

Abstract

Human performances on the rivers have been long time taking place, and to the present time the sense of these performances was to improve the life quality for these people who lived or used the riversides (that is: avoiding floods, making parallel routes of communication to the channels...). On the other hand, lately it seems that an environmental conscience has awaked. These two aspects (the river works and the environment's respect) are those that are going to lead this work: we are going to try to see how these performances affects to the natural state of the river, concretely we will be centered in seeing how the construction of the Autovía del Baix Llobregat (1998) has interfered in the Llobregat river when this one acts like a floods limit. Basically, the aspect that we are going to study is the stability of the river, that is to say, if the performance has leaded to an erosion or accretion. Analyzing a priori this case, and observing the effects on the river, it is evident that stability has been translated in an erosion of the channel, rather: the river's state the construction of the railcar was not stable, which has taken to a progressive erosion until the present situation.

In the study, after giving information on the location of the study section and on its recent history, we are going to try to find all the parameters that govern the stability, that is, the morphology of a river. These parameters we will calculate from diferent information (topographic maps, historical volumes registries, water gauge stations registries, granulometric tests previous to the study and also done specifically for the study). These parameters necessary to evaluate the stability of the river are, basically, the following ones: the dominant volume (considered by different methods), the river's geometry (cross section -depth of water and wide- and longitudinally -slopes-), and channel's granulometry.

In addition to the previous parameters (all of them are lasting in the time), we will treat a punctual fact: the June10, 2000 flood (1425 m³/s), because it could be the responsible of the erosion which nowadays we observe.

Therefore, with all the data that we have calculated, we will be able to evaluate the stability of the channel, primary aim of the work. For it we will use different methods: Slope of balance, Theory of the regime, Calculation of the erosion, Calculation of solid transport. As result we will obtain the assumption that we have already done: the erosion that today we observed it is due, in an important proportion (order of 50%) to the June 2000 flood. Also we will state that, according to all the methods, the situation in which the river was left after the construction of the railcar was totally unstable, and that the only exit of such situation was the erosion of the channel to look for a situation of stability with the parameters that the man has imposed. This situation of stability, according to all the used methods, has not arrived yet. So we must think that the erosion will continue increasing, coverall if new episodes of floods (like June 2000 flood) take place.

Thus, after observing this work, a new objective appears like part of him: the necessity of doing studies of channels stability, before making a work that can interfere with the river.