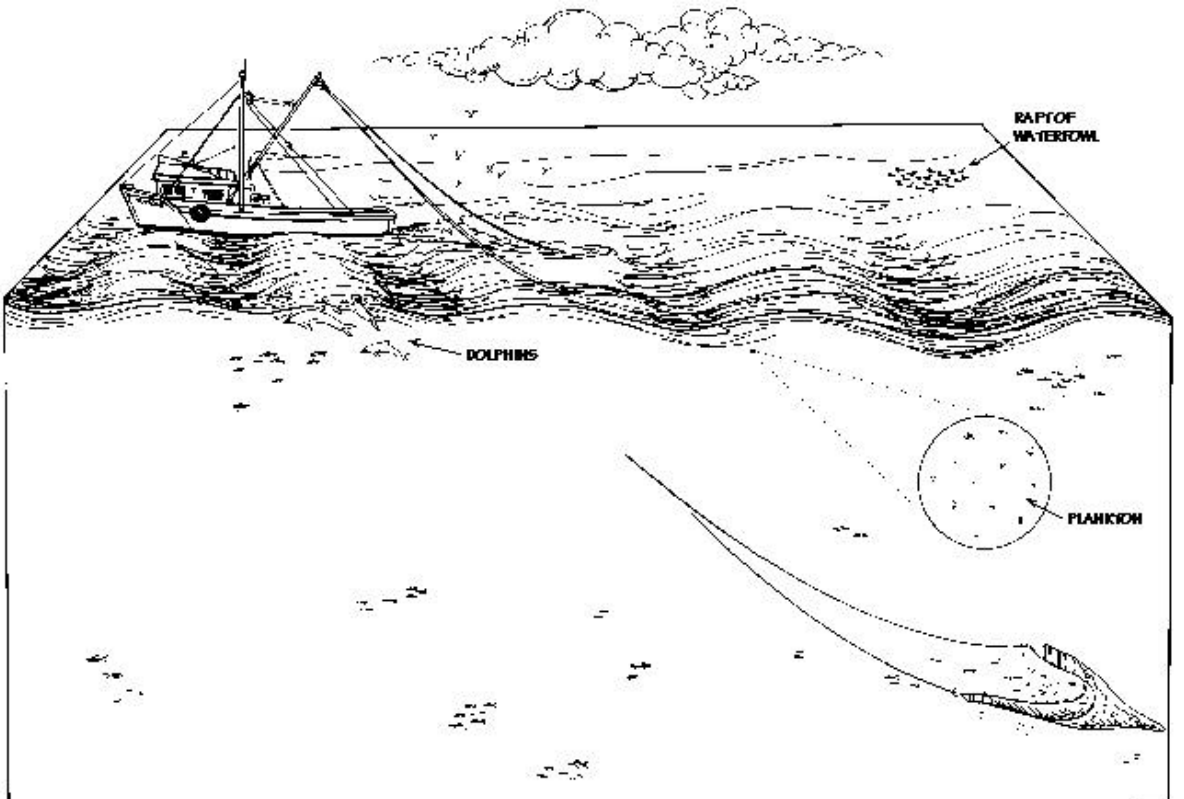

RAFT OF
WATERFOWL
DOLPHINS
PLANKTON

ON-WATER

Description

- Offshore waters are those where the water depth is > 30 feet (10 meters) with no surrounding land.
- Evaluation of environmental impacts to open water habitats is focused on water column organisms and those which inhabit or use the sea surface.
- Animals include marine mammals, sea turtles, pelagic birds, and many commercially and recreationally important fish and pelagic invertebrates.
- Organism densities in this habitat are low on average.
- Localized high densities can occur in areas such as convergence zones and upwelling areas.
- Pelagic birds are at greatest risk when large numbers are concentrated for feeding, migration, overwintering, or breeding.
- Biological resources in the water column are less vulnerable to spills than those at the water surface.
- The sea surface microlayer is important for biochemical processes; the organisms most vulnerable to exposure are poor or passive swimmers (planktonic forms).

