



Scientist: \_\_\_\_\_

Date: \_\_\_\_\_

## Sea Level Rise - Case Study

### Introduction

The global average sea level has risen 21-24cm worldwide, or 8-9 inches, since 1850. However, since 2006 the sea level has been rising at a rate more than double the long-term average. From 1.4mm per year long-term average to a rate of 3.6mm per year (NOAA). If this rate of sea-level rise continued, it would lead to an average sea-level 0.6 m higher in 2100 than it was in 2000. But what do these numbers mean for people living on or near the coastlines?

You and your partner will each read about one community in Alaska affected by sea-level rise on page 2. Then, with your partner, answer the following questions below:

<b>Community Name:</b>	<b><u>Juneau, Alaska</u></b>	<b><u>Newtok, Alaska</u></b>
<b>How has the local sea level already changed?</b>		
<b>How much is the local sea level rise predicted to change?</b>		
<b>What is the biggest challenge to the community posed by sea level change? Think about the effects on people, the economy, and infrastructure you highlighted.</b>		



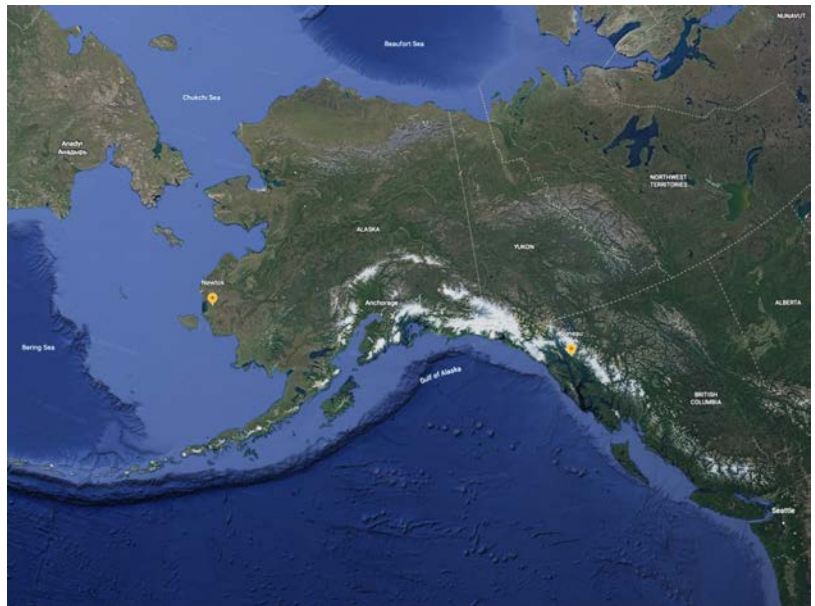
Scientist: \_\_\_\_\_

Date: \_\_\_\_\_

## Reading passages:

### Newtok, Alaska

Newtok is located on the Ninglik River near the Bering Sea on the Western coast of Alaska (see map). There are about 400 year round residents that live in Newtok. Newtok has recently been losing 70 feet of land a year due to both sea-level rise and permafrost collapse on the coast. When the once-permanently frozen ground melts, it causes the soil and vegetation to slide away and into the river. This loss of land threatened not only homes in Newtok, but also their freshwater source and waste site. The village has been undertaking the lengthy process to relocate to new land in Mertarvik, 9 miles south of Newtok. About 100 residents made the move in 2019 after many years spent obtaining funding and building infrastructure. All 400 residents will continue to move as housing, schools, and other facilities continue to be built over the coming years. (Source: [Interviews](#) at the Wilson Center)



### Juneau, Alaska

Juneau Alaska is located in Southeast Alaska, on the coast of the Pacific Ocean (see map). Juneau is home to about 32,000 people year round. In Juneau, the land has lifted about 30 centimeters, about a foot, since 2006. That uplift is caused by glacial rebound, or isostatic rebound, which occurs when glaciers melt and that loss of weight allows Earth's crust to rise up. The Juneau Icefield currently covers 1,500 square miles and contains tons of ice but has been melting rapidly. Some models show the icefield being completely gone within 100 years. Juneau, being a coastal community, has active docks and harbors which support the fishing and tourism industry. The channel to the harbor is gradually becoming shallower and areas that were previously mudflats are now becoming populated with alders and wetland plants. Dredging, or removing sediment from the bottom of the channel, will be necessary to keep the harbors navigable by boats. (Source: Juneau Empire article by Michael Lockett)