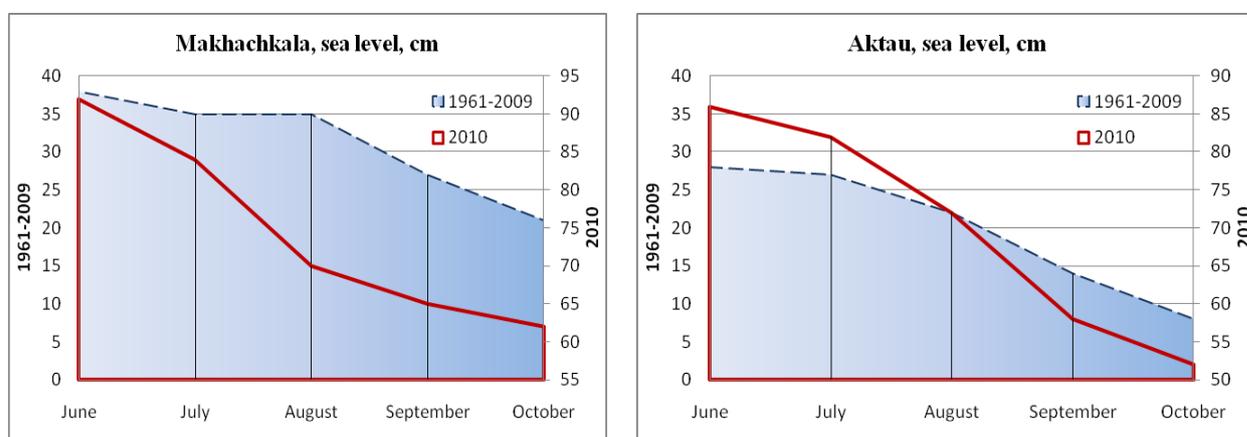


# COORDINATING COMMITTEE ON HYDROMETEOROLOGY AND POLLUTION MONITORING OF THE CASPIAN SEA (CASPCOM)

## Information bulletin № 1

According to the data of national hydrometeorology services of the Caspian states, abnormal seasonal decrease of the Caspian Sea level was registered in the second half of 2010. The decrease exceeds mean value for the past 50 years by 1.5 times.

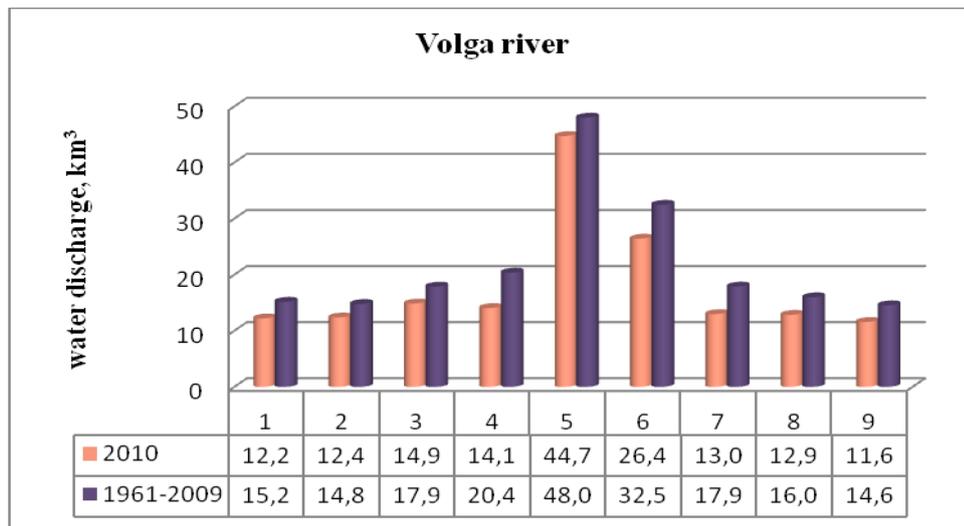
After the Volga flow was regulated in the middle of the past century, average seasonal decrease of the sea level at most coastal posts amounted to 15-20 cm. In the period from June to fell by 30 cm (according to Roshydromet data), and at the eastern coast (Aktau) the decrease amounted to 34 cm (Kazhydromet data). Figure 1 shows that the rate of seasonal sea level decrease in 2010 significantly exceeds that of the period 1961 – 2009.



**Fig. 1** Seasonal sea level decrease at the western and eastern coasts of the Middle Caspian in 2010 compared with long-term data.

According to Azhydromet data, sea level fell by 32 cm at the Azerbaijani coast of the South Caspian in the period June- October; Caspian national research and study center reports a 31-cm decrease at the Iranian coast. Seasonal decrease of the sea level amounted to 32 cm in the western part of the North Caspian (Tyuleniy island, Roshydromet data), and to 44 cm in the eastern part (Kulaly island, Kazhydromet data).

