

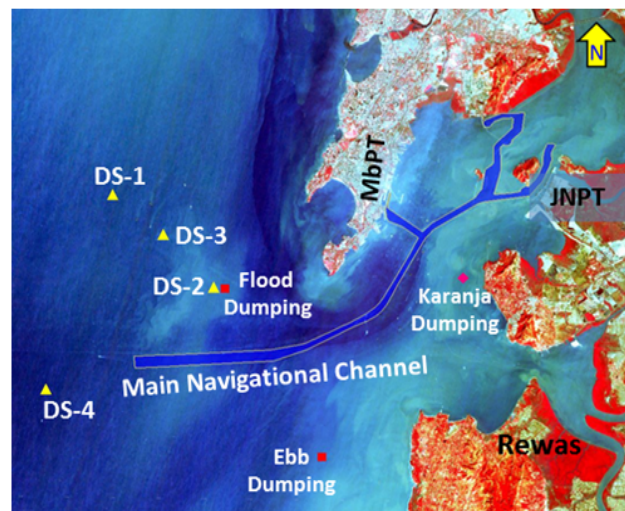
## DISPOSAL OF DREDGED MATERIAL OFF THE COAST OF MUMBAI

### Background

Mumbai being on the lee-side of Salsette Island and JN being well inside from wide entrance to the harbour, tidal phenomenon and associated siltation, governs the hydraulic design of waterfront structures rather than waves. The type of sediment in region being silty clay/clay, it is of cohesive nature. The ships docking in Mumbai harbour during pre-independence era. were navigating during high tides only (tidal range of 5 m) owing to less draft and material getting silted at berth pockets was dredged and dumped near Karanja dumping site on opposite coast of Mumbai port. After independence based on various field and physical model studies carried out by CWPRS (1958), alignment of main navigational channels and its hydraulic design (cross section) was recommended and dredged. The material dredged during capital/maintenance dredging (clay/silt) could not be used for reclamation owing its cohesive nature and needs to be disposed off in to the sea. The location of flood and ebb dumping sites were recommended based on field investigation (dispersion) and model studies carried out by CWPRS. After the development of JN port, siltation is increased due to increase in channel length/berths and dredging is carried out by grab/TSHD dredgers at berths and navigational channels respectively. After several decades, existing dumping grounds used are no more capable of accommodating dredged material (about 80 million cum) resulted due to deepening of main channel from 10.8 m to 14 m below ( channel length of about 33 km) CD in phase-I and up to 16 m in phase-II. Model studies were conducted at CWPRS to identify new safe and suitable dumping locations in deeper sea.

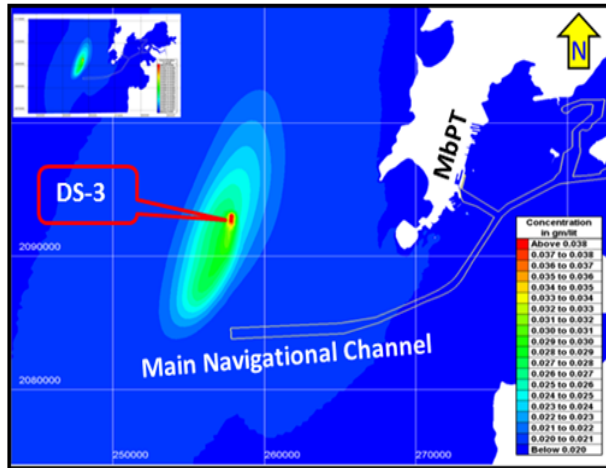
### Studies Conducted

- The field studies on various Oceanographic parameters viz. currents, Tides, float track observations, dye dispersion, suspended sediment concentration etc. were conducted for finalising flood / ebb dumping sites.
- The well-calibrated mathematical model of Mumbai was used to identify dumping locations for safe disposal of dredged material resulted during capital/ maintenance dredging of main channel in two phases (I & II) in association with field investigations and dumping at DS-3 was suggested after studying DS-1, DS-2, DS-3 and DS-4 sites



*Locations of Dumping Grounds Off Mumbai Coast*





### Outcome and Benefits

- The studies conducted reveal that the identified locations are such that the dredged material dumped at these locations during those development periods does not enter in to the navigational channel as well as it does not reach waterfront facilities/ beaches of Mumbai region. With increase in quantum of dredged material for dredging in phases, new dumping locations identified especially DS-3 is safe for the disposal of dredged material which can accommodate about 100 Million cum.

*Spread of Dredged material in model during Disposal*

