Dredge Plume

Introduction

Dredge plumes originate from the spillage of dredged material. Especially fine sediment can stay in suspension for a long time and cover wide areas. One of the environmental impacts of dredging plumes are the increased suspended sediment concentration levels. A high sediment concentration in the water column can have negative impact on nature. Dredge tracks can be modeled with Delft3D. The basic idea is that you introduce discharge locations inside the model domain which during certain time periods become active, resulting in an amount of discharge with a certain concentration level. This toolbox is a convenient way to define such discharge points.

Usage of the toolbox

First of all the user needs to make a Delft3D-FLOW model, with the sediment option enabled and sediment fractions defined. Consecutively modeling the dredge plumes can be done in three steps:

1. Draw a track by clicking on 'Add Track'
2. Define settings of the cycle in terms of discharge and sediment concentration
3. Generate the discharge points in the model by clicking on 'Generate!'

Figure: example of a dredge track in the ocean at West Africa