Micro Plastic Problem

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Problem

- People are polluting our oceans by leaving plastic all around and not cleaning it up.
- Another way is the debris from after the storms get into the ocean and then there's a lot plastic, wood, and other pollution floating around.

Why are we doing the study?

- We are doing this study to clean up our beaches.
- Also, to try and keep animals safe from eating the plastic and other items in the sand or in the ocean.

Kalama Beach on a bad day

How Kalama Beach could look

The purpose of the study

- The purpose is to show people that even these small pieces of plastic affect the world or to help and get the news out about this pollution problem.
- Also, Kailua beach is one of the most beautiful beaches on our island and it's a big tourist attraction but with all this plastic on the beach less people would want to come.

Our project

- For our class project we went down to Kalama Beach Park in Kailua, Hawaii and we took small simple mesh nets and sifted the first 2 inches of sand for plastic.
- We sifted through a ten feet by ten feet plot for 45 minutes and we put the plastic and other materials into a large bucket and saved it for research.

Clean up

- We could use smaller mesh nets to collect even more plastic.
- Dry pick the wood accurately not leaving any left.

How we can fund the clean up

- The clean up could be volunteer work.
- For example at Ala Moana beach they use large sand cleaners at night so the beach is plastic free the next morning.
- It may seem like a lot of money but it will be worth it, our tourist visitation will increase highly!

Disposal of Plastic Collected

- We could possibly figure out a way to convert the old plastic into a cleaner, newer energy.
- Or we could recycle the plastic because plastic will biodegrade so we might as well just reuse it.

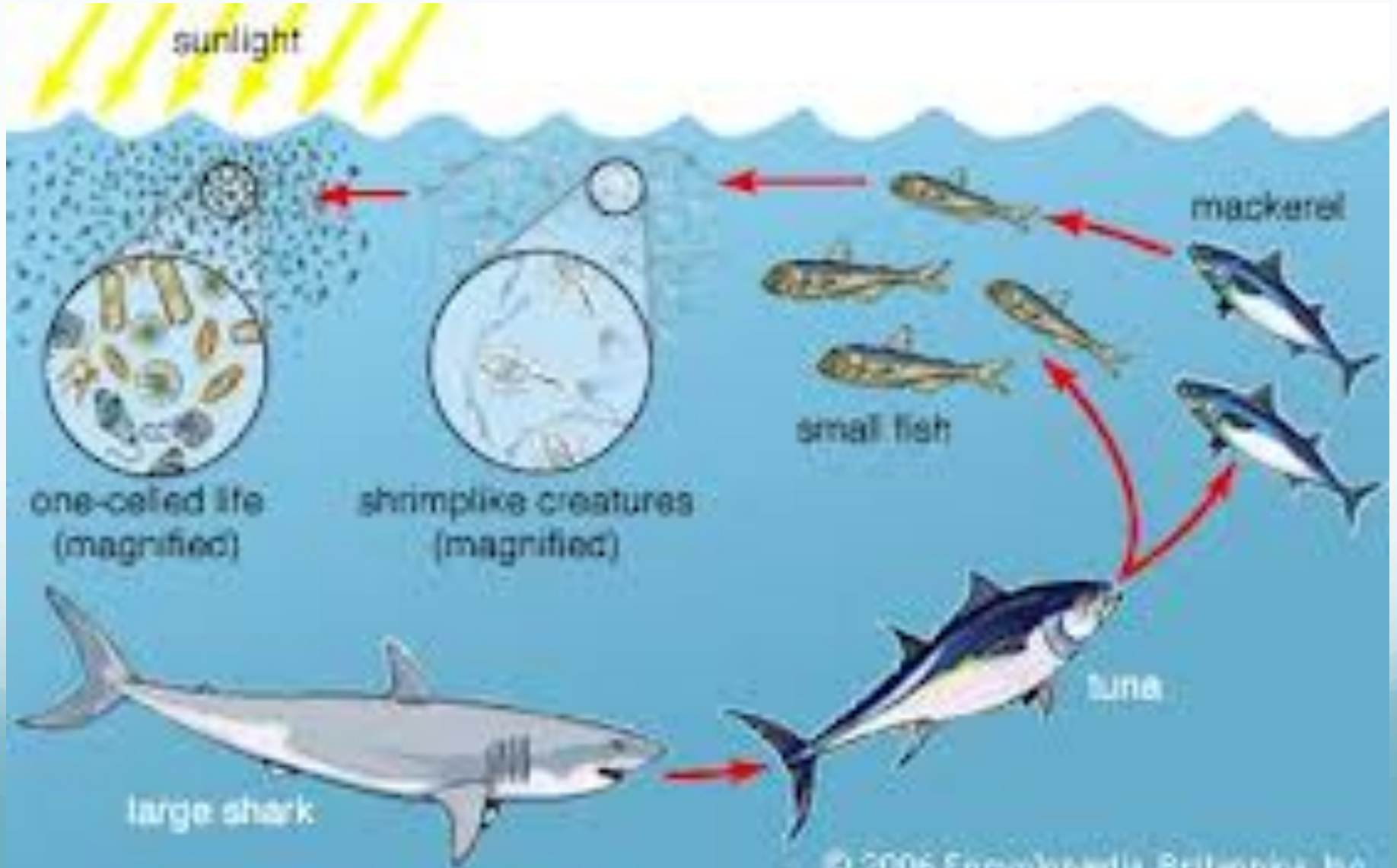
How plastic turns into Micro Plastic

- Since the ocean has so many minerals the minerals in the ocean erode the large pieces of plastic into tinier pieces of plastic or over time animals chew at it making smaller pieces float away.

