

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

**Information bulletin on the state of the Caspian Sea level**

**No.4**

**10 August 2012**

*The 16th Session of Coordinating Committee on Hydrometeorology and Pollution Monitoring of the Caspian Sea (CASPCOM) which took place on 23-24 November 2011 in Baku, the Republic of Azerbaijan, came to a decision to go on with the preparation and displaying at CASPCOM website of Bulletins on the state of the Caspian Sea level twice a year. The bulletins are to contain the assessment of actual and expected seasonal changes of the sea level taking into account the annual forecast issued by the Hydrometeorological Center of Russia.*

In accordance with the data received from the national hydrometeorological organizations of the Caspian littoral states (NMHSs) and the data published in Bulletin No.36 from 11 May 2012 issued by Hydrometeorological Center of Russia, the average level of the Caspian Sea in 2011 fell by 25 cm as compared to 2010 and measured -27.50 m B.S<sup>1</sup>.

According to the forecast published in the mentioned bulletin of Hydrometeorological Center of Russia, the average level of the Caspian Sea was expected to rise by 18 cm throughout January - June 2012, though by 12 cm lower than in the same period of the last year.

The data received from NMHSs for the preparation of this bulletin for 26 points covering the sea coastline (with the exception of the Iranian coast) show that the seasonal (January - June 2012) sea rise made 0-34 cm. The level fell by 2-15 cm as compared to the first half of 2011. The average annual rise of the sea level at century posts amounted to 12 cm, down 9 cm against the last year figures<sup>2</sup>.

According to the forecast issued by Hydrometeorological centre of Russia the average level of the Caspian Sea in 2012 will drop by 10-15 cm against 2011. The main reason for the decrease of the sea level is the low water content in the Volga river as in the previous two years.

If we consider the water discharges from the Volgograd HPS, then the Volga discharge in the high water period (April - June 2012) fell by 13% below normal<sup>3</sup>. The discharge volume in the second quarter made 98.3km<sup>3</sup> and was higher than that in 2010 by 7.2 km<sup>3</sup> and in 2011 by 21.1 km<sup>3</sup> (fig. 1).

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<sup>1</sup> To calculate the mean value of the sea level for the whole sea water area we have used observations data at "century" posts: Baku, Neft Dashlary (Oil Rocks), Makhachkala, Fort-Shevchenko, Guvlymayak (Kuuli-Mayak), Turkmenbashi (Krasnovodsk), Garabogaz (Kara-Bogaz-Gol).

<sup>2</sup> To calculate the mean level in this case we have used observations data at 4 "century" posts: Baku, Neft Dashlary (Oil Rocks), Makhachkala, Fort-Shevchenko, Turkmenbashi (Krasnovodsk).

<sup>3</sup> The normal value was calculated for the period 1961 - 1920.

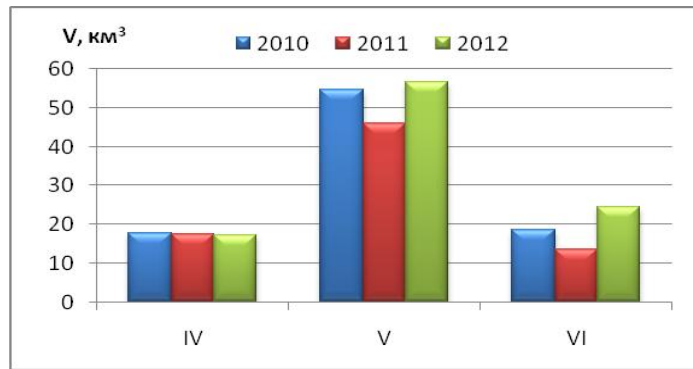


Fig. 1. Water discharges from Volgograd HPS (V, km<sup>3</sup>) throughout April - June 2010 - 2012.

The trend of the Caspian Sea level fall can be clearly traced starting from 2006. Then and throughout consecutive years the rate of sea level fall (cm per month) in the second year half was higher than the rate of sea level rise in the first year half. On average, the rate of sea level fall in the period 2006 - 2011 from July to December was 5 cm a month. In 2010 it made 7 cm a month and in 2011 - 4 cm a month (fig. 2).

