

Southern right whale mortalities at Península Valdés, Argentina: updated information for 2010-2011

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ABSTRACT

Southern right whales (*Eubalaena australis*) continue to experience high mortalities at Península Valdés, Argentina. Systematic efforts to study the strandings began in 2003, when the Southern Right Whale Health Monitoring Program was established by a consortium of NGOs. A total of 482 dead whales were recorded on the Península Valdés nursery ground and an additional nine at other sites along the Argentine coast between 2003 and 2011, with a peak in 2008 when 100 whales died. Previous reports to the IWC included information through 2009. Here we report data for the 2010-2011 seasons. Fifty five whales died in 2010 and 61 died in 2011. As in previous years, the vast majority of strandings were calves of the season. However, an unusually high proportion of juveniles (6) and adults (7) died in 2010. In both years, most deaths were recorded in October (43) followed by August (29), September (20) and November (18). Strandings were evenly distributed in both gulfs of the peninsula (26 -47% in Golfo San José, 26 -47% in Golfo Nuevo, one -2% in the Outer Coast and two -4% outside of the peninsula) in 2010, but many more whales died in Golfo Nuevo (49 or 80%) than in Golfo San José (12 or 20%) in 2011. Two calves were alive when they stranded, and both died a few hours after they were found. The remaining whales were dead when reported or found, and post mortem examinations were performed. Hundreds of biological samples have been collected and analyzed since 2003. However, a common cause of the high mortality rates in this southern right whale population remains to be found.

INTRODUCTION AND BACKGROUND OF RECENT MORTALITIES

Southern right whales (*Eubalaena australis*) are dying in unprecedented numbers on their nursery ground at Península Valdés, Argentina, in what are considered the most extreme mortality events ever observed in any baleen whale. At least 482 whales died in Península Valdés and an additional nine whales were found dead along the Argentine coast between 2003 and 2011, the majority of which were calves of the season. In view of these deaths, it seems that this whale population and its ecosystem may be less healthy and robust than previously thought. The population has been studied continuously since 1970 through annual aerial surveys and boat and cliff-top observations (Payne, 1986; Rowntree et al., 2001).

The high mortality of right whales at Península Valdés prompted the IWC Scientific Committee to convene a workshop of specialists in Puerto Madryn, Argentina in March, 2010, organized by the IWC, the US Marine Mammal Commission and Argentina's National Research Council, Centro Nacional Patagónico (CENPAT). Three leading hypotheses to explain the high mortalities were identified: decreased availability of food, exposure to biotoxins, and infectious disease (see IWC 2010 Document SC/62/Rep 1 for further details). It is likely that a combination of factors may be involved.

The Southern Right Whale Health Monitoring Program (SRWHMP, the "Program") at Península Valdés is run by a consortium of the NGOs Wildlife Conservation Society (WCS), Instituto de Conservación de Ballenas (ICB), Whale Conservation Institute/Ocean Alliance (WCI/OA), and Fundación Patagonia Natural (FPN), in collaboration with research centers and governmental agencies. It began in 2003 with support from the US National Marine Fisheries Service and more recently the US Marine Mammal Commission, and runs with funds from foundations, private donors and the NGOs that direct the Program.

The aim of the Program is to evaluate the health status of the southern right whale population by conducting post-mortem examinations of the animals that strand each year on the beaches of Península Valdés and surrounding area. Also, it aims at discovering the causes of death and their conservation implications for the species. Here we report data on strandings for the 2010-2011 seasons (June through December). Previous reports to the IWC included information through 2009 (Uhart et al., 2008, 2009; Rowntree et al., 2011).

MATERIALS AND METHODS

Stranded whales are located by regular land and aerial surveys conducted by the Program's researchers, and reports by members of a local Stranding Network. The Network includes park rangers, fishermen, whale watching captains and company owners, diving companies, tour operators, nature guides, sailors, airplane pilots, artisanal fishermen, researchers, NGOs, and local authorities such as the Argentine Navy and the Argentine Coastguard. The Stranding Network has been essential to the success of the Program.

The stranding field team regularly surveys the coastline of Península Valdés from land, in regions where the whales concentrate, and by plane along the whole perimeter of the peninsula (Figure 1). Aerial surveys in 2010-2011 were conducted with support from the Wildlife Conservation Society and the Fondo para la Conservación Ambiental del Banco Galicia.

