FINAL REPORT TO THE UNIVERSITY OF HAWAIʻI AT HILO
MARINE OPTION PROGRAM

Writing the Waves: UH Hilo *Seawords* Contributions

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ABSTRACT

Reliable and relatable communication between scientists and the general public is a major concern today. Science journalism is a major way the gap between the public and science is being addressed, but a better alternative are scientists developing communication skills bridge the gap between their research and the issues it addresses in everyday life. The Marine Option Program (MOP) has been publishing a monthly newsletter, *Seawords* for 46 years. Seeing the lack of representation for the University of Hawaiʻi at Hilo (UHH) MOP I proposed my skills project to write monthly articles, coordinate UHH submissions, promote the newsletter and gain personal experience in communication skills to further my science career. A total of 36 articles were written spanning three monthly segments. Seven feature articles highlighted UHHMOP directly. Publications were promoted via email and social media.

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INTRODUCTION

Effective science communication to the general public is an area of growing concern and consequence (Franck 1999, Mullahy 2004, Davies 2008, Bultitude 2011, Safina 2012, Brownell et al. 2013, Fischoff 2013, Gigante 2014, Ashwell 2016). Though scientists are experts in their field, they are not necessarily experts at communicating their science (Brownell et al. 2013). Despite this fact, there is still the expectation and duty of scientists to be able to explain their research (Martín-Sempere et al. 2008, Brownell et al. 2013). In the space between what the public reasonably expects and what scientists are capable of, a gap forms; researchers may be discouraged with minimal public support of their science and the public frustrated from a lack of readily accessible information of relevant research.

As undergraduates advance in academia into graduate and doctorate programs, their fields become increasingly specialized with emphasis on communication and collaboration within the scientific community rather than the general public (Brownell et al. 2013). With a heavier emphasis for scientist-to-scientist communication and a lesser regard for scientist-to-community communication, the public's assurance in scientists' abilities can be lessened (Gelich et al. 2014, National Science Board 2010). Many pedagogical ideas and course additions to science degrees are being discussed in effort to assist upcoming scientists in their communication skills (Brownell et al. 2013, Priest 2013, Gigante 2014). Meanwhile, this communication gap can create an elitist, or pompous view towards scientists that was never meant to exist.

The bulk of scientific information is presented through the media, especially through television and internet sources (National Science Board 2010, Gelich et al. 2014, Ashwell 2016). These instant news sources are typically presented in an easily understandable way compared to the more formal peer-reviewed academic journals that scientists publish in. Ashwell (2016) notes that as a result of the gap in science communication, one method of "[alleviating] the public's apparent lack of scientific understanding [is by providing] more correct information so that they will understand and appreciate science". To accomplish this, it is suggested that journalists be given more time to write articles and be properly informed about the science they write about (Bucchi 2002, Ashwell 2016). Scientific journalism is everywhere—it is accessible (especially though online publications), cheaper than access to academic journals, relatable, and often instill action or emotion in the reader. Although these benefits exist, scientific journalism can over-simplify or misrepresent the information, creating an even larger divide of understanding between the scientific community and the general public. Issues like these have brought up the necessity for scientists to hone their communication skills to bridge the gap (Franck 1999, Mullahy 2004, Davies 2008, Martín-Sempere et al. 2008, Bultitude 2011, Safina 2012, Brownell et al. 2013, Fischoff 2013, Gelich et al. 2014,
Gigante 2014).

Developing communication skills takes practice and constant application (Brownell et al. 2013, Mullahy 2004). As a science major and an appreciator of English, I understand the challenge of choosing the right words to adequately portray and effectively present ideas. In preparation of a successful science career I wanted to use my MOP skills project to practice my communication skills in a science setting. *Seawords* is MOP's monthly newsletter that is organized and published by MOP students at UH Mānoa. *Seawords* has been running since 1971.

The newsletter acts as a place for current MOP Students, alumni and affiliates to stay connected to the program. Articles feature issues in marine science, MOP trips, student research opportunities, and ocean related art. This publication also acts as scientific journalism for students to stay informed with current events and local events through the marine option program.

The integration of UHH MOP in *Seawords* has given students an incentive to keep up with all the happenings in MOP, read about their home campus and share experiences with their peers. The newsletter provides a reliable source of information to keep students aware of current issues in marine science, but instills a greater sense of community and achievement by seeing their own work and the work of their peers in a published form.

As I gained experience writing about science in a more "public-friendly" way I have become a more effective communicator to the non-scientific community. Exposing other students to this type of communication while maintaining scientific integrity has promoted a more balanced perspective of our roles as scientists. Our goals are to not only become experts in our field, but also experts at effectively sharing our knowledge to promote a greater understanding of our relationships in and of the world.

METHODS

Correspondence with UH Mānoa and the editor of *Seawords* began in September 2015. A relationship was established and maintained with the editor(s) through email. Article assignments, instructions, and deadlines were received monthly three to four weeks prior to that issue's publication date. Articles were written for three segments: Critter of the Month, Features, and Ocean Updates. Critter of the month was approximately 300 words and consisted of choosing a Hawaiian sea creature, it's scientific name and some background information courtesy of " Hawaii's Sea Creatures, a Guide to Hawaii's Marine Invertebrates: Revised Edition (Hoover 2006). Feature articles ranged from 700-2500 words and varied in topic, but usually highlighted UHH MOP. For articles that highlighted UHH MOP, I attended as many MOP trips as possible and conducted personal interviews with MOP students and faculty. Ocean updates consisted of five small articles 300-500 words in length that summarized current issues in marine science. Article topics and information were supplied by various news source websites (http://marinebio.org/, http://marinesciencetoday.com/, and https://www.sciencedaily.com/), the original press release or journal article.

