanded market opportunities. However, the bladders, which still do not have a value in Mexico, could be traded on the black market until CITES changes its classification to Appendix II.

Regarding the environmental management units (UMA) issued by Semarnat, the increase in commercialization of totoaba is underway and it is expected that more of these will be established in the Gulf of California, allowing commercialization under the pretext of science and conservation.

Compensation to the fishermen was made in order that fisherman would stop using gillnets and find other productive activities to earn a living, nevertheless they continued using gillnets that were later retrieved by the organization Sea Shepherd and the governmental dependencies. Even so, the compensation program continued, giving users a double income and without any beneficial impact on poaching and vaquita mortality.

“The Mexican government has been erratic in preventing illegal trade in totoaba.”

Due to its characteristics, it was perverse incentive that should have have stopped after discovering such a large quantity of abandoned nets. It was also insufficient because the strategy focused on 10% retrieval of nets within the sea without taking direct preventive actions that prevented nets from reaching the sea. That was the objective subject, or at least it should have been.

However, the government as a whole was weak in taking the necessary judicial and legal measures to prevent and penalize the manufacture, transportation, and exhibition on land and sale of gillnets, dedicating itself inseaad to withdrawing those that were already at sea. This demonstrated a weakness of authorities to make decisions. A vicious circle was created to prohibit nets at sea that involved providing money for this purpose, removing nets at sea when there are no visible guilty parties, and then starting over.

The decisions and actions undertaken by the Mexican government were erratic and did contribute to efforts to help the vaquita avoid extinction, but rather have obscured the appropriate path laid out in the recommendations by the CIRVA, International Whaling Commission, the International Union of Nature Conservation as well as UNESCO itself. These recommendations stress the urgent and permanent withdrawal of all types of nets and that the financing for other technologies be increased, as well as their real and effective implementation. It is also very important that the compensation programs be re-examined, since compensation is paid in an inequitable or unjust manner, and have become perverse incentives.

This contradicts the Aichi Targets (Goal 3), which determined that perverse incentives must be eliminated by 2020, including subsidies that are harmful to biodiversity, and positive incentives for conservation must be implemented. Mexico has a pending account, but at this rate, when it is settled, there will no longer be vaquita.

The errors of the Mexican government are evident before CITES, in that it wanted to legalize the export of parts and derivatives of totoabas, for which they submitted request by a private company to open a totoabas hatchery for commercial purposes.

When this legalization is seriously questioned, the arguments that Comarino and Greenpeace have explained in the last two reports become evident in the sense that trying to legalize the sale of totoaba complicates their conservation and that of the vaquita much more than what it helps, since it would create a vicious circle. The reason is that at the moment there are no conditions or controls by the authority to undertake appropriate actions for legal management and there are too few vaquita to support another experiment.

The capture of vaquita (CPR) was added as a desperate action, but without success. At the time highly questioned, it resulted in a vaquita female being released at night whose fate is unknown, and in a second female being killed by the stress of capture. Therefore, this capture must be reviewed in light of the principles of conservation and bioethics, as there were very invasive techniques used at a high cost to the vaquita in terms of stress, suffering and death. Even more so when this subject has been frequently debated in environmental movement circles, science and anti-captivity doctrines of



marine mammals. The conservation of vaquita in situ, that is, in their own habitat, was always the best option, but the will to do it well was lacking.

The actions should have been clear, immediate, strong, definitive and consistent in the area of the sea where totoaba catches are carried out, accompanied with strict prohibitions and surveillance in its surrounding land area.

A pending task is dealing with the corruption that permeated throughout the process. Although it is not demonstrable at this time, it is an open secret known by all the relevant actors in the case of the vaquita.

