Riverine inputs to the coastal zone - fresh water and sediment as well as nutrients - are critical to many coastal ecosystems. However, during the last half century, rivers are more and more regulated, and their inputs to the coastal sea reduced. In semi-arid countries like Morocco, where dams are promoted as an important means of meeting existing and future needs for water and energy services, impacts on the coastal ecosystems could raise a doubt on the long-term benefits of these dams. Damming and water abstraction and the resultant environmental impacts on downstream and the coastal ecosystems are reviewed in some Moroccan river catchments using records and forecasts of hydro-climatic and land-use change. While reducing the impact of periodic extreme flood events, the construction of large dams is likely to have a negative impact on the coastal ecosystems and the communities that they support, by altering seasonal flooding that is critical to the maintenance of floodplain agriculture, fisheries, pasture, and forests. Changes include not only major reductions in the quantities of water and sediment transported to the coast, but also changes in temporal patterns of delivery of those fluxes, soil salinization and saline intrusion, rechanneling of river beds, and changes in coastal geomorphology. Together these impacts are impacting adversely on downstream and coastal biodiversity and the populations supported by the riverine and coastal wetland ecosystems. Little is known of the ways in which catchment-to-coast systems may respond to further damming and abstraction in the context of climate change.