How will plastic affect the ocean food chain?

- Birds and fish mistake it for plankton and swallowing it.

The Ocean Food Chain



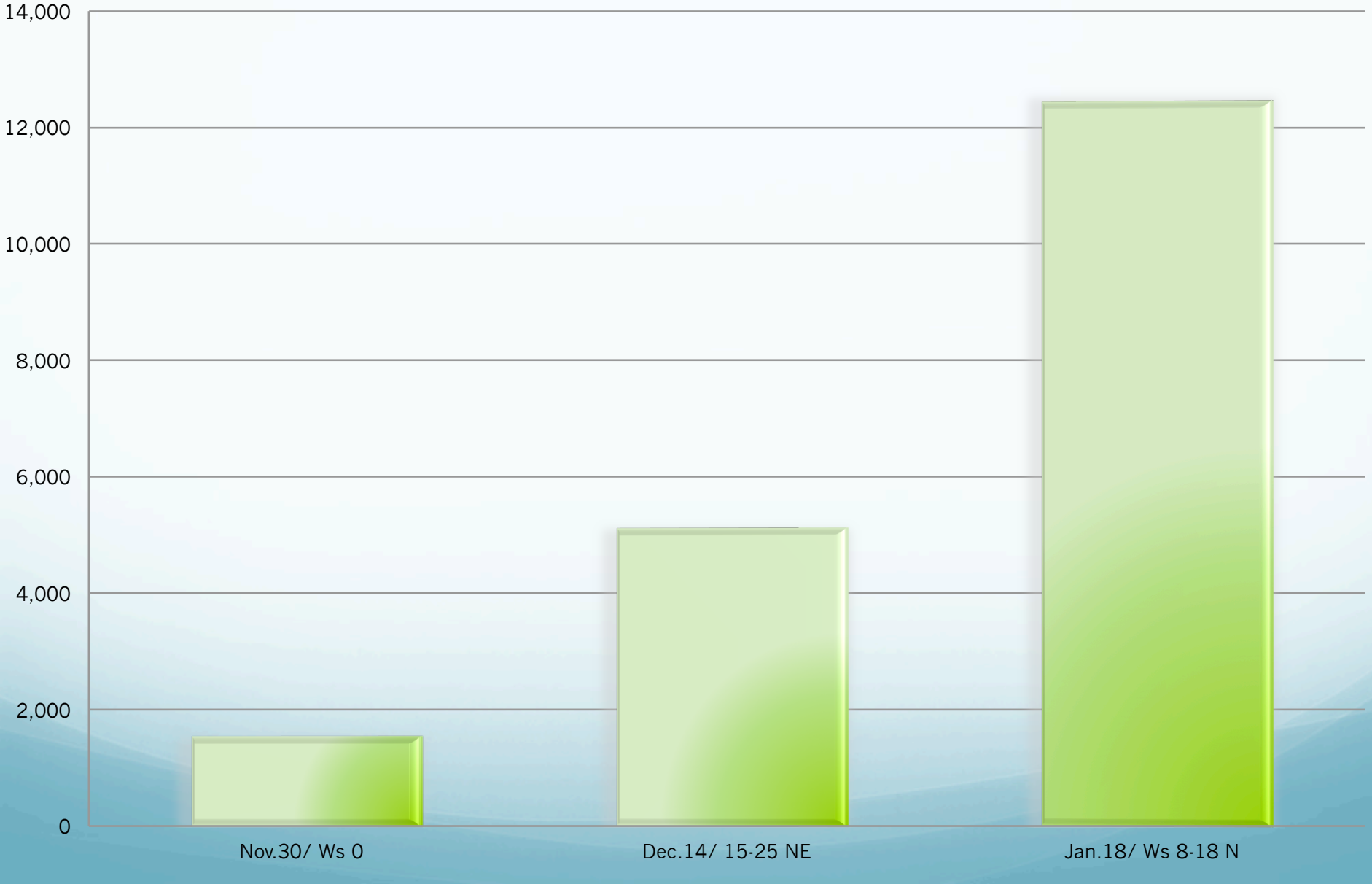
Calculations 1

- On 11-30-12 our team collected .5 Litters of plastic.
- There is 1,320,000 square feet of sand on Kailua Beach and on the beach that day there was 1544.24 visual gallons of plastic.

Calculations 2

- On 12-14-12 our team collected 1.5 Litters of plastic.
- On the Kailua Beach there is 1,320,000 square feet of sand. On beach there is was 5,106 visual gallons of plastic on that day.

Collection of micro plastic on Kailua Beach



Additional Data Collection

- **Method:** Ten test holes were dug in-between student survey plots to determine the downward migration of micro-plastic below the surface of the sand. The test holes were 12 inches deep by 36 inches long.
- **Results:** None of the test holes revealed any micro-plastic below the surface of the beach sand more than 3 inches deep, and insignificant amounts were noted at that depth. The vast majority of micro-plastic seems to remain in the top 1-2 inches of the sand.
- **Possible Explanation:** The density of the micro-plastic prohibits its downward migration, there beach clean up will be less complicated and less expensive.