The result of all these failed efforts is that President Enrique Peña Nieto began his term with 200 vaquita in the wild and ended his administration with 75% of the population having been lost. Today there are less than 30 vaquita in the wild without effective protection. The scientists who took part in an expedition from September 24 to October 4, 2018 with the purpose of documenting the presence of the vaquita managed to identify three groups of them with at least 7 fully identified vaquita, with two offspring, which demonstrates, according to them, that they are biologically viable and that any in situ conservation effort is worthwhile. At the beginning of next year, estimates of the current vaquita population will be announced.

It is clear that there are still vaquita in the wild and that they are reproducing. Experts say they are biologically viable. It is up to the new administration to take real measures that clearly and permanently support fishermen and the integral conservation of the Upper Gulf of California. The obvious goal must be to avoid the extinction of this charismatic species with an undeniable evolutionary value, and a symbol of the Upper Gulf of California and Mexico.

“Mexico has a pending account, but at this rate, when it is settled, there will no longer be vaquita.”



ANNEX 1.LEGAL INSTRUMENTS

Legal and regulatory instruments directed directly or indirectly to the protection of the vaquita

LEGISLATION

Constitution of the United Mexican States. Determines to preserve, conserve ecosystems.

Article 73, section XXXIX-G of the Constitution. Provides for the creation of specific laws by the Congress of the Union, with the participation of the federal, state and municipal levels.

Article 27, third paragraph of the Constitution. Outlines the measures that the Mexican Government must take in order to take advantage of the natural elements susceptible to appropriation, to care for their conservation, to achieve the balanced development of the country to preserve, restore and maintain the ecological balance.

General Law of Ecological Balance (known by its initials in Spanish as LGEEPA), in Article 79 section I y III. Establishes the criteria for the preservation and conservation of biodiversity and the natural habitat of the species of flora and fauna that are found in the national territory and in the areas where the nation exercises its sovereignty and jurisdiction; as well as the preservation of endemic, threatened, endangered or subject to special protection.

Article 80 of LGEEPA. It determines the criteria for granting concessions, permits and, all kinds of authorizations in general for the use, possession, administration, conservation, repopulation, propagation and development of wild flora and fauna.

General Law of Wildlife (known by its initials in Spanish as LGVS) **Article 5** Section I y II. It establishes that the authorities should foresee: The conservation of genetic diversity, as well as the protection, restoration and integral management of natural habitats, as main factors for the conservation and recovery of wild species. Preventive measures for maintaining the conditions that promote the evolution, viability and continuity of ecosystems, habitats and populations in their natural environments.

In no case the lack of scientific certainty can be argued as justification to postpone the adoption of effective measures for the conservation and integral management of wildlife and their habitat.

Likewise, the LGVS contains provisions to classify species into categories of risk in a specific manner, together with an entire chapter dedicated to the process to decree Refugee Areas for the protection of marine species.

In addition to the above, on January 10, 2002, Article 60 Bis, was added, which establishes that no marine mammal, whatever the species, may be subject to extractive exploitation, whether subsistence or commercial, with the exception of capture for scientific research and higher education of accredited institutions.

...

It does not apply for cases of incidental capture.

Article 55 bis was added to the LGVS and published in DOF 26-01-2006, where it establishes that it is prohibited to import, export and re-export specimens of any species of marine and primate mammals, as well as their parts and derivatives, with the exception of those intended for scientific research, and samples of fluids, tissues or reproductive cells of those specimens that are in captivity, with the prior authorization of the Secretariat.

(Amended 30-11-2010).

In accordance with **Article 56** of the LGVS, the Ministry of Environment and Natural Resources “will identify, through lists, the species or populations at risk, in accordance with the provisions of the corresponding Mexican official regulation, indicating the scientific name and, where appropriate, the most commonly used common name of the species; (...) will be published in the Official Gazette of the Federation and in the Ecological Gazette ».

In accordance with **Article 58** of the General Law of Wildlife, of «among the species and populations at risk will be included those that are identified as:

- a) In danger of extinction, those [species or populations] whose areas of distribution or size of their populations in the national territory have decreased drastically, putting at risk their biological viability in all their natural habitat, due to factors such as the destruction or drastic modification of habitat, unsustainable use, diseases or predation, among others.

