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Newsletter no.10

The State Of The Environment On The Turkey Coast

Project title: *''Leave your Environmentalist Spirit Online for the Black Sea Basin'' - Spirit BSB online*

The project consortium consists of 4 parteners:
LP Coordinator - ***Association for the Protection of Human Being and Environment for a Sustainable Development in the World-ECOM, Romania***
P1- ***Sinop University, Sinop, Turkey***
P2-***Chamber of Agriculture of Trabzon, Turkey***
P3-***International Center for Social Research and Policy Analysis in Tbilisi, Georgia***.

According to the Project Implementation Plan, within the activity ***T2.1 Development of "Pollution and solutions in BSB - Manual for everyone"*** we made a manual. This manual contains several topics. Through these newsletters we present these topics. Today we choose to present you:

The State Of The Environment On The Turkey Coast

The main area of Turkey, known as Anatolia, is in Asia while Turkish Thrace, representing about 3% of the nation's total area, is in Europe. Its capital is Ankara, and Istanbul is the largest city. About 80 million people live in Turkey. One of the most critical developments of the last decades, as critical as the population explosion, is the vast shift of population from the countryside to the cities.

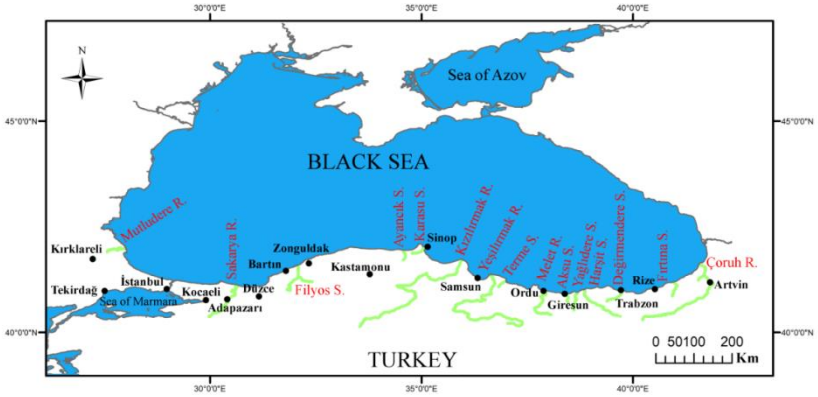

Figure 1. The Black Sea coastal towns and major rivers (Bat et al., 2018)
According to Turkish Statistical Institute (TURKSTAT, 2016)

Sinop: The population of 2015 is 204,133 people in Sinop. In 2014, average amount of waste per capita is 1.41 kg / person day and the amount of municipal waste collected is 57,592 tons / year.

Rize: The population of the year 2015 is 328,979. In 2014, average amount of waste per person is 0.97 kg / person days and the amount of municipal waste collected is 78,516 tons / year.

Trabzon: The population of the year 2015 is 768,417. In 2014, average amount of waste per capita is 0.67 kg / person day and the amount of municipal waste collected is 186,260 tons / year.

Giresun: The population of 2015 is 428,686. In 2014, the average amount of municipal waste per capita is 1.12 kg / person-day and the amount of municipal waste collected is 112,929 tons / year.

Ordu: The population of 2015 is 728,949. In 2014, the average amount of waste per capita is 0.8 kg / person days and the amount of municipal waste collected is 186,064 tons / year.

Samsun: The population of 2015 is 1,279,884. In 2014, the average amount of waste per capita is 0.93 kg / person days and the amount of municipal waste collected is 369,816 tons / year.

Kastamonu: The population of the year 2015 is 372,633. In 2014, the average amount of waste per capita is 1, 72 kg / person day and the amount of municipal waste collected is 129,901 tons / year.

Zonguldak: Population of 2015 is 595,707. In 2014, the average amount of waste per capita is 1.21 kg / person day and the amount of municipal waste collected is 183,989 tons / year.

Bartın: The population of 2015 is 190,708. In 2014, the average amount of waste per capita is 1.3 kg / person day and the amount of municipal waste collected is 41,393 tons / year.

Düzce: Population of 2015 is 360,388. In 2014, the average amount of waste per capita is 1, 49 kg / person day. And the collected municipal waste amount is 122,298 tons / year in 2014.

Sakarya: The year 2015 population is 953,181. In 2014, the average amount of waste per person is 1 kg / person day and the amount of municipal waste collected is 339,826tons /y .

Kocaeli: The population of the year 2015 is 1,780,055. In 2014, The average amount of waste per capita is 0.91 kg / person day and the amount of municipal waste collected is 573,414 tons / year.

