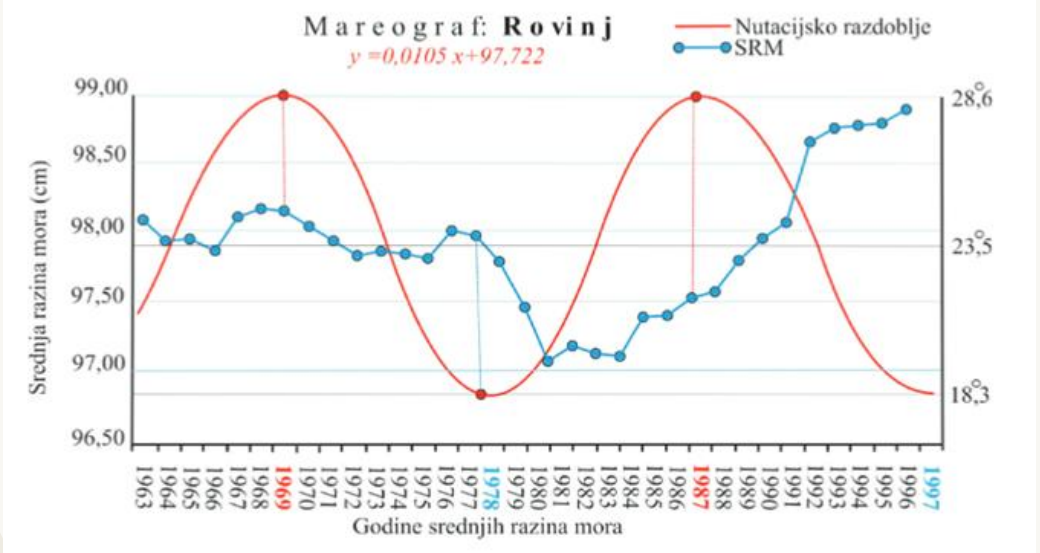
The Effect of Climate Change on Croatia

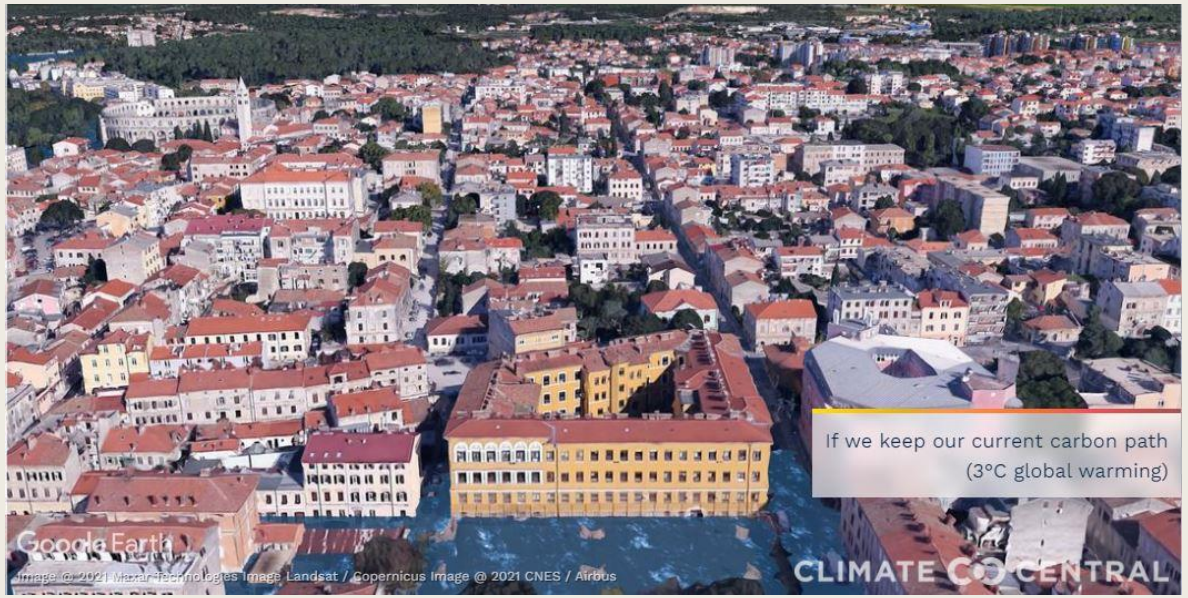
The Effect of Sea Level on Croatia

- Adriatic Sea -> important for tourism – main economic activity in Croatia
- Marine transportation, shipbuilding, fishing, mariculture and other activities -> relying on the coast
- Coastal area -> ecosystem biodiversity
- Hydrographic Institute of the Republic of Croatia in Split -> measures sea level by tide gauges
- 1990-2016 -> sea level rose **16-21 cm** on average
- 1993-2017 -> it rose as far as **7.5 cm**

