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### Investigating Shotgun shell and wad waste around Humboldt Bay

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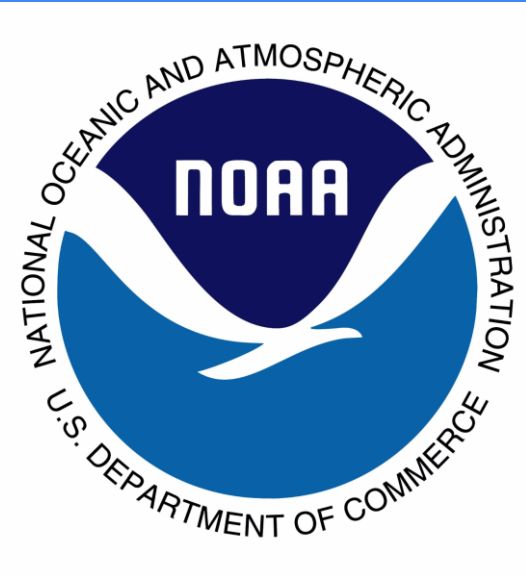
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# Investigating shotgun shell and wad waste around Humboldt Bay

Daniel Montoya, Noah Jenkins, Madison Richardson, Sarah Moreau, Jose R. Marin Jarrin, Cal Poly Humboldt

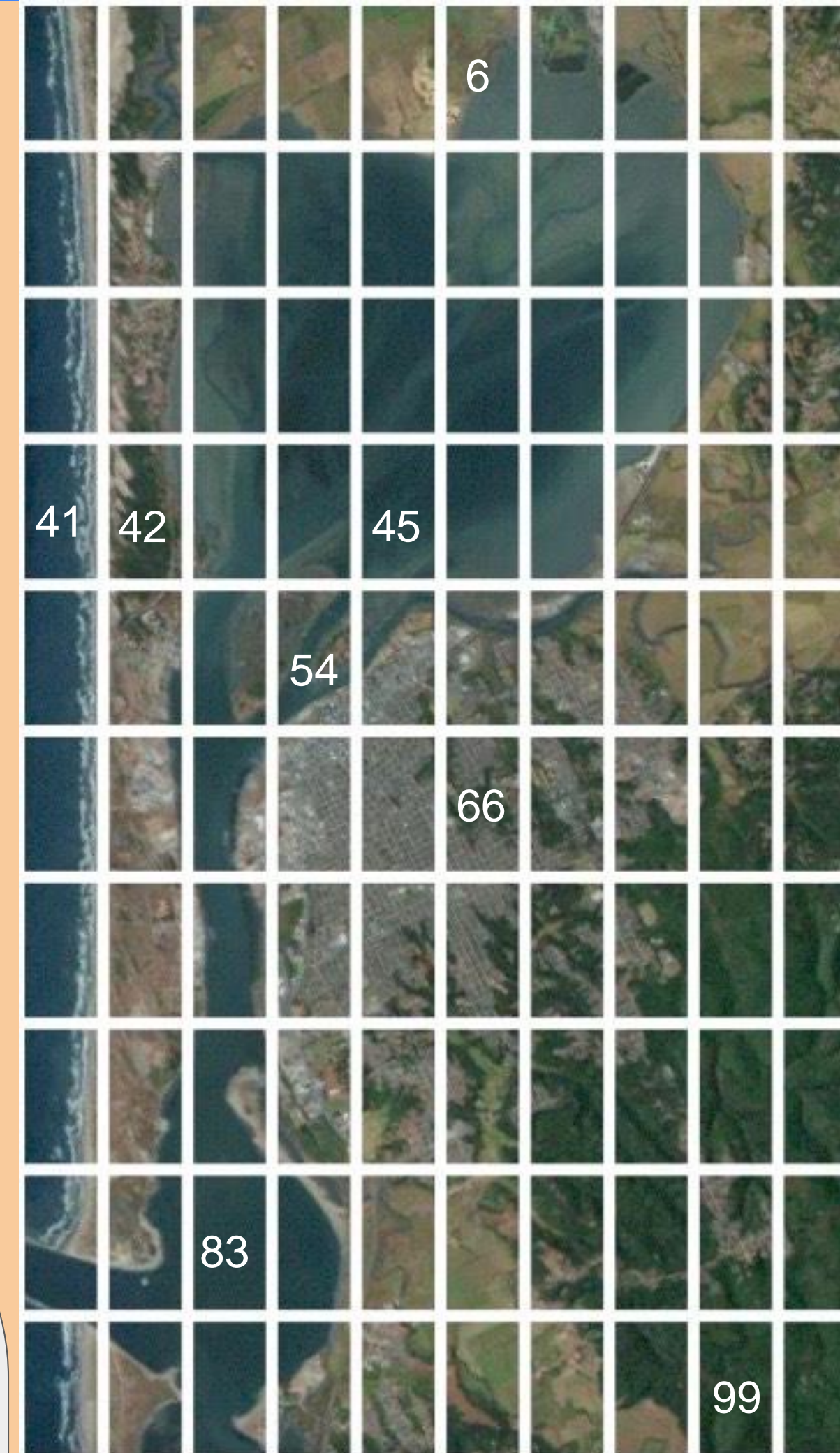
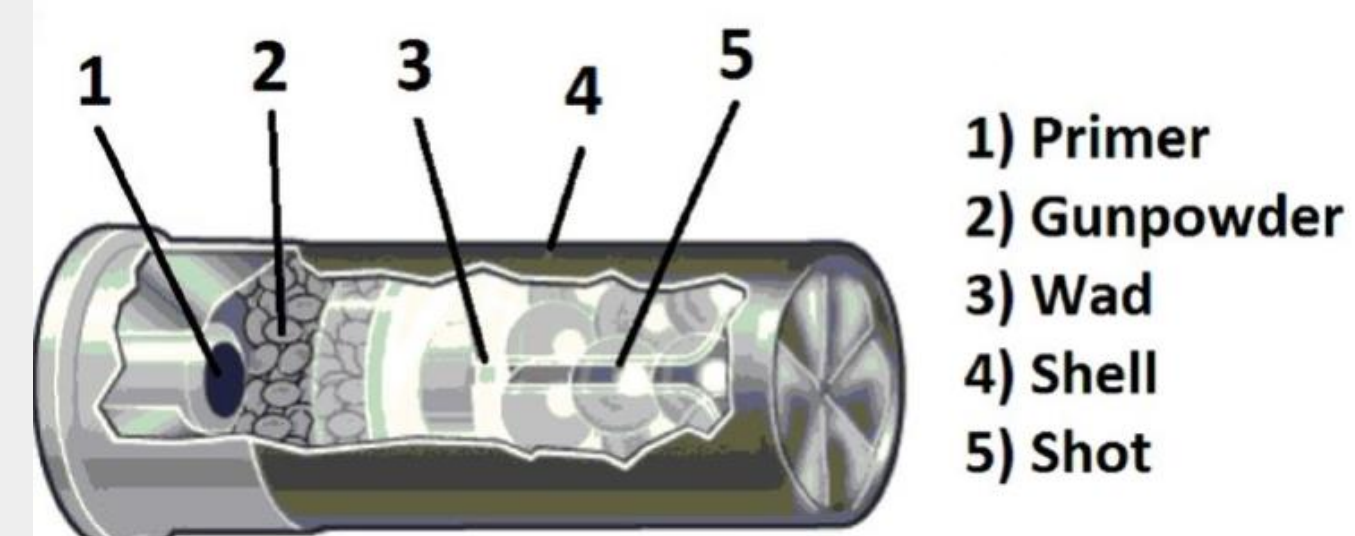


