



Nearshore Dynamics of Nutrients and Chlorophyll During Mediterranean Type Flash-Flood Events

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A five year-long study (2005-2010) in the Bay of Banyuls-sur-Mer (France, NW Med) assessed the nutrients inputs from a local intermittent river draining a wine-growing basin. The response of the nearshore planktonic ecosystem was also monitored during the two weeks following flooding events. Flash-flood river load were enriched in dissolved inorganic nitrogen which diluted conservatively at sea. In contrast, phosphates sea concentration immediately after river flooding were much larger than expected from the limited phosphates river input. During the few days following river flooding, pre-existing phytoplanktonic communities collapsed and alkaline phosphatase activity of fractions below $2 \mu\text{m}$ dominated, most probably based on organic phosphorus river inputs. After this period, planktonic ecosystem rebuilt and a peak of Chlorophyll a was observed, which vanished in the next week, as is observed regularly in long-term weekly monitoring data. Such dynamics of nutrients and chlorophyll suggest Mediterranean type flash-flood event associated to wine-growing basin most likely first stressed the marine planktonic system but enabled a delayed bounce effect with phytoplanktonic bloom.