The Return of Rorquals in the Bohol Sea, Philippines.

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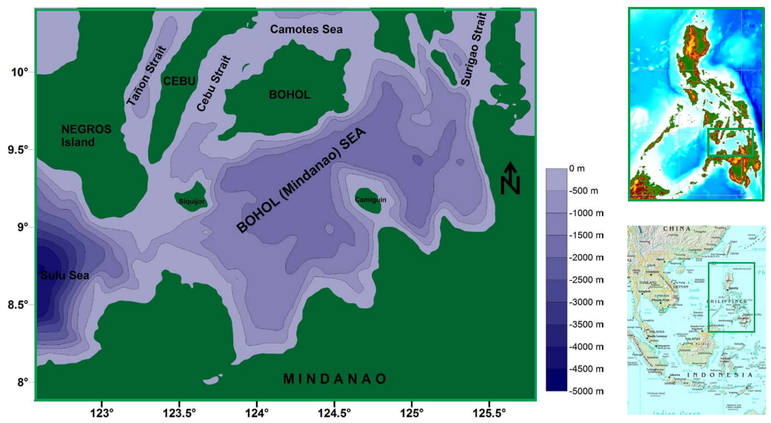
Abstract

Prior to modern whaling mysticetes were widely distributed in the North Pacific. Comparison of current and historical distribution of rorquals in the Philippine waters indicates an apparent population decline over the decades prior to the implementation of the whaling ban in 1997. This report describes the re-occurrences of the Bryde's whale (*Baleanoptera edeni*) in the Bohol Sea and the blue whale *(Balaenoptera musculus)* in the Philippines since 1993 and 2004, respectively. The Bohol Sea, located in the central Philippines, is a biodiversity hotspot for marine mammals with 18 confirmed species of cetaceans occurring within a relatively small area (29,000 sq km). These waters have been the site of foreign and aboriginal whaling for over a century. More than 100 whales of the Bryde's whale complex (*Balaenoptera edeni* and *omurai*) were landed in one site within 8 years (1985-1993) with the last documented whale butchered in 1993. Based on logbook and museum records available from the whaling era, blue whales were historically present in the Philippines. Surveys conducted between 2000 and 2004 in the area by WWF-Philippines and Silliman University, did not report any baleen whales. However, informal reports from fishermen and dolphin watching tour operators in Pamilacan Island describe the sporadic presence of large whales, locally known as bongkaras, between January and June. Since 2010, seven sightings of baleen whales have been recorded in the Bohol Sea area: three (3) blue whales, and four (4) of the Bryde's whale complex. The increase in baleen whale sightings in the Bohol Sea may indicate a return to their former grounds. This, together with the lack of scientific information about these two species, highlights the need for future studies in the area.

Introduction

The Bohol Sea, also known as the Mindanao Sea, is located between the Visayas and Mindanao Islands of the Philippines in the western north Pacific. It is located at approximately 9˚N 124˚E.



Map 1: The Bohol Sea, Philippines

It covers 29,000 sq km of waters fronting the southern part of Bohol Island, western Surigao del Norte, northern Mindanao and eastern Siquijor (Indab & Suarez-Aspilla 2004). It measures about 270 km (170 miles) east-west. The Sea connects to the Sulu Sea through the strait between Negros and Zamboanga Peninsula, to the Philippine Sea through Surigao Strait, and to the Camotes Sea through Canigao Channel and Cebu Strait.

The Bohol Sea has a rich marine biodiversity. It was recently identified as one of the marine key biodiversity areas (MKBAs) in the Philippines (CI-Philippines, unpublished).

There are 18 confirmed species of cetaceans occurring in the Bohol Sea.
Table 1. Cetacean species confirmed in the Bohol Sea.