İstanbul: The population of 2015 is 14,657,434. In 2014, the average amount of waste per person is 1, 16 kg / person day and the amount of municipal waste collected is 6,064,688 tons/year.

Kırklareli: Population of the year 2015 is 351,684. In 2014, the average amount of waste per person is 1.3 kg / person day and the amount of municipal waste collected is 129,801 tons / year.

Tekirdağ: Population of the year 2015 is 937,910. In 2014, the average amount of waste per person is 1.2 kg / person day and the amount of municipal waste collected is 396,813 tons / year.

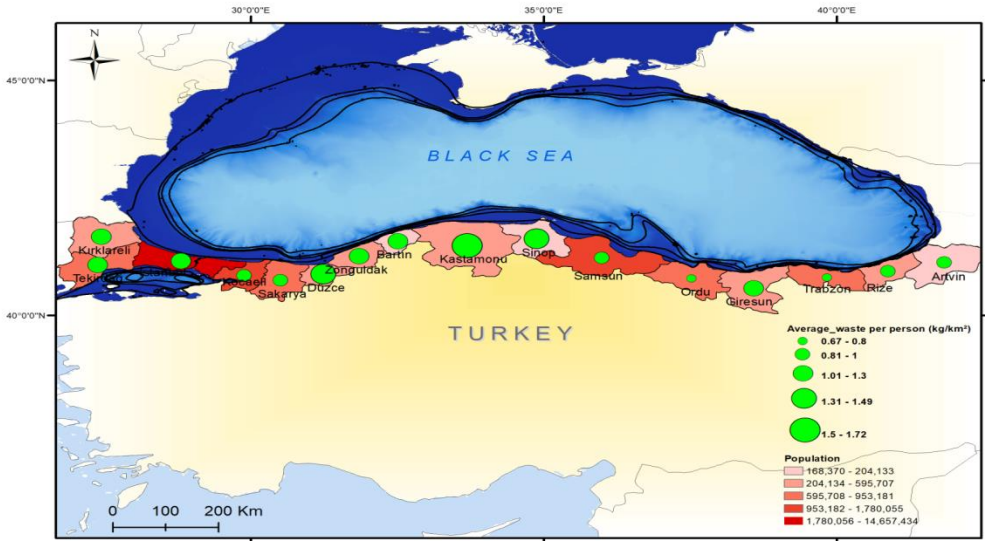

Figure 2. Population and waste situation of the Turkish Black Sea coasts (data taken from TURKSTAT, 2016 dataset map from Bat et al., 2018)

Biomonitoring of the Black Sea contamination

Being semi-enclosed, and often having slow rates of water renewal, the Black Sea does not have the same cleansing capacity as the open oceans. Until recently, several tottered on the brink of ecological disaster as a result of industrial and municipal discharges, direct dumping from ships, oil pollution and agricultural run-off (Figure 6). The Black Sea is one of the largest areas of brackish water in the world, eutrophication, combined with industrial pollution, has so degraded the marine ecosystem (Zaitsev and Mamaev, 1997; Zaitsev, 2008). Because of its high rates of slow rate of water renewal, the Black Sea is particularly vulnerable to pollution, the contaminants tending to accumulate without degrading. Industrial pollution, particularly from rivers, mining and the dumping of dredging and industrial waste, has also wrought havoc with the fragile ecosystem of the region. Pollution is usually associated with anthropogenic activities, but how does it affect the aquatic environment, for the biota that live in it?

Researches in the Black Sea revealed that human inputs discharge from sewers as well as industrial discharges directly into the rivers and the sea (Bakan and Büyükgüngör, 2000; Bakan and Özkoç, 2007; Altaş and Büyükgüngör, 2007; Bat et al., 2009). Aquatic pollution may be defined as to cover a multitude of human activities that in some way degrade the environment, from unsightly rubbish tips to the less obvious addition of chemical and organic waste to rivers and seas. There are many different types of pollution that change the living potential of an aquatic ecosystem. Using water for cooling changes the temperature of the water and warm water holds less oxygen than cold, creating a problem for the aquatic organisms. It may also affect the life cycle of the organisms that are dependent on a temperature stimulation to start reproduction or tolerance (Bat et al., 2018).