## Abstract

- Shotguns often used for hunting, when fired, they produce a plastic wad and shell
- In order to estimate abundance of shotgun wads and shells, eight randomly selected sites in Humboldt Bay were sampled once during March 2022
- Sites sampled included the beach and bay side of the Samoa Peninsula, Arcata, Eureka, and Southern Humboldt Bay
- At selected sites, 400 m<sup>2</sup> were inspected for wads, shells and trash
- Only one shotgun wad and shell was collected at two different sites (0.25 wads and shells per 100 m<sup>2</sup>, average of 0.26 kg of trash per 100 m<sup>2</sup>)
- Our results suggest that during this time of year, there are little plastic wads, shells and garbage on the shorelines of Humboldt Bay

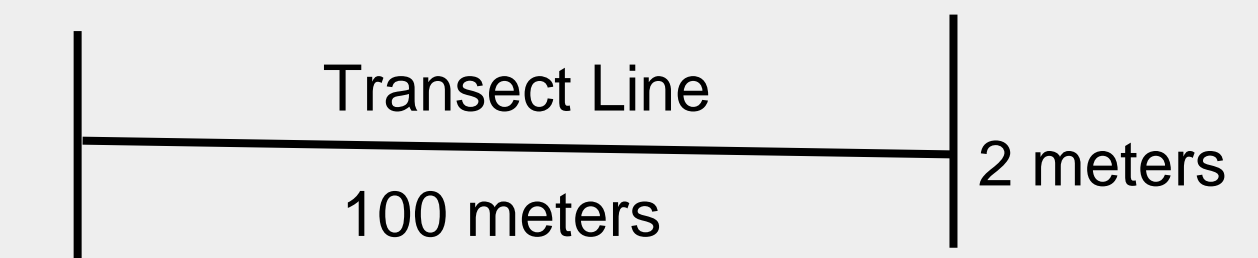
## Introduction

- Humboldt Bay has extensive shoreline home to many animals ranging from fish to birds
- Shotgun shell and wad are made of plastic, often left behind in natural environment, potentially ending in waterways when hunting for ducks near ponds
- Prior to 1970 shotgun wads were made of cardboard
- Humboldt county representatives are hoping to make the switch back to cardboard and the data collected by this project may assist with that
- The project aimed to quantify the locations of shotgun wads and shells



## Methods

- Four students sampled 8 randomly sites around Humboldt Bay to determine presence and abundance of shotgun shells and plastic wads
- Sample sites: Humboldt Bay's shoreline, including the beach and bay side of the Samoa Peninsula, Arcata, Eureka, and Southern Humboldt Bay
- 2 100-m transect lines were surveyed, two people walked along each transect line, one on each side searching for waste
- The person on the left side of transect line searched from transect line out to 1 m to left of line, and person on right searched from transect line out to 1 m to right of line, for a total of 200 m<sup>2</sup>



## Results

- 7 sites sampled
- 1 site unsampled (red)
- 1 Shotgun wad collected
- 1 Shotgun shell collected
- Abundance of 0.25 wads and shells per 100 m<sup>2</sup>
- 7.285 kg of trash collected total at all sites
- Abundance of 0.26 kg of trash per 100 m<sup>2</sup>

Sampling Site #	Shotgun Wad	Shotgun Shell	Trash weight (kg)	Date
45	0	0	1.984	2/25/22
83				
66	0	0	0	3/7/22
99	0	0	0	3/7/22
54	0	0	0.255	3/7/22
6	0	0	1.077	3/15/22
41	0	1	0.567	3/29/22
42	1	0	3.402	3/29/22

## Discussion

- It was challenging to find shells and wads randomly
- There are people who collect large numbers of both in Humboldt county
- They use surfrider shotgun wad watcher to ensure they find the waste
- Our results suggest that during this time of year, there are little plastic wads, shells and garbage on the shorelines of Humboldt Bay.