Each article went through several phases of revision. Each article was personally reviewed and additionally reviewed twice by the editors of *Seawords.* For articles that discussed happenings in governmental organizations, like NOAA, the proper officials were contacted and a part of reviewing and approving the article before publication. Each article also contained photos or figures and all photo credit was obtained.

Seawords was promoted on the UHH campus via email to the MOP email list-serves, in the MOP office, postings on social media sites, and on the University Radio Hilo (URH) station.

DISCUSSION

This project's first published article was in the November 2015 issue and since then an article representing UHH MOP has been published in 13 of the last 14 issues included in this project; a total of 36 articles. All of which may be read at: https://issuu.com/seawords. A list of written articles is summarized in Table 1.

Table 1. List of all articles by segment, title, summary and date published.

Segment	**Article Title**	**Article Summary**	**Published**
Features	"The Loligaggers"	MOP student sea cucumber surveys at Waiʻōpae	Nov. 2015
Features	"Ke Kai Ola: the Healing Sea"	MOP trip to visit Monk Seal rehabilitation clinic	Dec. 2015
Features	"UHH MOP At a Glance"	Summary of 2015 MOP events	Jan. 2016
Ocean Updates	"Radiocarbon Dating on Hawksbill Sea Turtles" "New Year, New Species" "Butterflyfish—Just Picky Eaters?" "Southern Giant Petrel Populations Halved" "Sand Tiger Shark Nursery Found in Great South Bay, Long Island"	News in ocean science	Feb. 2016
Critter of the Month	"Spotted Boxfish"	Featured information on Hawaiʻi's most common boxfish	Feb. 2016
Features	"UHH MOP Goes Turtle Tagging"	MOP students assist NOAA and HPA in ongoing sea turtle life history study at Punaluʻu	Apr. 2016
Ocean Updates	"Aloha Casper" "Ocean Acidification Effects Worsen at Night" "Bubbles to the Rescue" "Technology to Save the Whales" "The Ocean Doesn't Care About Political Boundaries"	News in ocean science	May 2016
Ocean Updates	"Temperature and Salinity: Factors in Dolphin Migration" "Smaller Whale Sharks: What Does it Mean?"	News in ocean science	June 2016

	"Overfishing and Global Warming: A Killer Combo in the Caribbean" "New Life Partners for Bleaching Corals: Some Microalgae are Better" "Green Glow: Biofluoresence in Catsharks"		
Features	"A Collection of Summer Adventures by Your *Seawords* Writers: Get to Know Us"	Summer experience to my deepest dive, hitting 100 ft.	Sept. 2016
Ocean Updates	"10 Year Fishing Ban on a Reef in West Hawai'i" "Fish Perform Human Facial Recognition" "Online 3D Fish Library" "Methyl Mercury in Antarctic Sea Ice" "New Beaked Whale Species Identified"	News in ocean science	Sept. 2016
Features	"SeaSTARS Update"	The SeaSTARS celebrate their one-year anniversary	Oct. 2016
Ocean Updates	"Microplastics Ingested at the Seafloor" "Fish Personality Types" "Reaching Further Depths in Rorqual Feeding Strategies" "Amphipod Species Thrives in Elevated CO_2 Conditions" "Sea Otters on the Rise"	News in ocean science	Nov. 2016
Features	"A Day in the Life as a RAMP Cruise Intern"	An interview with NOAA RAMP cruise 2016 intern and MOP student Ashley Pugh	Dec. 2016
Features	"Winter Migration Season—The Humpbacks are Here!"	Humpback presence for winter season, their first time not on the endangered species list since the 70's	Jan. 2017
Features	"A Look at UHH MOP"	Summary of MOP events fall 2016 and what to come in spring 2017	Feb. 2017

Writing for *Seawords* was valuable experience in communicating science. Each segment had its own approach to writing that utilized different skills. Critter of the month prioritized the most pertinent information and defining features into a condensed blurb. Ocean updates allowed me to synthesize material into my own words, learn how to fact check, and cite sources. These articles allowed me to see the benefits and limitations of science journalism in action. There were several instances when I had about a week to summarize another writer's material in a new way on a topic I wasn't familiar with. These experiences showed me firsthand what it's like for many science journalists working with a deadline, trying to explain science they may not understand. I am convinced that though science journalism is helpful in a variety of different ways—pushing for scientists to be able to communicate to the public directly would ease the pressure on journalists and help bridge the gap in understanding between non-expert and scientist. Feature articles stretched my abilities the most because these were the articles I had the most freedom with. Of the nine feature articles, seven directly reported on UHH MOP trips, student opportunities and projects.

This project did encounter some challenges in writing articles and promoting the newsletter on the UHH campus. In article writing there were times where previously agreed upon interviews and student statements fell through or figuring out tenses for an article about an event that hadn't happened yet, but would have happened by the time the article was in print. In regards to promoting *Seawords* on the UHH campus, I cannot quantify if word of mouth, email reminders, URH segments, and posts on social media increased the number of people reading the MOP newsletter.

The completion of this projects resulted in 1) representing the UHH campus in the MOP newsletter, *Seawords*, 2) seven articles in *Seawords* within the last year and a half that directly highlight UHH MOP and its students, and 3) a personal increase in scientific communication and journalistic experience. For the future of UHH MOP being represented in *Seawords* the end of this project presents the opportunity for another student to take over and continue.

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