

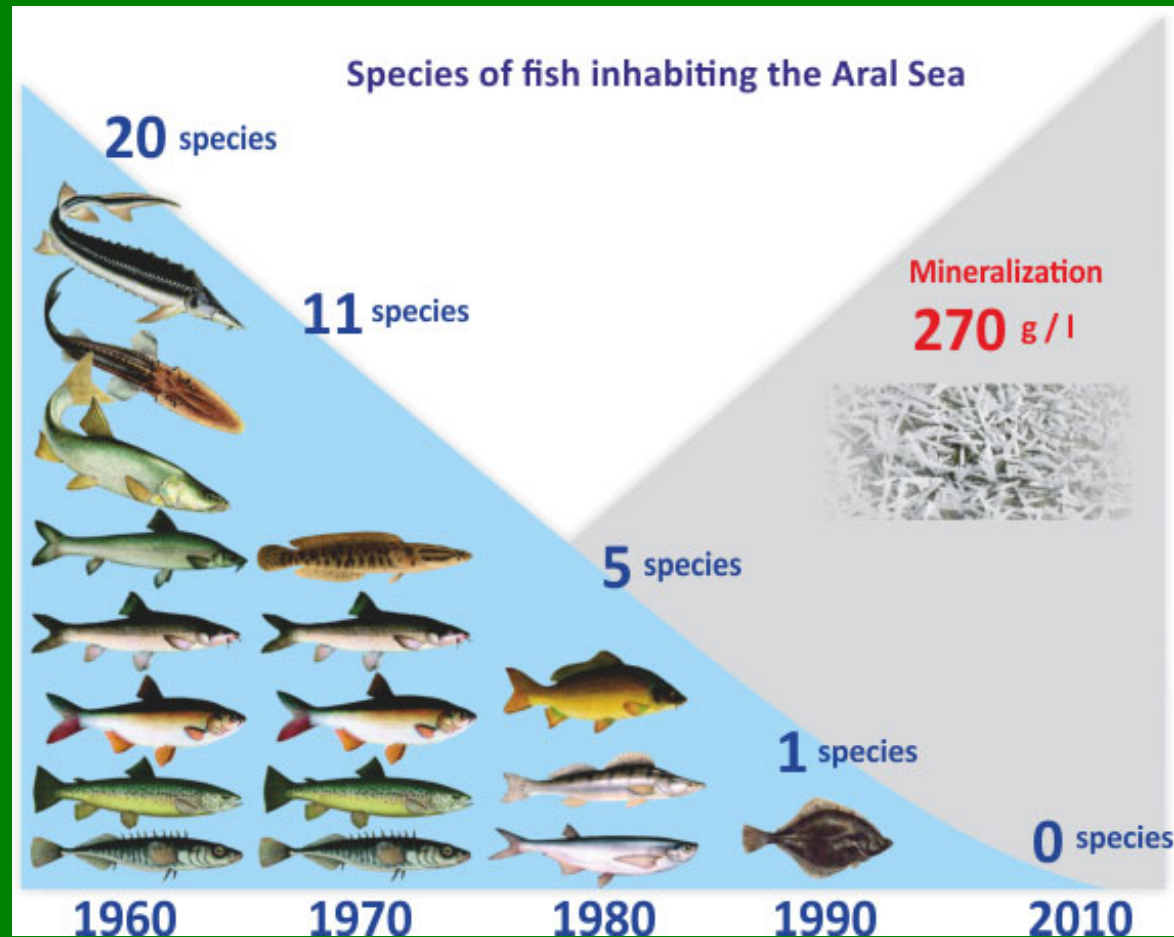


Effects of the Shrinking Aral Sea on Artemia Population and Local Livelihoods

Prof. Dr. Naser Agh
Artemia and Aquaculture Research Institute,
Urmia University, IRAN



Aral Sea Fishing Industry and People's Livelihood



- Before 1960 the Aral Sea had a thriving fishing industry, which in its heyday employed some **40,000** and reportedly produced **one-sixth** of the Soviet Union's entire fish catch.
- In 1960, the fishing catch amounted to **43,430 tons**.

Dying Aral Sea, Dying Economy

- Especially, the town of Moynaq in Uzbekistan, which once had a busy harbor and a thriving fishing industry employing around **30,000 people**, now lies **many kilometers** from the shore and the people remained **jobless**.



What is happening in Aral Sea now?
Aral Sea continues to shrink
Over 1000 Km² reduction in area in 10 years