Predicted Oil Behavior

- Spilled oil transport is controlled more by wind and ocean currents than by tides and mixing with freshwater outflows.
- Most of the soluble and toxic components of the spilled oil are lost through weathering within hours and days.
- Dissolved or dispersed oil concentrations are likely to be greatest in the top few meters.

Response Considerations

- Response activities are focused on removing oil from the water surface.
- Spill response is not conducted from a shoreline, but from water-based vessels or aircraft.
- Weather and sea conditions can significantly hamper response operations.
- Category V oils are likely to submerge and most of the response methods can only be used on the surface of the water.
- Special equipment might be needed for some products (e.g., containment booms which extend at least 9 ft.).
- Use of certain response options is seasonally limited to protect sensitive life histories.

Oil Category Descriptions

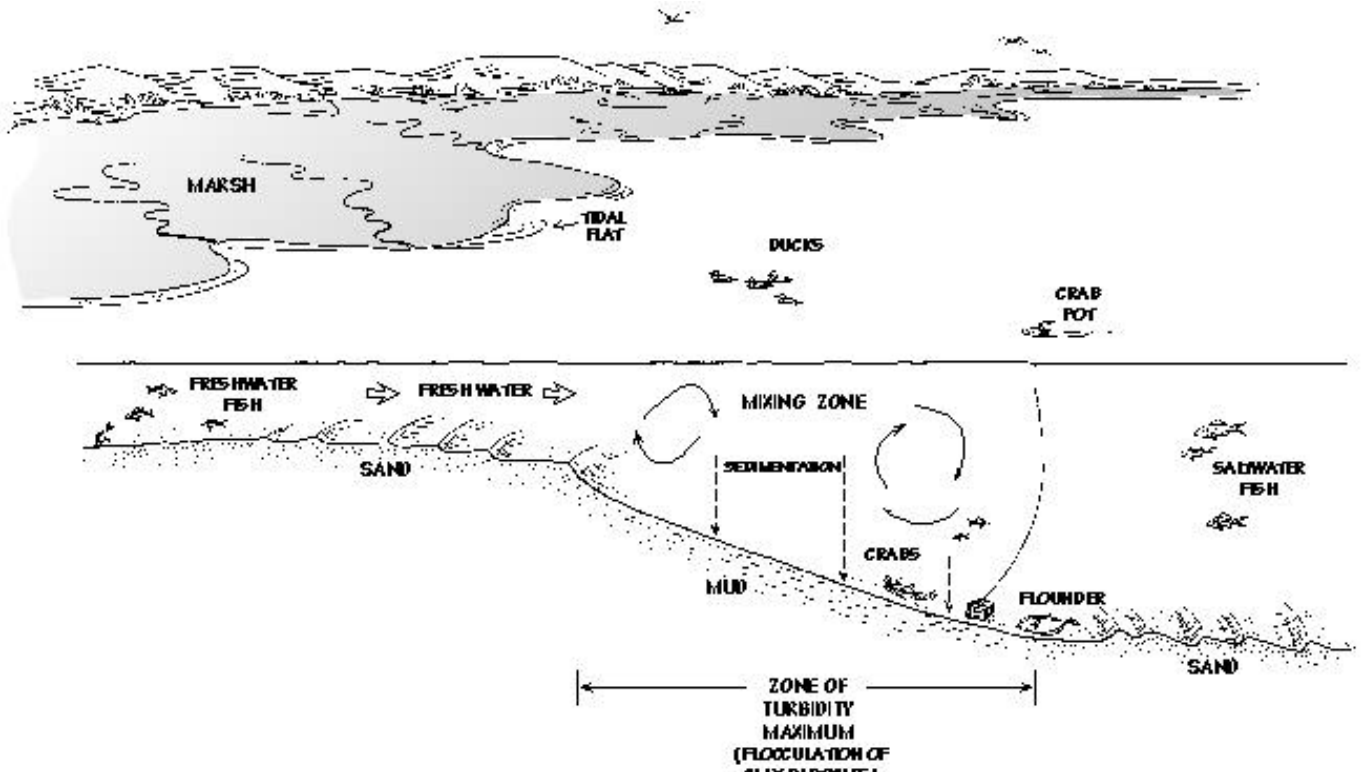
I – Gasoline products
II – Diesel-like products and light crudes
III – Medium grade crudes and intermediate products
IV – Heavy crudes and residual products
V – Non-floating oil products

The following categories are used to compare the relative environmental impact of each response method in the specific environment and habitat for each oil type. The codes in each table mean:

A = The least adverse habitat impact.
B = Some adverse habitat impact.
C = Significant adverse habitat impact.
D = The most adverse habitat impact.
I = Insufficient information - impact or effectiveness of the method could not be evaluated.
— = Not applicable.

