

# Citizen scientist divers help track the success of artificial reefs

May 14 2015, by Michael Bear

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Once a warship, the HMCS Yukon is now an artificial reef providing much needed sanctuary for local marine life. Credit: Michael Bear

In 2000, the City of San Diego in collaboration with the San Diego Oceans Foundation (SDOF), purchased, cleaned and sank a 366 foot-long Canadian warship called the HMCS Yukon to create an artificial reef, a task at which has been spectacularly successful. Sitting at the bottom of the San Diego coast, the Yukon attracts dozens of local marine life species and is becoming a revenue-generating attraction for tourist divers from around the world.

When this project started, both the SDOF and the local scientific community were curious to understand the effects of an [artificial reef](#) on local fish populations and surrounding marine life. A joint study was undertaken by SDOF and Dr. Ed Parnell of Scripps Institution of Oceanography and released in 2004.<sup>1</sup> Crucial to the study was data gathered by local citizen science divers to generate a baseline of marine life species on the ship.

This year, Ocean Sanctuaries, San Diego's first citizen science oriented, ocean non-profit is conducting a follow up study to the pioneering work of Dr. Parnell and colleagues. Established in 2014, Ocean Sanctuaries encourages and supports citizen science projects which empower local divers to gather marine data under scientific guidance and forwarding our understanding of the oceans. Ocean Sanctuaries currently has three active [citizen science](#) projects. 'Sharks of San Diego' and the 'Sevengill Shark ID Project' are both shark related. The third project is the follow-up study on the Yukon called the Yukon Marine Life Survey.

The data gathered in this project will be mainly photographic. Local divers will photograph specific areas of the ship in quadrats and with transect lines and the data will to be compared with the same areas examined in the 2004 study.

The project plans to use a web-based application for wildlife data management called 'Wildbook' for cataloging observations made in the Yukon Marine Life Survey. 'Wildbook' was originally designed to identify whale sharks, but will be modified as a multi-species database for use with the Yukon Marine Life Survey.<sup>2</sup>

Referring to the original Yukon Marine Life Survey of 2004<sup>1</sup>, Barbara Lloyd, Founder of Ocean Sanctuaries says, "The Yukon Artificial Reef Monitoring Project (ARMP) was a short-term baseline study of fish transects and photo quadrats. The ARMP project has not been gathering

data for about a decade now. We at Ocean Sanctuaries strongly believe that a follow up study to the original baseline study can provide the research and fishing communities with valuable marine life data. In addition, unlike the original study, we intend to use photographs to ensure verifiable encounter data. We aim to create a large base of citizen scientists to take the photos and enter the data. This crowd-sourced data will allow us to collaborate between citizens and researchers."

The current Yukon Marine Life Survey will span at least five years. Once completed, the data will inform scientists of changes to the [marine life](#) on the ship enabling California coastal managers to evaluate the impact of artificial reefs on local marine species. Take a [video tour](#) of the Yukon and learn more about the [project](#) at [SciStarter](#).



Photographs taken by citizen scientist divers allow the scientific community to track marine life on the Yukon. Credit: Michael Bear

**More information:** Wildbook: A Web-based Application for Wildlife Data Management: [www.wildme.org/wildbook/doku.php?id=start](http://www.wildme.org/wildbook/doku.php?id=start)

Ecological Assessment of the HMCS Yukon Artificial Reef  
off San Diego, CA, Dr. Ed Parnell, 2004:  
[c.ymcdn.com/sites/www.dema.org ... Assessment-Yukon.pdf](http://c.ymcdn.com/sites/www.dema.org/.../Assessment-Yukon.pdf)

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Citation: Citizen scientist divers help track the success of artificial reefs (2015, May 14)  
retrieved 26 April 2024 from  
<https://phys.org/news/2015-05-citizen-scientist-divers-track-success.html>

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