	Species	Common Name
1	*Grampus griseus*	Risso's dolphin
2	*Lagenodelphis hosei*	Fraser's dolphin
3	*Stenella attenuata*	Pantropical spotted dolphin
4	*Stenella longirostris*	Spinner dolphin
5	*Steno bredanensis*	Rough-toothed dolphin
6	*Tursiops truncatus*	Common bottlenose dolphin
7	*Feresa attenuata*	Pygmy killer whale
8	*Globicephala macrorhynchus*	Short-finned pilot whale
9	*Peponocephala electra*	Melon-headed whale

	Species	Common Name
10	*Pseudorca crassidens*	False killer whale
11	*Orcinus orca*	Killer whale
12	*Physeter macrocephalus*	Sperm whale
13	*Kogia sima*	Dwarf sperm whale
14	*Kogia breviceps*	Pygmy sperm whale
15	*Mesoplodon densirostris*	Blainville's beaked whale
16	*Balaenoptera edeni*	Bryde's whale
17	*Balaenoptera musculus*	Blue whale
18	*Balaenoptera omura*	Omura's whale

The Bohol Sea is one of the main fishing grounds in the country. Other large marine vertebrates also inhabit the Bohol Sea including whale sharks (*Rhincodon typus*), manta rays (*Manta birostris*), several other species of mobulids (*Mobula spp.*) and sea turtles.

The area was frequented by American sperm whalers from roughly the 1820's to the late 1880's (Acebes 2009) and was the favoured hunting grounds of local whalers from Bohol, Camiguin and Misamis Oriental over a century ago (Dolar *et al.* 1994, Acebes 2009).

More than 100 baleen whales locally known as *bongkaras* or *bugangsiso* were landed in one site within 8 years (1985-1993) with the last documented whale butchered in 1993 (Dolar *et al.* 1994). The species taken were then believed to be the Bryde's whale (*Balaenoptera edeni*) (Dolar *et al.* 1994).

Bryde's whale taken in the Bohol Sea before the ban.
photo by Lory Tan

The national whaling ban (FAO 185-1) was imposed in 1997, taking effect soon after. The year marked the end of whaling in the Philippines however some communities were believed to have persisted hunting opportunistically (Acebes 2009). Since then Bryde's whales have not been sighted, although anecdotal reports from Pamilacan Island locals, dolphin watching tour operators and tourists persisted.

The first known confirmed documentation of the blue whale was when a local television crew filmed a mother and calf baleen whale off Pamilacan Island, Bohol on February 2004 (Acebes 2009).

Photographs of a baleen whale seen in the same area in May 2004 taken by a group of visitors from the U.S. Peace Corps, Econature Philippines and the Bohol Marine Triangle Project (BMTP) were released later that same year.

First confirmed photographs of a blue whale in the Philippines. Photo by Shelby Guigerre, US Peace Corps

These sightings were brief and no detailed information on the animal was taken. There has been no further record of the blue whale in the Bohol Sea until a recent sighting in 2010.

Methods

Examination of archival records including American whaling logbooks at the Research Library of the New Bedford Whaling Museum, USA.

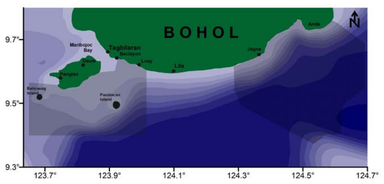
Review of recent published works and reports, as well as anecdotal reports in the form of news articles, website postings, and personal accounts of tourists/travellers.

Key informant interviews were conducted as part of a MSc and a PhD research project in select fishing communities along the coasts of the Bohol Sea, namely: Lila & Pamilacan in Bohol; Sagay, Catarman & Guinsiliban in Camiguin; Salay in Misamis Oriental and Limasawa Island.

Exploratory surveys in the northeastern Bohol Sea using a 7-meter outrigger boat were conducted by the Physalus team.

American whaling logbook illustrating area where they cruised in the Philippines, courtesy of the Research Library of the New Bedford Whaling Museum, USA.

Line-transect surveys in the northwestern Bohol Sea were conducted by a team from Silliman University using a 7-9m long outrigger boat. DISTANCE sampling method was followed throughout the sampling period.



On June 11th the Physalus group organized a survey to investigate on local reports of sightings of a large whale off Pamilacan. Using a 28-foot Fibreglass boat, the team surveyed 8-10 kms off the shores of Pamilacan, following a zig zag pattern with legs about 5 km long.

On 12 June 2010, the Silliman University team conducted a survey around Pamilacan Island using an outrigger boat about 7-9 m long.

