This assignment was written for a class of 24 and was assigned in week 9 of a 10 week quarter. The course is called Coastal Oceanography and is for Oceanography Majors. The class met on MWF for an hour. Part 1 was due on Wednesday evening of week 10, and Part 2 was an in-class Haiku activity done on Friday of the same week.

Part 1: Critique of News Article.

Writing Assignment: Coastal Oceanography and Climate Change (46 pts)

This assignment will prepare you for an in class small group discussion on the impacts of climate change on the coastal zone. I will assign you to one of 8 groups, with each group reading a different article on one of the following topics in the context of climate change:

Mangroves

Marine Heatwaves in the coastal zone

Climate Change and erosion in the Arctic

Wetlands

You will summarize the article that you are assigned as follows:

1. Explain how is this article is related to a topic discussed in class. Be as specific as you can. Was there a lab question or class lecture that is related to this topic? How is it related? ***(12 pts)***
2. What quantitative aspect of the course is related to your article? Give an example calculation to estimate one quantitative aspect of the article using an equation from one of the labs or lectures. Write a short paragraph describing the implications of your calculation. This could be a comparison of the topic discussed in the article and a related topic discussed in class, an estimate of how big the effect might be, or an extrapolation of a magnitude or rate into the future, given realistic parameters.
   (Note: You will probably have to estimate values for some of the variables in your equation. If you're having trouble determining a realistic estimation for a variable, ask for help from one of the course instructors. *Justify any estimations you make in the write up.*) ***8 pts for the calculation***
   6 pts for the explanation and connection to class material
3. Discuss how what is discussed in the article is important for people in the region of focus. You can also discuss the relevance for ecosystems and/or the economy. Be specific. What population of people are potentially impacted? Are these people particularly vulnerable? Are there solutions offered? How realistic are the solutions ***(10 pts)***
4. ***Writing skill including Grammar and clarity (10 pts)***

Article reading Assignments

These articles are chosen from mainstream media (NY Times, Washington post) or scientific sources that are written for general audiences (i.e. EOS from the American Geophysical Union). Each person is assigned one article to read and summarize.

Arctic and Sea Ice:

https://eos.org/articles/melting-arctic-sea-ice-strengthens-tides

https://www.washingtonpost.com/news/energy-environment/wp/2015/02/24/the-remote-alaskan-village-that-needs-to-be-relocated-due-to-climate-change/

Tidal Marshes and wetlands:

https://eos.org/research-spotlights/half-of-u-s-tidal-marsh-areas-vulnerable-to-rising-seas

https://environment-review.yale.edu/making-way-coastal-wetlands-look-sea-level-rise-and-urban-development

Mangroves:

https://eos.org/features/cameroons-mangrove-forests-are-choking-on-plastics

https://therevelator.org/mangroves-climate-change

Marine heatwaves:

https://www.nationalgeographic.com/culture/article/space-map-pacific-blob

https://www.pugetsoundinstitute.org/2020/04/warm-water-blobs-significantly-diminish-salmon-other-fish-populations-study-says/

Part 2: Climate Change in the Coastal Zone Haiku Summaries (10 pts for submitted one or more Haiku's in the assignment)

We will divide into four topical groups of 6 students each to synthesize the information in the news articles that you analyzed by composing haikus. This exercise is based on the summary of a IPCC Working Group I report by Greg Johnson in 2013. First read these Haiku's that can be found at

https://www.sightline.org/2018/12/05/climate-change-told-in-19-heartbreaking-haiku

At the end of class, one person will read the group's haikus out loud to the rest the class.

For those that are willing, the Haikus will be published either the School of Oceanography or on my personal website.

You will submit your group Haikus in two places. In the canvas assignment which is where you will be given points for your haiku, and in a shared googledoc

- Use the haiku form of haiku three lines, five syllables in the first line, seven in the second line and 5 in the third line.
- You can also enter a group of linked haikus
- Be sure to include reference to people and climate change in some way in at least one of the haiku's from your group.

Here are the results from winter 2022.

https://www.ocean.washington.edu/story/Ocean_320_Coastal_Ocean_and_Climate_Change_Haiku_Winter_2022

Mangroves

By Isabelle, Christina, Yoav, Ariyanna, Allegra, Andrew

Sea Levels Up Up

Mangroves drowning bye bye

Coast Away Away

i search for mangrove

i will kill mangrove by roots

choked out the mangrove >:)

i, mangrove exist

i feel a choke and gasp, help!

i perish, plastic :(

I am a mangrove

The sea is consuming me

It takes your shore too

Mangroves protect them

Their fisheries suffer from

Plastic pollution

I search for mangroves

I attack their root systems

All mangroves must die

Mangroves, twisting roots

Saltwater mixing on coast

Shelter for many

Arctic

By Anna, Jonah, Charlie, Dominic

The ice is melting

Villages inundated

Due to climate change

Big tides, big problems

Threatening coastal peoples

Ice melt feedback loop

Ice melts in Arctic

Can’t safely hunt on the ice

Altering our lives

Farewell, my sea ice

Burning water from the depth

We meet less and less

Marine Heatwaves

By Cristian, Fred, Michael, Han, Elliot, Jenn

Unprecedented

No upwelling, mass die-offs

Stratification

California coast,

Upper layer is warming,

Less wind is blowing

Stagnant surface heat

Threatening ecosystems

Boiling off fish stocks

Marine heat wave strikes

Phytoplankton live no more

Foodchain can’t keep up

A cool breeze no more.

A lush ecosystem strains.

What has happened here?

Strange temperatures

Sea surface anomaly

Is known as the blob

Temps rise rise die

Fish die i die

You die we all die

Still blob heat threatens

Primary production and

Leads to extinction

Fish industry shrinks

Economy harmed, and

Locals affected

Toxic algal bloom

Fishing season is over

Boiled clams, good soup

I am warm water, threat

I KILL ALL IN MY PATH yum

They call me da blob

Marshes

Delilah, Leo, Abbey, Connor, and Alli

A warming planet

Raises the water level

Drowning the marshes.

Sea levels rising

Urban centers encroaching

Where did marshes go

Tidal marsh helpless

Entire Ecosystems

Consumed under waves

The northern marshes

Are unable to retreat,

Cornered by sea rise.

The southern marshes

Do not produce enough soil-

The region will drown.

Unable to grow

Unable to move away

So the marshes drown

Waters are rising

Wetlands need to move inland

Cities in the way

Gulf of Mexico

Particularly at risk

Of losing marshes

Sediment trapping

Coastal marshes do provide

Until walls go up

The marshes erode

The city underwater

Storm surge broke too late

Where did the fish go?

Water rise in the marshes

Threatens nurseries

Tiny fish, crucial

For growing fishery needs

Now vulnerable

Town planners need to

Plan for space for our wetlands

Else we cannot fish