- Estimations of global sea level rise by 2100: **9-88 cm**
- If said estimations come true, a larger part of the Croatian coast, including the Neretva delta, the Krka River, Vrana Lake, Krapanj Island and cities Zadar, Trogir, Rijeka, Split and Dubrovnik will be **almost entirely devastated**



Rovinj, average sea level per year


If we keep our current carbon path
(3°C global warming)
Google Earth
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If we sharply cut carbon pollution
(1.5°C global warming)
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Pula


If we keep our current carbon path
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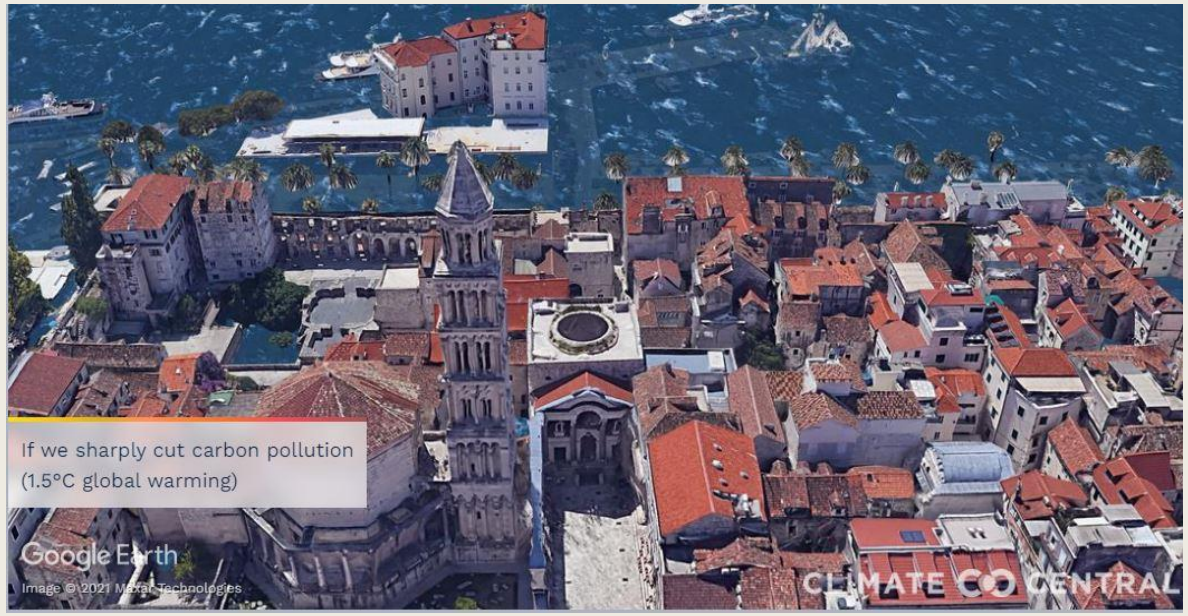
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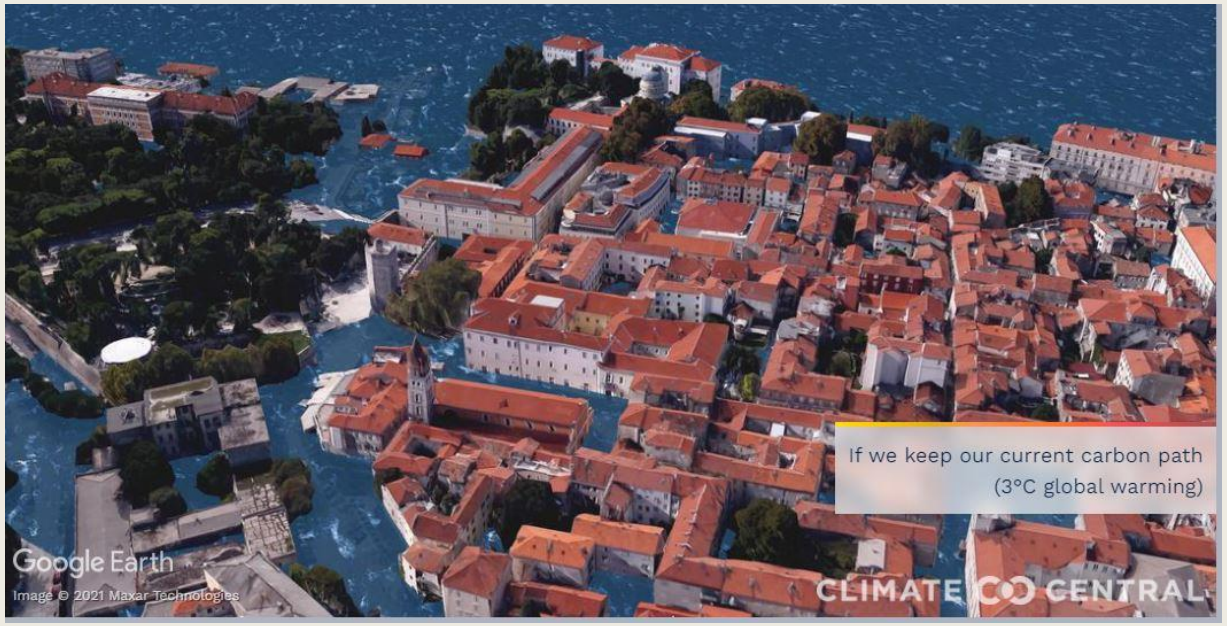
Split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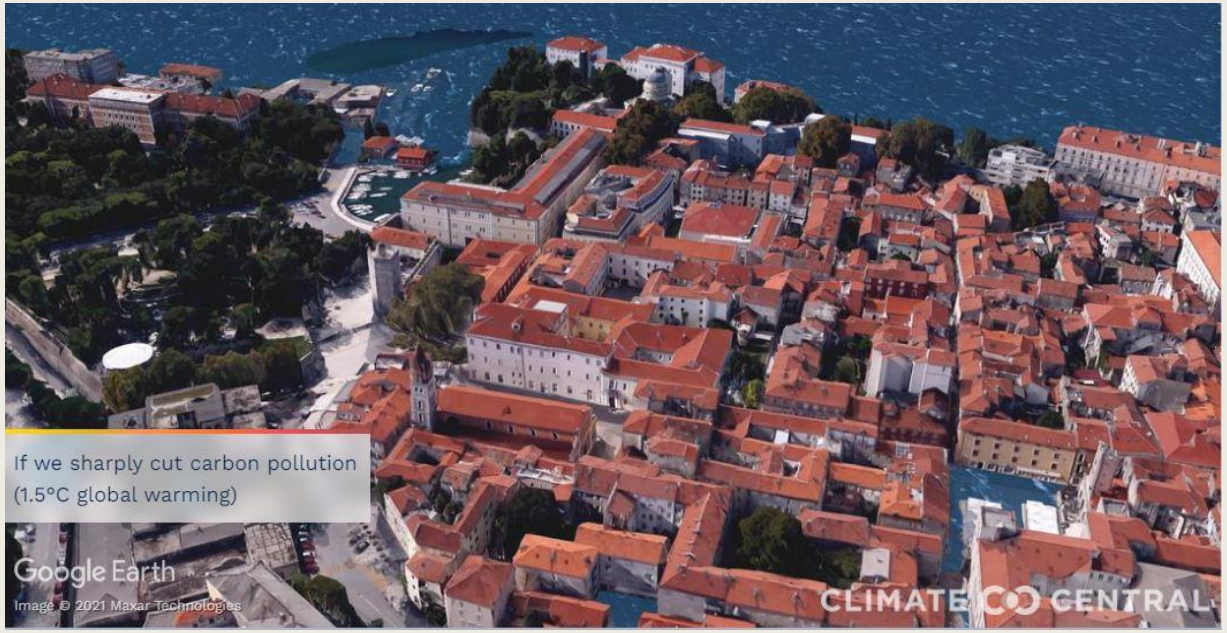
Zadar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The Sea Level in Geological History

-Global sea levels, as well as Adriatic, has risen by 120 m after the last Ice Age

-In the last 140 years it has been rising, on average, by 1.6 mm per year

-With the new IPCC’s research it has been predicted that by the year 2100 it will rise by between 62 and 238 cm