The vaquita (Phocoena sinus) is found to be an endangered species.

General Law of Fishing and Sustainable Aquaculture. Dictates in **Article 9 section V that:** In accordance with the provisions of the Organic Law of the Federal Public Administration, Semarnat will coordinate with the Secretariat for the fulfillment of the objectives set forth in this law, regarding the preservation, restoration of ecological balance and protection of the environment, particularly in the following aspects:

- V. To dictate the measures tending to the protection of the chelonians, marine mammals and aquatic species subject to a special state of protection and to determine them with the participation of the secretariat and other competent agencies. Likewise, it will establish bans, total or partial, referring to these species.

Federal penal code. It establishes in **Article 420** sections I, II, III: A penalty of one to nine years of imprisonment will be imposed and for the equivalent of three hundred to three thousand days a penalty, to whom illicitly:

- I. Capture, damage or deprive life of any turtle or marine mammal, or collect or store in any way its products or by-products;
- II. Capture, transform, collect, transport or damage specimens of aquatic species declared banned;
- III. Perform hunting, fishing or capture activities with an unauthorized means, of any specimen of a wild fauna species, or jeopardize the biological viability of a wild population or species;

Published in the **DOF February 6, 2002.**

INSTRUMENTS OF PROTECTION

Declaration of temporary closure from 1940 to 1955 to protect its reproduction of totoaba.

In 1955, the Mexican authorities declared a “refuge zone for all species, from the waters of the mouth of the Colorado River, to the south, to an imaginary line starting from the southern part of Bahía Ometepepec, Baja California, to the mouth of the Santa Clara River on the coast of the state of Sonora ”.

On May 3, 1974, it is declared that the mouth of the Colorado River in the Gulf of California be established as a Reserve Zone for cultivation or repopulation for all fishing species. (Prohibits fishing in a delimited area, the totoaba being the target species, may have had positive effects on the vaquita).

Published DOF: 01/08/1975 the agreement establishing a ban for the totoaba species, Totoaba macdonaldi, in the waters of the Gulf of California, from the mouth of the Colorado River to the Fuerte River, Sinaloa on the east coast, and the Colorado River to Bahía Concepción, Baja California, on the west coast.

Fishing of totoaba is prohibited in this agreement. This ban was due to significant overfishing of the Totoaba macdonaldi species. The totoaba being the target species, it could have had positive effects on the vaquita.

The totoaba (Totoaba macdonaldi) has been listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 1977.

In 1991, totoaba was declared an endangered species.

In 1992 the Technical Committee for the Preservation of the Vaquita and the Totoaba (known by its initials in Spanish as CTPVT) was created, due to the concern for the considerable decrease of the populations of both species.

February 13, 1992. Agreement that prohibits the use throughout the year of gillnets with a mesh size greater than 10 inches constructed with nylon thread, called “totoaberas” in the Gulf of California.

On June 10, 1993, the region known as the Upper Gulf of California and the Colorado River Delta was declared a Protected Natural Area (known by its initials in Spanish ANP), with characteristics of a Biosphere Reserve. It establishes a total and indefinite ban for the capture of various species of marine fauna, among which is the vaquita.

On May 16, 1994 the Official Mexican Norm NOM-059-ECOL-1994 was published, which determines the species and subspecies of wild flora and fauna, and aquatic in danger of extinction, threatened, rare and subject to special protection and that establishes specifications for your protection.

Classifies the vaquita as endemic species in danger of extinction. Indicator of the effect was insufficient and ineffective, since it did not result in protective measures for the vaquita.

NOM-012-PESC-1993 is also published (29 / JUN / 94), which establishes measures for the protection of totoaba and vaquita species in waters under federal jurisdiction of the Gulf of California.