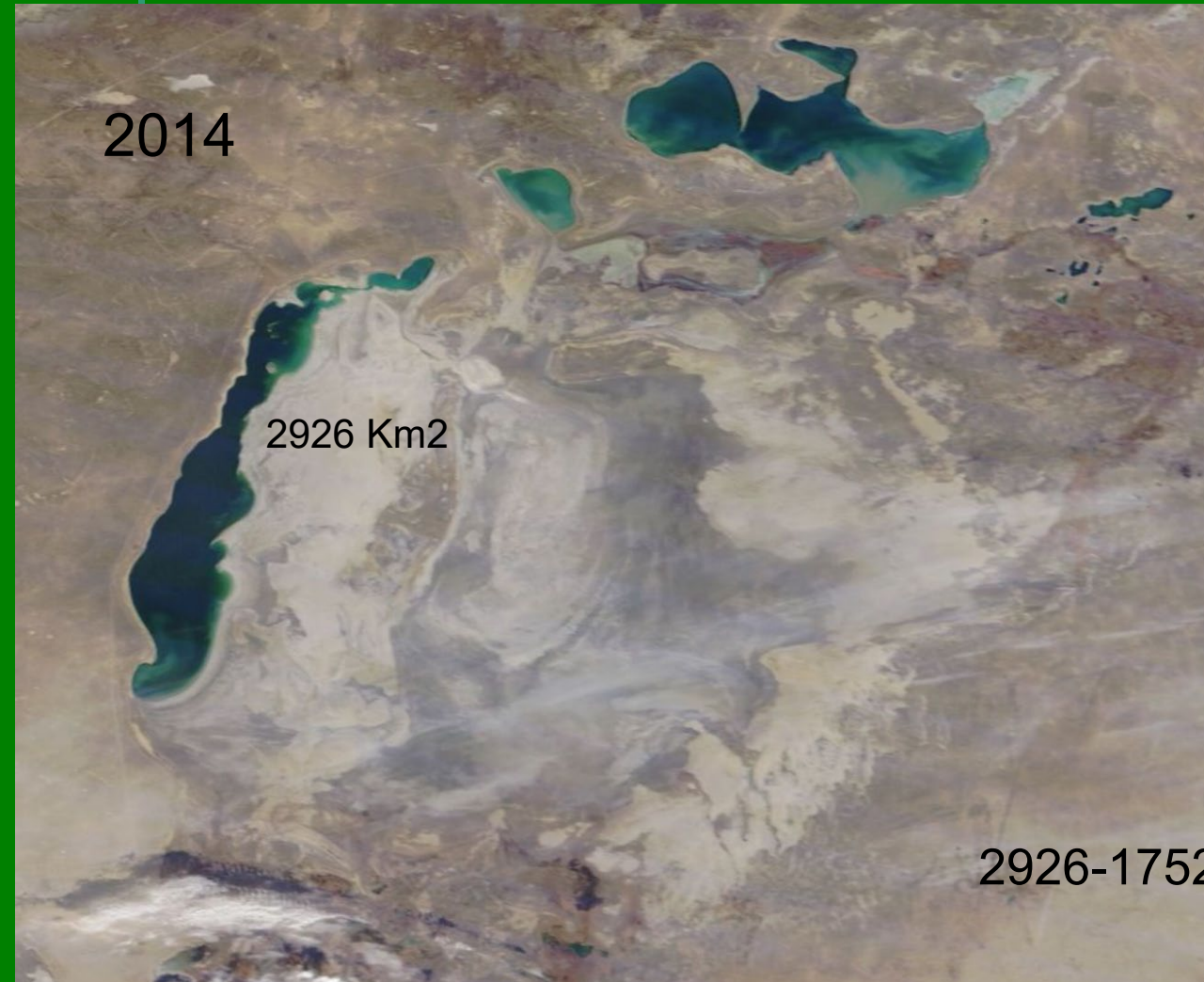
2014

2926 Km²

2024

1752 Km²

$2926 - 1752 = 1174 \text{ Km}^2$

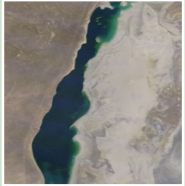


Shift of Fish Industry to Artemia Industry



How Nature finds its way to help the people?

**Nature never vanishes but transforms and adopts to new situation.
Nature always tries to preserve itself by connecting different natural elements.
Nature always supports the wellbeing and livelihood of people,
But human being has always been aggressive to nature,**



Shrinkage of the Aral Sea resulted in increase in salinity and a new ecosystem was established.



Thanks to Flamingos, having the worldwide role in natural distribution of Artemia.



Flamingos carried Artemia cysts from far away to inoculate drying and dying Aral Sea

Annual Catch of *Artemia* Cysts from Aral Sea



The brine shrimp *Artemia parthenogenetica* appeared in the Aral Sea in 1998 when salinity reached 63 ppt.



The fishermen of Muynaq started gathering, processing and selling artemia cysts since the early 2000.



Harvest of wet *Artemia* cysts from Western Aral Sea has varied from 2000-3000 tons annually.

Role of Aral Sea Artemia in World Aquaculture Industry

Currently over 4000 tons of processed dry Artemia cysts are used in Aquaculture Industry worldwide.

Aral Sea contributes about 1000 tons.

If Aral Sea dries, Artemia production will cease, and the world Aquaculture Industry will face a very big problem.

Moreover, thousands of people in both industry will lose their jobs

SIMILAR CRISIS IN LAKE URMIA - IRAN



Resource Assessment of Artemia by Prof. Sorgeloos and his team
3000 tons of Artemia cysts and 300,000 tons of Artemia Biomass

Effects of drying on Lake Urmia Ecosystem

Death of Artemia



**Formation of Salt
Deserts and Storms**



October 2024

Death of Birds



Death of Mammals



It is essential to preserve the Aral Sea and Urmia Lake

Saving	Saving	Saving	Ensuring	Ensuring
Saving natural heritages for future generations	Saving the Artemia species from extinction	Saving humankind from poverty and hunger	Ensuring jobs and livelihood of local population	Ensuring income for millions of people engaged in Artemia and Aquaculture Industry

Thanks for your attention•