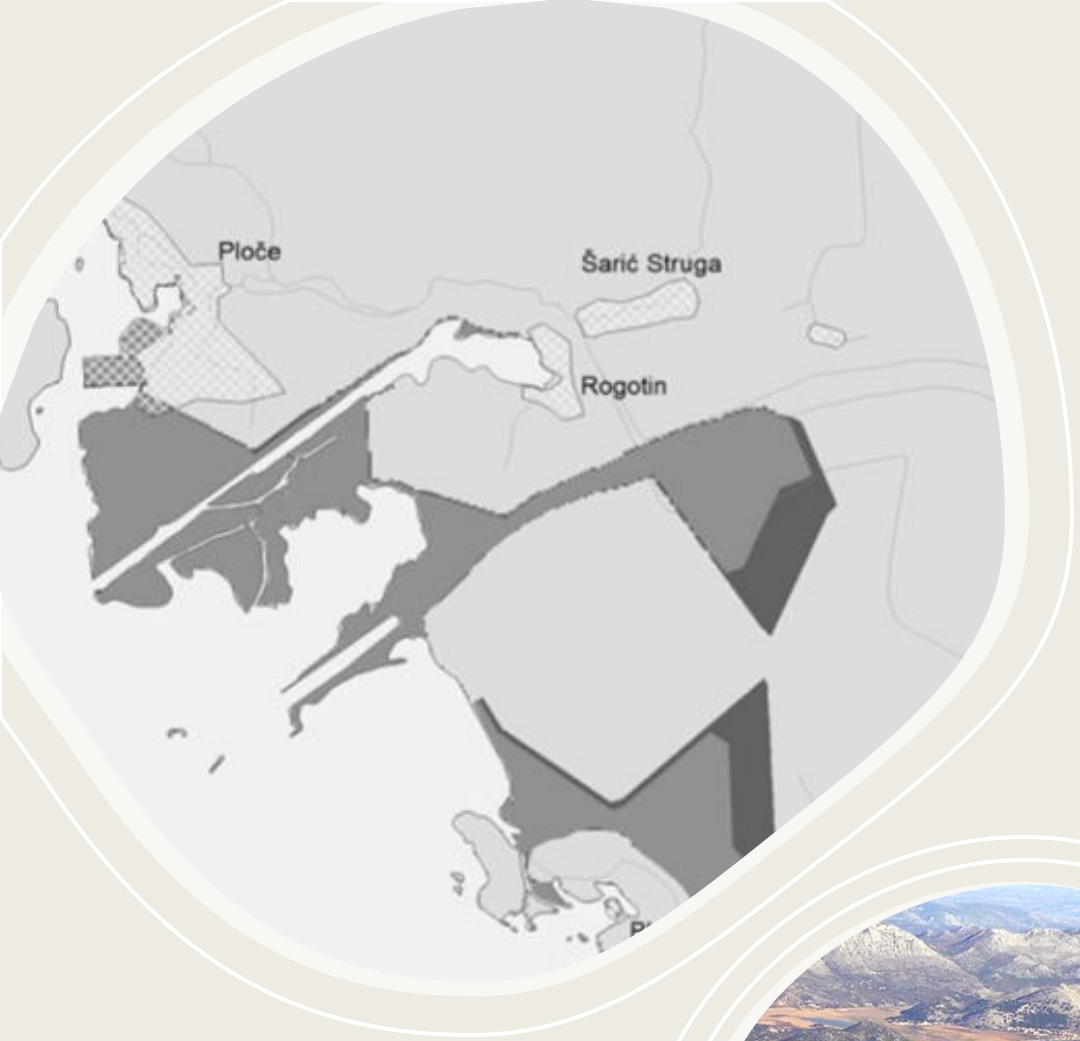
-endangered species: Adriatic sea coast, like nature park Vransko jezero (lake Vrana) which is rich with extreme biodiversity, so the ecosystem could be harmed if the coasts got permanently flooded

- people that live on islands or close to the sea would be forced to leave their homes



-endangered tourism: the sea level rising will have direct consequences (tourist destinations will be harmed and most of them are filled with rich culture) and indirect (expenses for building new hotels, polluted rivers and disruption of the sewer system)-if tourism got damaged, so would the Croatian economy

-generally negative influence on the progress of Croatian coastal areas (especially around Krka and Neretva): with the previously mentioned expenses that would come from tourism, migrations and river pollution, the development of Croatian coastal towns would be severely slowed down.



The river delta Neretva after the rise of sea levels:
- 0,5 metres (light grey)
- 0,88 metres (dark grey)

Intersectoral and international influences

- A lot of rivers which flow through Croatia are multinational→international and intersectoral cooperation

Example:

- Neretva has the biggest foreign influence in Croatia
- the compensation costs (>30€/m2) of valley of Neretva won't be taken into consideration during the damage calculations (EEA)

The river delta Neretva

Addressing the problem regarding the rise of sea levels

- Enough time to study and adapt to the newly found situation

The plans to protect coastal areas:

1. A detailed map of the physical characteristics of the coast
2. The infrastructure and economy of the endangered areas

The rise of sea levels in Rijeka after a storm

The availability of information regarding the rise of sea levels

Collecting as much data as possible and the monitoring of any changes in sea levels is necessary for further planning.