This Official Mexican Norm establishes measures for the protection of totoaba (Cynoscion macdonaldi) and vaquita (Phocoena sinus) species in waters under federal jurisdiction of the Gulf of California. In order to avoid incidental capture of the species covered by this Norm, all fishing activities in the core zone of the Upper Gulf of California Biosphere Reserve and the Colorado River Delta are prohibited. Likewise, the use of mesh nets of mesh size greater than 10 inches, constructed with nylon thread monofilament, caliber 36 to 40, called “totoaberas”, is prohibited throughout the year, in the area delimited on the eastern coast of the Gulf of California.

The Official Mexican Norm NOM-002-PESC-1993 was published in the DOF on December 31, 1993 to order the exploitation of shrimp species in waters under federal jurisdiction of Mexico.

It does not allow the use of seine nets in the coastal waters of Baja California, outside the Upper Gulf of California Biosphere Reserve and the Colorado River Delta.

On May 26, 1994, the Official Mexican Norm 024-SEMARNAT-1993 was approved, establishing measures for the protection of totoaba and vaquita species in waters under the federal jurisdiction of the Gulf of California.

This provision was due to the fact that the production statistics of the totoaba (Cynoscion macdonaldi) continued to show a notable tendency towards decline.

In 1995, the reserve was included in the Man and the Biosphere Program (MAB) of UNESCO, also included in the MAB declaration are the El Pinacate Biosphere Reserve, the Great Altar Desert, and the Colorado River Delta.

In 1995, the biosphere reserve is recognized as a Site of International Importance within the Hemispheric Shorebird Reserve Network (know by its initials in Spanish as WHSRN).

In 1996, the wetlands of the Colorado River Delta were accepted as of international importance within the RAMSAR Convention (Site # 814).

In 1997, the reserve forms part of the Border XXI Environmental Program and is included in the implementation of the Letter of Intent signed by Mexico and the Department of the Interior of the United States of America (DOI).

In 1997, the International Committee for the Recovery of the Vaquita (known by its initials in Spanish as CIRVA) was also established, a fundamental scientific body in the evaluation of the status of the species, as well as in proposing the various specific recommendations for its protection and recovery, together

with a mandate to develop a recovery plan for the species based on the best scientific information available and that will also consider the socioeconomic impacts of any potential regulation through fishing, economic and social alternatives.

That same year, 1997, the CIRVA estimated the size of the vaquita population at 567 individuals and determined that incidental fishing mortality, specifically in gillnets and gillnets, represents the most important and immediate risk for the vaquita, which is why it had to be eliminated urgently.

In 2000 the National Fisheries Charter was published, which would be updated in 2004, 2006 and 2012 (DOF 14-03-2004, DOF 25-08-2006, August 24, 2012)

[The National Fisheries Charter, published in the Official Gazette of the Federation on March 15, 2004, estimated the existence of only 567 individuals of vaquita, with a confidence interval of 177 to 1074 vaquita].

The document was updated again in 2018 (DOF: 06/11/2018, AGREEMENT that announces the updating of the National Fishing Charter).

This is important, since its content is informative for the productive sectors and binding in the decision making of the fishing authority in the adoption and implementation of measures for the control of fishing effort, in the resolution of requests for concessions and permits, for this allows measures to be taken against the over-exploitation of some species, the outdated fleet, fishing gear, change of conditions in the lack of inspection and surveillance, environmental deterioration, if the case is any ban on a certain species , the increase in pollution, among others.

On June 7, 2000, the reserve was included in the National System of Protected Natural Areas (SINAP).

Published in the DOF on March 6, 2002, the Official Mexican Norm NOM-059-ECOL-2001 Environmental protection-Species native to Mexico of wild flora and fauna-Risk categories and specifications for inclusion, exclusion or change-List of species at risk, classifies the vaquita as endemic species in danger of extinction. It only establishes risk categories and a list of species, but does not propose protection measures.