Map 2: Survey Areas

Results

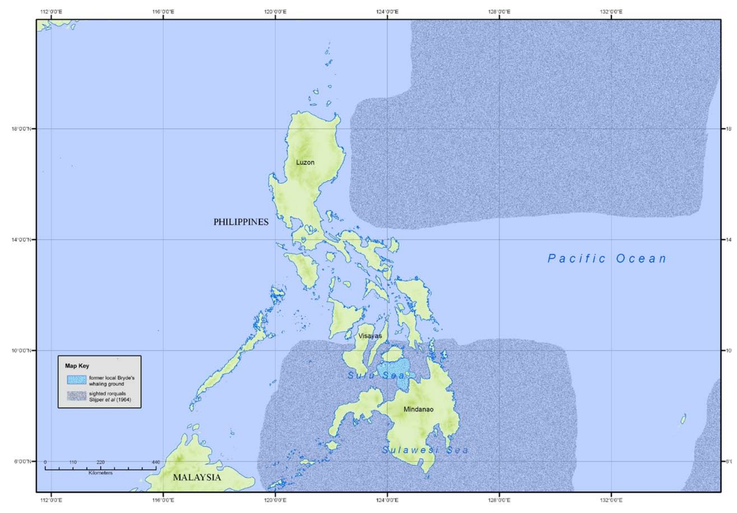
Historical occurrence of rorquals

Fifteen American whaling logbooks were examined from the period of 1838-39, 1853-55, 1863-64 and 1868-69.

American sperm whalers that cruised the 'Soloo Seas' and around the archipelago from early to late 1800's noted the occurrence of 'sulphur bottoms' and 'finbacks' (Acebes, 2009).

Past distribution and abundance

Slijper et al. (1964) noted the occurrence of several species of rorquals around the Philippine archipelago based on observations gathered from Netherlands ships within a three-year period (1954-56).



Map 3: Known distribution of rorquals and local Bryde's whaling grounds in the Philippines.

Rorqual species observed included humpbacks, blue whales, fin, Sei and Bryde's whales in various months of the year all around the Central Visayas and Mindanao Islands, southern Palawan, and in the eastern coast of northern Luzon (Slijper *et al.* 1964).

Based on available evidence and oral history large baleen whales locally known as '*bongkaras*' and '*bugangsiso*' were abundant along the coasts of southern Bohol, southern and western Camiguin, Misamis Oriental, northwestern Surigao, southern and eastern Limasawa and southern and eastern Pamilacan from earlier times up until 1970s.

Declines in numbers were noticed by the mid-1970s and whalers had to go further off-shore.

Whales used to be seen in groups of up to 4 adults and in mother-calf pairs.

According to local knowledge the whales would come to the Bohol Sea as early as January but the peak would be from March to May and the whales leave in June. Fishers believe the whales come to the Bohol Sea to feed because they see whales following krill at times of highest phytoplankton abundance.

The Bryde's whale complex

It is still unclear how many species of Bryde's-whale-like species exist and the nomenclature remains unresolved (Wada *et al.* 2003, Sasaki *et al.* 2006, Kato & Perrin 2009) hence, we will refer to the Philippine whales here as simply as a member of Bryde's whale complex and follow the International Whaling Commission's usage of *Balaenoptera edeni*.

Recently however, research indicates that there are possibly two species occurring in the Philippines. Yamada *et al.* (2008) refer to both the Indo-Pacific Bryde's whale (*B. edeni*) and the new Omura's whale (*B. omurai*) (Wada *et al.* 2003, Yamada *et al.* 2008). Yamada *et al.*'s (2008) examination of bones stored in the Silliman University Marine Laboratory at Dumaguete City led them to conclude that the majority were from Omura's whale and only four out of 24 whales represented were Indo-Pacific Bryde's. The bones were collected from Pamilacan Island and Lila in Bohol where whales used to be hunted.

Recent sightings:

PHYSALUS:
Surveys conducted on: Mar 2010; April 2010; May 2010; June 2010; Apr 2011; May 2011; Jun 2011; Jul 2011
Total of 29 effort days = 1,538km effort distance

SILLIMAN UNIVERSITY:
Surveys conducted on: Jun 2010; Oct 2010; Oct 2011; Nov 2010; Apr-May 2011. Total of 44 effort days = 1,785km effort distance.

In 2010, there were 2 blue whale and 1 Bryde's whale complex sightings. In 2011, there was 1 blue whale and 3 Bryde's whale sightings. (See Table 2 for details)

Map 4: Sightings of blue whales and Bryde's whales in the Bohol Sea.