Response Method	Oil Category I	II	III	IV	V
Natural Recovery	A	A	B	B	B
Booming-Containment	–	A	A	A	–
Booming-Deflection/Exclusion	A	A	A	A	–
Skimming	–	A	A	A	–
Physical Herding	B	B	B	B	–
Manual Oil Removal/Cleaning	–	–	–	–	–
Sorbents	–	B	B	B	–
Debris Removal	–	A	A	A	–
Dispersants	B	A	A	A	–
Emulsion-treating Agents	–	B	B	B	–
Elasticity Modifiers	–	B	B	–	–
Herding Agents	–	B	B	–	–
Solidifiers	–	B	B	–	–
In-situ Burning	–	A	A	A	–

Consult the *Environmental Considerations for Marine Oil Spill Response* document referenced on page 5 before using this table.


MARSH
TIDAL FLAT
DUCKS
CRAB POT
FRESHWATER FISH
FRESH WATER
MIXING ZONE
SEDIMENTATION
SAND
SALTWATER FISH
CRABS
MUD
FLOUNDER
SAND
ZONE OF TURBIDITY MAXIMUM (FLOCCULATION OF CLAY PARTICLES)

Bays and estuaries

Description

- Near coastal waters partially surrounded by land and more sheltered than offshore habitats.
- Limited circulation and flushing, with depths frequently <30 feet.
- Suspended sediment concentrations can be high.
- Highly sensitive to oil spills, particularly where flushing rates are low and the probability of contact increases.
- Many species spawn in these habitats during spring, and their sensitive early life stages can persist in shallow waters.
- Large numbers of migratory or wintering waterfowl, wading, and diving birds are often found here. Bays and estuaries are also home to marine mammals and sea turtles.
- Estuaries and bays are used by commercially or recreationally important finfish, shellfish, and other organisms that migrate seasonally.

Predicted Oil Behavior

- Oil can impact bottom habitats (benthic organisms) when water is shallow.
- Stranded oil on nearby shorelines can become a prolonged source for oil re-released to the water column.
- Tides and fresh water can substantially influence spilled oil movement.

Response Considerations

- Reducing impacts to organisms that live on or in the sea surface is often a high priority.
- Reducing the extent of impacts to sensitive nearshore subtidal or intertidal habitats should be considered.
- Spill response is not conducted from a shoreline, but from water-based vessels or aircraft.
- Use of certain response options is seasonally limited to protect sensitive life histories.
- Adverse effects to birds would be greatest during migration and overwintering when the birds form large flocks.

Oil Category Descriptions

I – Gasoline products
II – Diesel-like products and light crudes
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IV – Heavy crudes and residual products
V – Non-floating oil products

The following categories are used to compare the relative environmental impact of each response method in the specific environment and habitat for each oil type. The codes in each table mean:

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	Oil Category				
Response Method	**I**	**II**	**III**	**IV**	**V**
Natural Recovery	A	B	B	C	C
Booming-Containment	–	A	A	B	–
Booming-Deflection/Exclusion	A	A	A	B	–
Skimming	–	A	A	A	–
Physical Herding	B	B	B	B	–
Manual Oil Removal/Cleaning	–	–	C	B	B
Sorbents	–	B	B	B	–
Debris Removal	–	A	A	A	B
Dispersants	B	B	B	B	–
Emulsion-treating Agents	–	B	B	B	–
Elasticity Modifiers	–	B	B	–	–
Herding Agents	–	B	B	–	–
Solidifiers	–	B	B	–	–
In-situ Burning	–	A	A	B	–

Consult the *Environmental Considerations for Marine Oil Spill Response* document referenced on page 5 before using this table.