In 2002, the Emerging Norm (NOM-EM-139-ECOL-2002) was implemented, whose purpose was to reduce vaquita mortality by 66% by prohibiting the use of all gillnets with mesh sizes greater than six inches, in the which a high mortality rate of this species was shown (underlining that it was only during its validity).

In the year of 2002, the reserve is declared as an important site within the Pacific Migratory Route of Waterfowl.

It is also an Area of Importance for the Conservation of Birds in Mexico (known by its initials in Spanish as AICA).

In 2004, the Program for the Conservation of Species at Risk (known by its initials in Spanish as PROCER) was created, o be run by the National Commission of Protected Natural Areas (known by its initials in Spanish as Conanp). Through this program, it seeks to involve and make co-responsible all sectors of society to protect the most threatened Mexican species, particularly those registered in the Official Mexican Norm 059.

In 2005, the Reserve was included in the designation as a UNESCO Natural Heritage Site, together with the Gulf of California Islands.

This designation was made due to the “extraordinary diversity of marine and terrestrial life” with a unique universal value, within which two species, the vaquita and the totoaba, were identified as critically endangered.

In 2005, the International Committee for the Recovery of the Vaquita (known by its initials in Spanish as CIRVA) made recommendations that Semarnat used to issue an agreement, based on the General Wildlife Law (known by its initials in Spanish as LGVS), to establish a refuge for the vaquita.

On September 8, 2005 An agreement that establishes the Refuge Area for the vaquita (*Phocoena sinus*) was published in the Official Gazette of the Federation (DOF).

On December 29, 2005, The Vaquita Protection Program within the Refuge Area located in the western portion of the Upper Gulf of California is published in the DOF.

The general objective of the protection program is to establish general and specific conservation bases and guidelines in the refuge area for the protection and recovery of the vaquita, as well as promoting measures and mechanisms to regulate the productive activities and the execution of works that they intend to develop in the refuge area for the protection and recovery of the vaquita.

On December 15, 2006, Semarnat published the Marine Ordinance Program (POM) of the Gulf of California. This ordinance relates to geographical units which are called, Unidades de Gestión Ambiental (known by their initials in Spanish as UGA), due to their biological and ecological characteristics, as well as threats to them.

On August, 16, 2007 the Official Mexican Norm NOM-063-PESC-2005 was published in the DOF on Responsible fishing for Gulf curvina golfina (*Cynoscion othonopterus*) in federal jurisdiction waters of the Upper Gulf of California and Delta del Río Colorado, it contains specifications for use.

The Action Program for the Conservation of the Species: Vaquita (*Phocoena sinus*) is published in February 2008. Comprehensive Strategy for the Sustainable Management of Marine and Coastal Resources in the Gulf of California, commonly known as PACE-Vaquita.

The purpose of the PACE-Vaquita is “to be an instrument that fosters the synergies required to achieve the conservation and recovery of the vaquita through short, medium and long-term actions that guarantee the elimination of the incidental capture of the species in gillnets, the application of resources for the reconversion of gear and productive diversification, research and development of new fishing methods and gear, the execution of a permanent inspection and surveillance program, as well as the support required to achieve the sustainable use of the natural resources of the Upper Gulf of California region.”

On September 25, 2009, the Management Program for the Biosphere Reserve of the Upper Gulf of California and the Colorado River Delta, was published in the DOF. The reserve is located in the waters of the Gulf of California and the municipalities of Mexicali, Baja California State, and from Puerto Peñasco and San Luis Río Colorado, Sonora State.

The general objective of the management program is to conserve and protect the representative ecosystems of the region, evolutionary processes, habitats of reproduction, spawning, migration and feeding of marine species of ecological and commercial importance, and above all, endemic species and / or species in danger of extinction like the vaquita and the totoaba, among others.

On December 30, 2010, the Official Mexican Norm NOM-059-SEMARNAT-2010, was published Environmental Protection-Native Species of Mexico of Wild Fauna and Flora-Risk categories and specifications for inclusion, exclusion or change-List of species in risk.