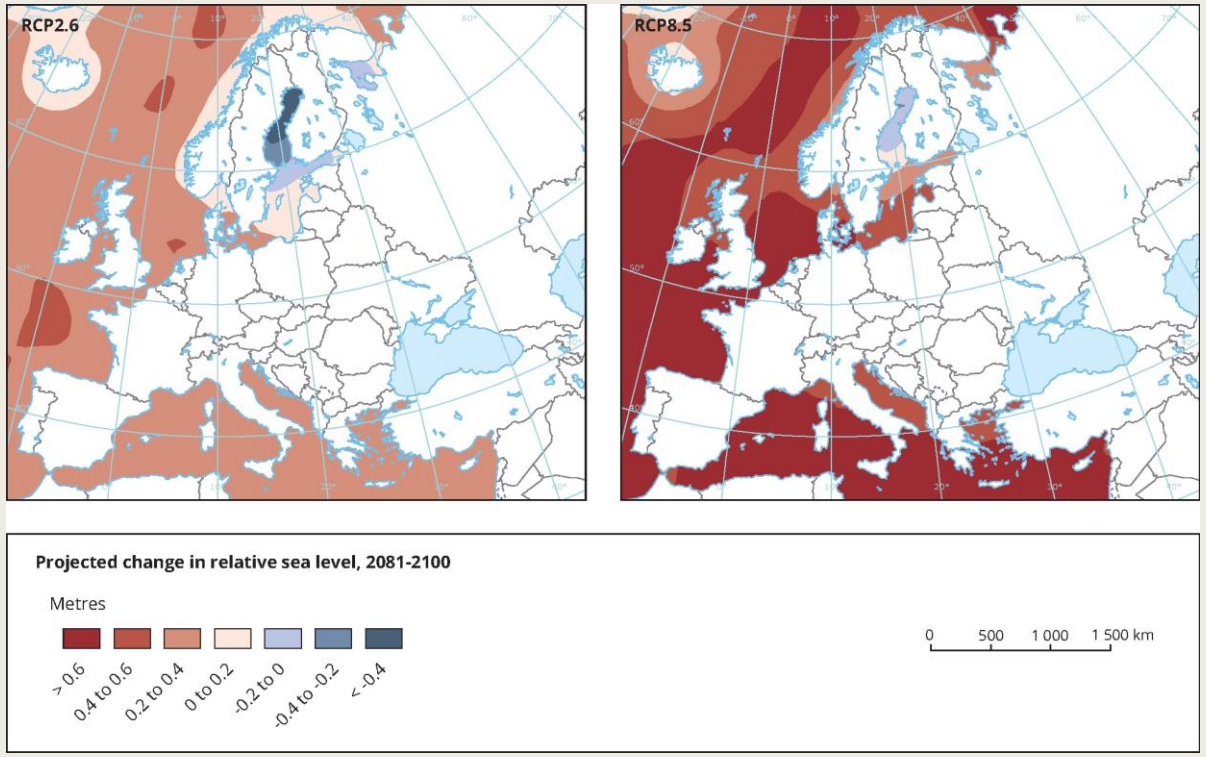
There are several institutions in Croatia that deal with that like the Hydrographic institute in Split, which owns 7 tide gauges.

The project Tides and the sea level of the Adriatic on-line which grants everyone access to information regarding sea levels.

In 1997. they commenced Project Adriatic in cooperation with the Institute for oceanography and fishing.

That collected data should be placed, and later on used, in the institution for Integral Management of Coastal Areas (IMCA), but Croatia doesn’t have that type of institution i.e., it is not operational.

We need to keep in mind that inaction is more expensive than action!



Available technological options

The relatively longer amount of time that’ll pass until sea levels rise is good due to three reasons:

1. The citizens and the Government have enough time to manage around the problems that they’re facing with.
2. It allows for work and studying to continue and therefore lower the number of big ventures that later prove to be unprofitable due to wrong predictions.
3. The changes won’t be hasty, but rather gradual.

Project CCWater5 has analysed the change of climate conditions that could have an effect on water resources in the space spanning from Austria to Greece in a time span concluding with the year 2100.

Project DRINKADRIA also observed the effect that climate change has on water supplies, but in the time pan concluding with the year 2050. This project has included the countries that are close in proximity to the Adriatic Sea

Thank you!