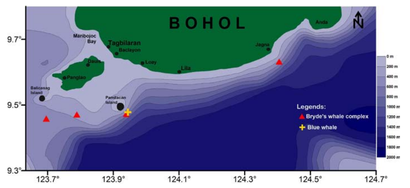


Table 2. Summary of rorqu al sightings in the Bohol Sea from 2004-2011.

SPECIES	DATE OF SIGHTING	LOCATION	POD COMPOSITION/ BEHAVIOUR	OBSERVER(S)
Blue whale	Feb 2004	Off Pamilacan Island	Mother & calf	TV crew; aired on local tv
Blue whale	1 May 2004	Off Pamilacan Island	Single animal	Pet Digdigan & Virginia Montgomery
Blue whale	20 May 2008	Off Pamilacan Island	Single animal	Eulo Valeroso
Blue whale	12 Mar 2010	East side of Sogod Bay	Single animal	Louise Dixon
Blue whale	11 Jun 2010	Off SE Pamilacan	Single animal; resting	Physalus
Blue whale	14 Mar 2011	Off SE Pamilacan	Single animal; possible feeding	GMA 7's Born-To-Be-Wild crew
Bryde's whale	12 Jun 2010	Off SE Pamilacan	Single animal; Travelling	Silliman University
Bryde's whale	4 Apr 2011	Off SW Pamilacan	Single animal; Travelling	Silliman University
Bryde's whale	9 Apr 2011	Off SW Pamilacan	Single animal; Travelling	Silliman University
Bryde's whale	2 May 2011	Off Jagna	Single animal	Physalus

Left side of blue whale sighted in June 2010. photo by : Jom Acebes

Right side of blue whale sighted in June 2010. photo by : Jom Acebes

Head of blue whale sighted in June 2010.
photo by : Jom Acebes

Left side of blue whale sighted in March 2011.
photo by Ferds Recio

Head of blue whale sighted in March 2011.
photo by Ferds Recio

Head of a Bryde's whale sighted in June 2010.
photo by Jean Utzurrum

Left dorsal fin of a Bryde's whale sighted in June 2010
photo by Jean Utzurrum

Bryde's whale sighted off Pamilacan Island, April 2011. photo by Edna Sabater

Bryde's whale sighted off Pamilacan Island, April 2011. photo by Edna Sabater

Bryde's whale sighted off Jagna in May 2011.
photo by Ale Ponzo

Bryde's whale sighted off Jagna in May 2011.
photo by Ale Ponzo

Conclusions

Sighting of the blue whale in the Bohol Sea is significant because it is the first time that a long observation of the species was documented in the Philippines. So far, the Bohol Sea is the only site in the Philippines this species has been seen.

Based on photographs of the body markings, we found that the blue whale observed in June 2010 is the same whale encountered in March 2011.

Sightings of Bryde's whales in these waters are significant because these are the first documented sightings since the whaling ban took effect in 1997. This may indicate that the whales have returned to their former grounds.

Sightings of these 2 species within the same area suggest previous undocumented reports of *bongkaras* or Bryde's whales could have been blue whales. From interviews of island residents and local dolphin-watching guides and operators it was apparent that they could not distinguish the species. It is then possible that both species have always occurred in the Bohol Sea, but blue whales were misidentified as Bryde's whales and hunted accordingly.

It is highly likely that these rorquals come to the Bohol Sea to feed as evidenced from their occurrence during the months of high productivity and from observations of former whale hunters.

Threats to rorquals in the Bohol Sea:
- Increased boat traffic - possible collisions
- Increased fishing - possible entanglements in fishing gear
- Overfishing - changes in the marine ecosystem
- Disturbance from unregulated dolphin & whale watching tours
- Unregulated development (Panglao reclamation project) and pollution - changes in the marine ecosystem

Need for further research:
Further surveys are needed to determine the regularity of occurrences of these two (or three) species in the Bohol Sea. Photographic identification study is needed to determine how many animals are present. Biopsy sampling and genetic studies will help clarify the genetic identity of blue whales in the Philippines and their relation to the rest of the Pacific blue whale population. Genetics will also help determine whether both *B. edeni* and *B. omurai* occur in the Philippines.

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