This standard establishes a catalog of species, subspecies and populations that are considered extinct in the wild, at risk of extinction, threatened and under special protection. The vaquita appears under risk status.

On November 6, 2012, the Agreement announcing the Gulf curvina Golfina Fishery Management Plan (*Cynoscion othonopterus*) from the northern Gulf of California was published in the DOF.

On July 11, 2013, the Official Mexican Norm NOM-002-SAG / PESC-2013 was published in the Official Gazette to order the exploitation of the species of Shrimp in waters of federal jurisdiction of the United Mexican States.

On July 3, 2015, The Official Mexican Norm NOM-062-SAG / PESC-2014, was published in the DOF for the use of the Location System and Satellite Monitoring of Fishing Vessels.

On April 10, 2015, the “AGREEMENT that temporarily suspends commercial fishing through the use of gillnets, trusses and / or longlines operated with smaller vessels, in the North of the Gulf of California” was published in the DOF. 2016 The presidents of Mexico and the United States (US) agree to coordinate efforts to strengthen the results of the permanent ban on fishing with nets in the vaquita distribution zone in the AGC, reduce illegal fishing and trafficking in totoaba .

On June 30, 2017 was published in the DOF the AGREEMENT that prohibits gear, systems, methods, techniques and schedules for carrying out fishing activities with smaller vessels in marine waters of federal jurisdiction of the United Mexican States in the North of the Gulf of California, and landing sites are established, as well as the use of monitoring systems for such vessels.

November 10, 2017 An AGREEMENT that restricts navigation, fishing activities and nautical tourism, in the indicated polygon within the Region known as Upper Gulf of California, in order to perform preservation actions of the vaquita (Phocoena sinus) was published the DOF.

April 20, 2018 Agreement by which the refuge area of the vaquita is expanded.

ANNEX 2

List of compensation beneficiaries for not fishing and amounts 2015-2017

Total general 2015 (MXN)	\$ 338,165,945.51	
	Total 2,015 (MXN)	Percent of the total
Jesus Martin Rubio Carrillo	\$ 8,958,354.82	2,65%
Luis Valenzuela Aldaz	\$ 8,008,702.02	2,37%
Marlene Cital Soberanes	\$ 6,532,025.55	1,93%
Raul Gutierrez Rubio	\$ 5,338,905.18	1,58%
Sergio Baltazar Lopes Angulo	\$ 5,549,309.30	1,64%
Lorenzo Guadalupe García Carrillo	\$ 5,271,295.23	1,56%
Rafael Espinoza Soberanes	\$ 5,151,940.82	1,52%
Jose Gomez Amador	\$ 4,312,878.93	1,28%
J Claudio Paredes Solis	\$ 4,847,946.97	1,43%
Carlos Alberto Pineda Tirado	\$ 4,672,217.13	1,38%
Alonso Garcia Lucero	\$ 2,562,757.36	0,76%
Ignacio Agustín Miranda Albanez	\$ 3,062,208.93	0,91%
Rosario Angulo Arroyo	\$ 2,977,754.10	0,88%
		19.89%

Information was also obtained up until the end of the program in 2017.¹¹⁹

This is the list of the 20 most favored:

Beneficiary	TOTAL	1 USD = 18.25MNX
Luis Valenzuela Aldaz	\$12,050,908.08	660,323.73
Jesus Martin Rubio Carrillo	\$10,172,566.26	557,400.89
Marlene Cital Soberanes	\$ 9,828,645.00	538,555.89
Raul Gutierrez Rubio	\$ 9,119,534.52	499,700.52
Sergio Baltazar Lopes Angulo	\$ 8,388,048.60	459,619.10
Lorenzo Guadalupe García Carrillo	\$ 7,931,796.12	434,618.97
Rafael Espinoza Soberanes	\$ 7,751,153.28 2	424,720.73
Jose Gomez Amador	\$ 7,419,805.68	406,564.69
J Claudio Paredes Solis	\$ 7,295,390.88	399,747.45
Carlos Alberto Pineda Tirado	\$ 7,058,738.52	386,780.19
Alonso Garcia Lucero	\$ 6,169,174.80	338,036.98
Ignacio Agustín Miranda Albanez	\$ 6,139,144.56	336,391.48
Rosario Angulo Arroyo	\$ 5,990,719.92	328,258.63