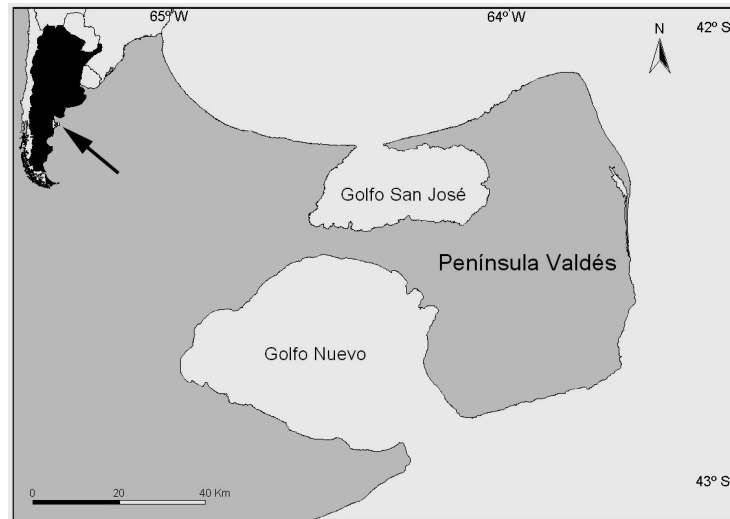


Figure 1. Península Valdés and its location in Argentina. Most southern right whales occur along the eastern half of Golfo San José and the northern half of Golfo Nuevo (map by Virginia Roldan).

When dead whales are found or reported, the Program's field team of veterinarians and biologists travels to the site and follows a necropsy protocol that includes recording the location, an external examination, photographing and measuring the body, tagging the carcass and, depending on carcass condition, a partial or full necropsy to collect samples of external and internal organs and tissues. Samples are analyzed by laboratories in Argentina and the USA. All results are reported annually to provincial and national government authorities.

RESULTS AND DISCUSSION

At least 55 whales died in 2010 and 61 in 2011, totaling 116 strandings in two years at Península Valdés and surrounding area.

The Stranding network reported 26 (47%) and 28 (46%) of all strandings in 2010 and 2011, respectively. The remaining strandings were found during regular land and aerial surveys (6 aerial surveys in 2010 and 7 in 2011). With the exception of annual photo-identification aerial surveys conducted at the time of peak whale abundance (September) by the Whale Conservation Institute / Instituto de Conservación de Ballenas, aerial survey effort prior to 2010 to search for dead whales was inconsistent and difficult to maintain throughout each season and included only two flights in 2006, five in 2008 and two in 2009.

Summary for 2010

Fifty-five dead southern right whales were recorded in 2010 at Península Valdés and surrounding areas. Although the number of strandings decreased compared to 2007-2009, it still represents a relatively high mortality when compared to the expected number of deaths based on population data. Most of the dead whales were found in the gulfs of the peninsula (26 or 47% in Golfo Nuevo, 26 or 47% in Golfo San José), one (2%) was found along the outer coast (Punta Buenos Aires) and two (4%) outside of the Peninsula (one to the north and the other to the south). Most whales died in

October (23 animals), followed by August (12) and September (8) (Fig. 2). Similar numbers of whales died before and after October 1st, unlike prior years when most of the whales died either before or after October 1st (we consider Oct 1st as a temporal division –early vs. late– within a season) A relatively high proportion of dead whales in 2010 were adults (7 or 13%) and juveniles (6 or 12%), while the remaining 42 animals (76%) were calves (Table 1). More juveniles died in 2010 than in any previous years. All of the dead juveniles were found in Golfo San José. The sex ratio of dead whales was female biased (23:29), with 3 whales of undetermined sex. Only one of the 55 animals was a live stranding but the calf died within a few hours. The remaining 54 animals were dead when reported or found.

Summary for 2011

Sixty-one dead southern right whales were recorded at Península Valdés in 2011 and none in the surrounding area. More whales died in Golfo Nuevo (49 or 80%) than in Golfo San José (12 or 20%). Most of the deaths occurred in October (20 animals), followed by August (17) and September (12) (Fig. 2). Fifty-eight (95%) of the dead whales were calves and the remaining 3 (5%) were juveniles (Table 1). As in 2010, similar number of strandings occurred before and after Oct 1st. The sex ratio of stranded animals was 50:50 (30 males, 30 females, with one of unknown sex). One male calf stranded alive and though it was returned to sea, it died within a few hours and a complete necropsy was performed. The remaining 60 animals were dead when reported or found.