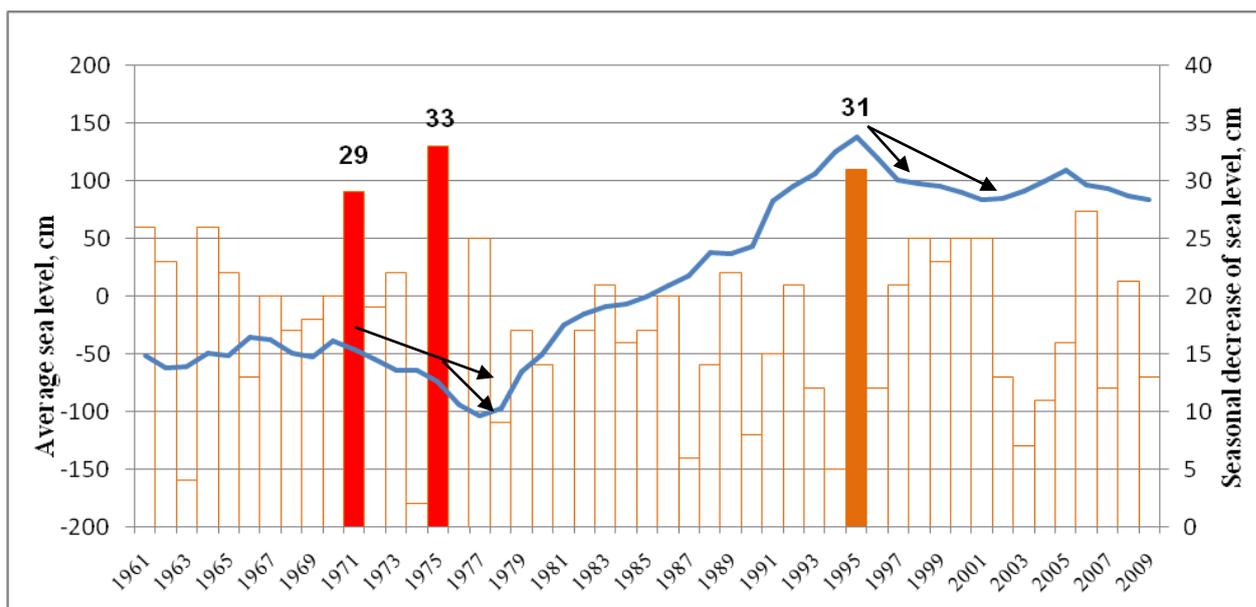
Sharp seasonal decrease of the sea level was caused by abnormally hot and dry summer in the Caspian region, and low water content of the Volga River. Only a third of average precipitations amount fell at the western coast of the Middle Caspian, and average air temperature exceeded normal by 3 degrees. Figure 2 shows that the water content of the Volga River in 2010 was below normal. The river runoff during the first nine months was by 35 km<sup>3</sup> less than usual, according to Roshydromet data.



**Figure 2** Runoff of the Volga River during the first 9 months of 2010 compared to long-term norms.

After the regulation of the Volga flow, which caused the decrease of the range of seasonal fluctuations of sea level, such alarming seasonal sea level fall was observed 1-3 times depending on the location of the posts. In particular, such fall was registered in Makhachkala in 1975 and 1995, and in Aktau in 1972 and 1975.

It should be noted that all the previous cases of sharp seasonal decrease occurred against the background of decrease of average annual sea level or preceded it, which can be clearly seen at figure 3. The decrease of average sea level the year following the sharp seasonal fall can be explained by the fact that this fall can't be compensated for within one year even if the conditions are most favorable. Seasonal decrease is not the reason of decrease of annual average level in the 2<sup>nd</sup> and following years, but it is its indicator.



**Fig. 3** Changes of average annual level of the Caspian Sea and seasonal decrease of the sea

level in Makhachkala in 1961 – 2009 r.

So, sharp fall of the sea level which occurred in 2010 shows that average annual sea level in 2011 will be at least by 15-20 cm lower than in 2010. Furthermore, we can suppose that in 2012 the sea level is sure to continue falling and will decrease by 10-15 cm. It would be possible to assess the changes of trends of sea level fluctuations only in 2013.

Taking into account that average annual sea level in 2010 is expected to make 7-9 cm, we can suppose that in 2012 the level can fall by 50 cm as compared to 2009. Such decrease of the sea level can complicate economic activities in coastal and shallow-water zones. Canals will suffer most, as their operating can require a lot of dredging. On the other hand, costs for struggling coastal erosion can be reduced.

This bulletin is aimed at local authorities, enterprises and organizations, residents of coastal areas and at everyone whose activities are linked with the Caspian Sea. The bulletin was prepared as a result of cooperation among hydrometeorology services of the Caspian littoral states. To prepare the bulletin, data of the General Catalogue of the Caspian Sea level prepared by CASPCOM have been used.