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Beneficiary	TOTAL	1 USD = 18.25MNX
Victor Manuel Rios Valles	\$ 5,591,622.96	306,390.30
Angelica Angulo Espinosa	\$ 5,453,817.60	298,839.32
Guillermina Garcia Guzman	\$ 5,213,859.48	285,690.93
Orel Meraz Bobadilla	\$ 4,789,162.56	262,419.87
Clemente Morales Lopez	\$ 4,124,507.52	226,000.41
Ruben Aguilar Higuera	\$ 4,024,180.20	220,503.02
Favian Alonso Sanchez Olivares	\$ 3,944,295.12	216,125.76

ACRONYMS

AGC. Alto Golfo de California (Upper Gulf of California)
AICA. Área de Importancia para la Conservación de Aves en México (Area of Importance for the Conservation of Birds in Mexico)
ANP. Área Natural Protegida (Natural Protected Area)
ASF. Auditoria Superior de la Federación (Superior Audit of the Federation)
CBI. Comisión Ballenera Internacional (International Whaling Commission IWC)
CIRVA. Comité Internacional para la Recuperación de la Vaquita (International Committee for the Recovery of the Vaquita)
CNP. Carta Nacional Pesquera (National Fisheries Charter)
Conabio. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (National Commission for the Knowledge and Use of Biodiversity)
Conapesca. Comisión Nacional de Acuacultura y Pesca (National Commission of Aquaculture and Fisheries)
CTPVT. Comité Técnico para la Preservación de la Vaquita y la Totoaba (Technical Committee for the Preservation of the Vaquita and the Totoaba)
DOF. Diario Oficial de la Federación (Official Journal of the Federation)
Inapesca o INP. Instituto Nacional de la Pesca (National Institute of Fisheries)
LGEEPA. Ley General del Equilibrio Ecológico y Protección al Ambiente (General Law of Ecological Balance and Environmental Protection)
LGPAS. Ley General de Pesca y Acuacultura Sustentables (General Law of Sustainable Fisheries and Aquaculture)
LGVS. Ley General de Vida Silvestre (General Law of Wildlife)
MAB. Programa el Hombre y la Biosfera de la Unesco (siglas en inglés) (UNESCO Man and Biosphere Program)
NOM. Norma Oficial Mexicana (Official Mexican Norm)
OP. Ordenamiento Pesquero (Fishery Ordinance)
PACE-Vaquita. Programa de Acción para la Conservación de la Especie Vaquita (Program of Action for the Conservation of the Vaquita Marine Species)
PND. Plan Nacional de Desarrollo (National Development Plan)
POP. Programas de Ordenamiento Pesquero (Fisheries Management Programs)
Profepa. Procuraduría Federal de Protección al Ambiente (Federal Attorney for Environmental Protection)
Programa Ambiental Frontera XXI (Border XXI Environmental Program)
RHRAP. Red Hemisférica de Reservas para Aves Playeras (Hemispheric Reserve Network for Shorebirds)
RP. Reconversión Productiva (Productive Reconversion)
RT. Reconversin Tecnológica (Technological Reconversion)
Sagarpa. Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food)
Semar. Secretaría de Marina Armada de México (Secretariat of the Mexican Navy)
SINAP. Sistema Nacional de Áreas Naturales Protegidas (National System of Protected Natural Areas)
UDEP. Unidad de Esfuerzo Pesquero (Fishing Effort Unit)
UGA. Unidad de Gestión Ambiental (Environmental Management Unit)

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