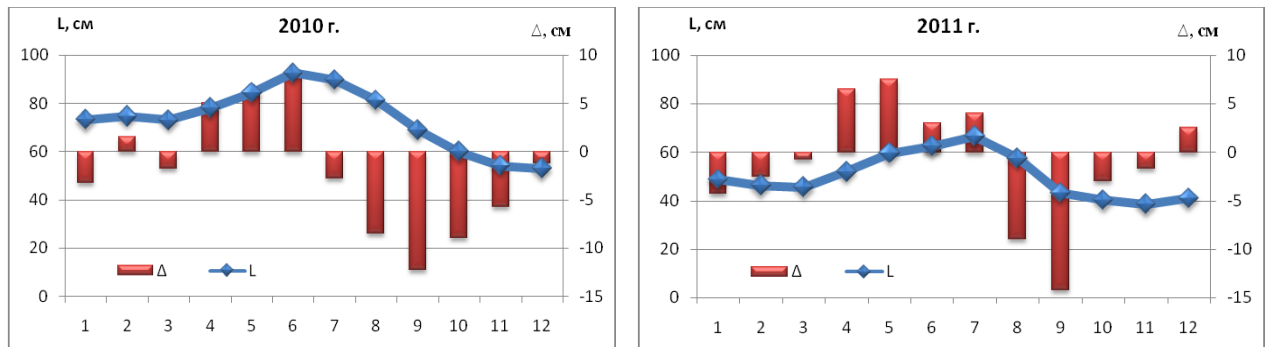


Fig.2. Seasonal changes of the average Caspian Sea level (L, cm) and its monthly increment (Δ, cm) in 2010 and 2011

Judging by the actual water content in the Volga river and the dynamics of the sea level in the first half of 2012 we can suppose that the rate of sea level fall in the second half of 2012 will be close to average values observed throughout 2006 - 2011, making about 5 cm a month (fig. 3).

If we base upon these figures, then the average level of the Caspian Sea in 2012 will fall by 13 cm as compared to the previous year and will make -27.63 cm B.S. This mark is significant, as it is **by 1 meter beyond** the highest sea water level mark reached in 1995 after the sea level rise ongoing for 17 years.

Some researchers still refer current years to this period considering sea level fluctuations in 1996 - 2011 as random. A 1 meter sea level fall can hardly be considered as random fluctuations, as such a decrease has been felt by marine economy and the Caspian Sea ecosystem (fig. 4). This sea level fall should be accounted for by all entities planning to operate in the Caspian in the nearest future.

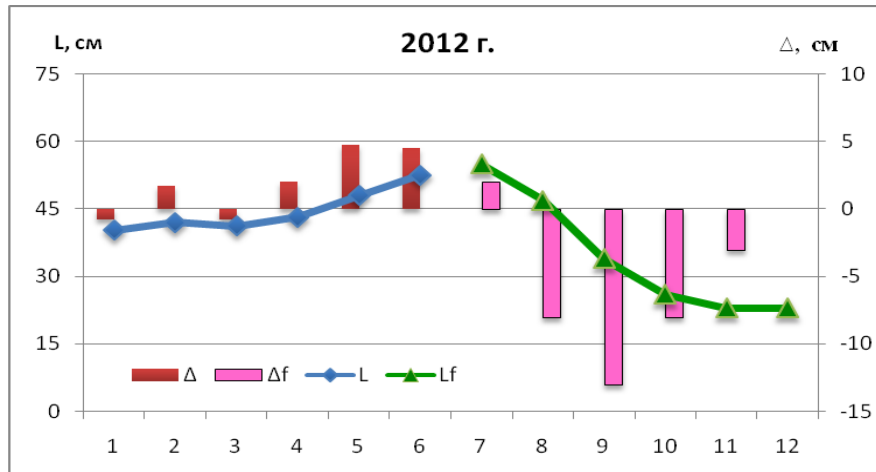


Fig. 3. Seasonal changes of the average Caspian Sea level (L, cm) and its monthly increment ( $\Delta$ , cm) in 2012 (actual for the first half of the year and forecasted for the second half).



Fig.4. The expanding overgrown area in the shallow part of the coastal water of the Volga delta caused by the fall of the sea level (photo by L.F.Nepomenko).

*This bulletin is intended for the authorities, enterprises and organizations and coastal communities as well as for all whose activities are connected with the Caspian Sea. . Its preparation became possible only due to the cooperation of hydrometeorological organizations of the Caspian littoral states. The data of the General Catalogue of the Caspian Sea level elaborated under CASPCOM umbrella were used to compile the bulletin*