Chemical waste may be added by factories, changing the pH of the water as well as its mineral composition. But by far the major sources of pollution in the rivers are detergent and organic waste from domestic and farm sewage. Biggest freshwater supplies of the Black Sea came from the north shore (Borysova et al., 2005). River Danube, Dnieper and Dniester are the major rivers flowing into the Black Sea, Danube being the most pollutant one. Wastes from the European countries carried by the Danube and pollutants carried by rivers flowing through Russia and Ukraine to the Black Sea have been cited as playing a very big role the increase of the metals in the Black Sea (Zaitsev and Mamaev, 1997; Zaitsev, 2008).

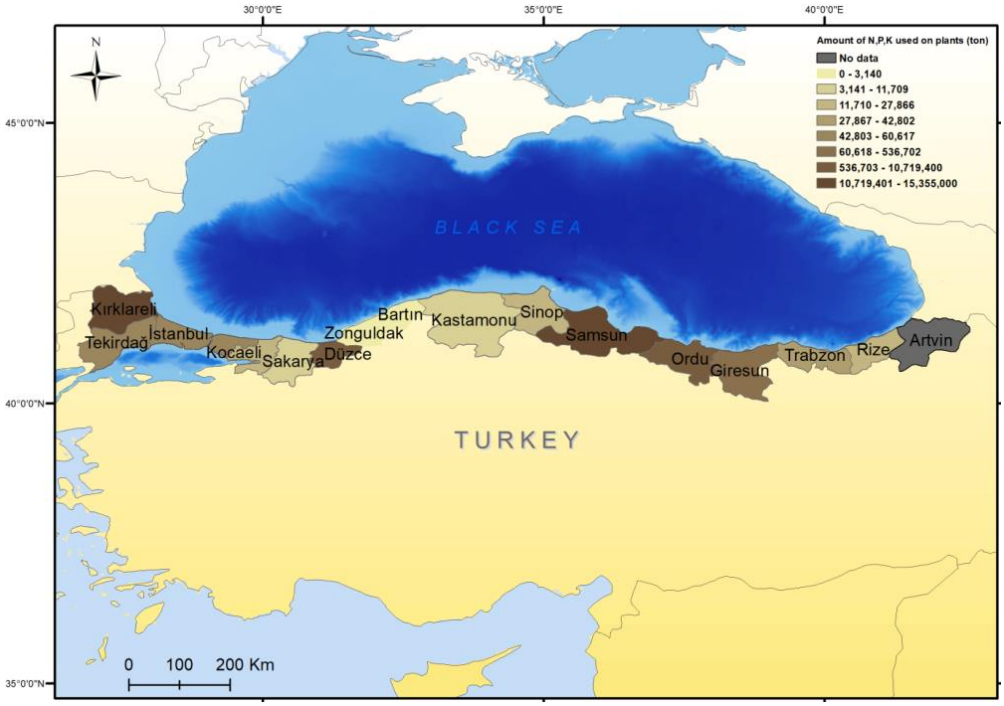

Figure 3. Amounts of Commercial Fertilizer Consumption (N, P and K on Plant Nutrient Substance) in the Turkey Coasts [data taken from Ministry of Environment and Urbanisation (ÇŞB, 2016)]

The prime effect of organic pollution is nutritional, causing an increased population of detritus feeders, scavengers and bacteria that break down organic material. These use much more oxygen for respiration, the oxygen level is lowered, and the stream can no longer support the populations of biota with a great oxygen requirement. Major rivers that become so continuously polluted in this manner first change the structure of those hot spots when they discharged into the Black Sea. The balance of the system has lost and the more sensitive fauna disappear. It might be seemed that plants would be all the more plenty for the increased organic content in the water, but it also causes instability in this place and the more sensitive plants disappear. An additional effect of domestic sewage is the increase in oxygen deficiency of the water. Even the opportunistic species become abundant at the expense of others. The large effect of organic pollution is to compose an imbalance in the environment which changes the competitive status of the species living in it, so that a few species become abundant and those that are characteristic of the ex-community disappear. Thus, there is always a lowering of the species diversity of a habitat when pollution occurs. Most of the evidence for changing fauna will be found in the benthic organisms. As organisms will also vary according to the type of deposit on the bed it is necessary to sample each bottom type at any sample point (Bat et al., 2018).

Marine ecosystem is threatened by oil spillages, the disposal of domestic, agricultural and industrial waste, including the discharge of pesticides, warm water and heavy metals. The sea has long been regarded as a bottomless dustbin into which man can throw all his rubbish in the belief that it will disappear. As the population throughout the Black Sea coast has increased, and the communities have grown more affluent, it has become clear that the sea cannot absorb all the rubbish. In this case it causes radical changes in the Black Sea (Bat et al., 2018).

For more informations please visit our website https://www.spiritbsb.online/.

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