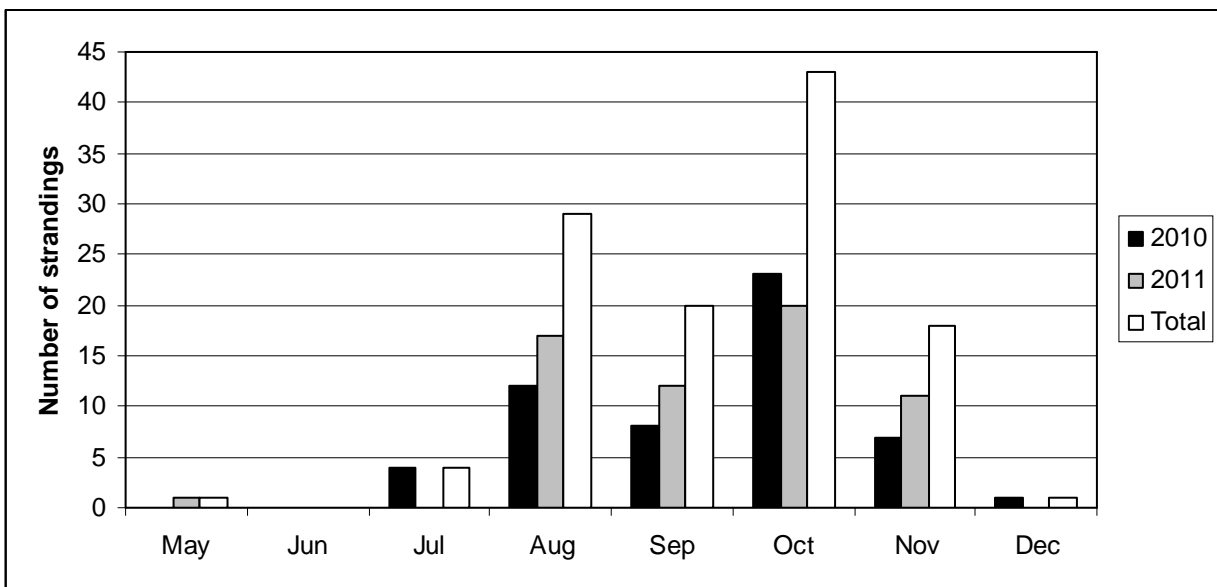


Figure 2. Number of strandings per month in 2010 and 2011, and the total for both years.

Age	2010	2011	Total	% of Total
Calves	42	58	100	86
Juveniles	6	3	9	8
Adults	7	0	7	6
Total	55	61	116	100

Table 1. Age class distribution of strandings at Península Valdés and surrounding area in 2010 and 2011. 86% of the dead whales were calves.

Summary for 2003-2009

Detailed reports of southern right whale strandings at Península Valdés for the period 2003-2009 were presented at previous IWC meetings (see Uhart et al., 2008, 2009; IWC, 2010; Rowntree et al., 2011 for more information). Here we provide a brief summary to demonstrate that calf deaths recorded in 2005 and particularly in 2007 through 2009 were exceptionally high and cause for concern for the recovery of this population:

- In the three years with the highest mortalities (2007-2009) a mean of 79 calves died each year at Península Valdés. In the three years immediately prior to this (2004-2006) a mean of 21 calves died each year and from 2001-2003 a mean of 16 calves died each year. The deaths in 2007-2009 are a 270% increase over the number of deaths in 2004-2006 and a 385% increase in deaths over the 2001-2003 period. The deaths in 2007-2009 were

the highest ever recorded over a three year period since 1971 and are certainly higher than the rate of increase of the population over the same time period.

- If the number of right whale deaths at Península Valdés had increased at the same rate (6.8%, Uhart et al. 2008; IWC, 2010) that had been recorded from 1971 through 2002, 87 right whales should have died from 2007 through 2009. Instead, 235 whales died. In 2008 alone, 87 calves died, as many as should have died in three years. Another way of putting this is that 170% more calves died in 2007-2009 than was expected using historical projections of the death rate over the preceding three decades (1971-2000).
- The proportion of observed 2- and 5-year calving intervals appears to have increased over the last decade (Seger, pers. comm.). When a female has a calf at an interval other than the normal 3-year interval, it suggests that her previous calf died. The increase in abnormal calving intervals confirms the high mortalities of calves in recent years.
- The number of calves that have died at Península Valdés since 2003 varied greatly between years, from lows of 13 and 16 in 2004 and 2006, respectively, to highs of 89 and 72 in 2008 and 2009, respectively, with 36 to 77 dying in the years in between, something that has not been observed in other southern right whale populations. In addition, the peaks in mortalities in different years occurred at different times within the nursery season.

Hundreds of biological samples have been collected by the Program and analyzed by collaborating scientists in a number of laboratories in Argentina and the USA since 2003. However, a common cause of the high mortality rates in this southern right whale population remains to be found.

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