

Receptor Sensitivity Summary Tables

Table 1.1 NOAA Environmental Sensitivity Index Ranks - Littoral habitats

ESI Rank	Physical Factors	Sensitivity ranking for AIRA Assessment
<ul style="list-style-type: none"> • 1A Exposed rocky shores • 1B Exposed, solid man-made structures • 1C Exposed rocky cliffs with boulder talus base 	<p>This is the least sensitive classification. A shoreline that has regular exposure to wave and tidal energy, no potential for subsurface oil penetration, and a slope of 30° or greater is included into this ranking. Because of the impermeable substrate and its exposure to waves, oil remains on the surface, thus allowing natural forces to remove the oil. Little or no cleanup is usually required.</p>	1
<ul style="list-style-type: none"> • 2A Exposed wave-cut platforms in bedrock, mud, or clay • 2B Exposed scarps and steep slopes in clay 	<p>This shoreline is similar to that above, except the slope is less than 30°. Cleanup is made easy because of the exposure to high wave energy and the impermeable substrate.</p>	
<ul style="list-style-type: none"> • 3A Fine to medium-grained sand beaches • 3B Scarps and steep slopes in sand • 3C Tundra cliffs • 4 Coarse-grained sand beaches 	<p>This shoreline is composed of low-sloping, well-compacted sediment, which limits oil penetration. Cleanup is simplified by a hard substrate, permitting both foot and vehicle traffic.</p> <p>The grain of this shoreline is much coarser than that in Rank 3. Oil is able to penetrate up to 10 in (25 cm) below the surface, and its slope is between 5 and 15°. Cleanup efforts are hindered because erosional and deposition cycles are rapid, and vehicles tend to push oil further into the loosely packed sediment.</p>	2
<ul style="list-style-type: none"> • 5 Mixed sand and gravel beaches 	<p>Penetration of oil can go as deep as 20 in (50 cm) into the substrate, and the slope is between 8 and 15°. Contaminated sediment is difficult to remove without causing significant erosion and disposal problems.</p>	
<ul style="list-style-type: none"> • 6A Gravel beaches, Gravel beaches (granules and pebbles)* 	<p>Because of the large grained sediments, oil can penetrate up to 40 in (100 cm) below the surface. An intermediate slope, between 10 and 20°, restricts vehicles from assisting in the cleanup</p>	3

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ESI Rank	Physical Factors	Sensitivity ranking for AIRA Assessment
<ul style="list-style-type: none"> • 6B Riprap, Gravel beaches (cobbles and boulders)* • 6C Riprap 	<p>efforts. Riprap, a man-made break wall to limit wave and tidal energy, has added problems. Riprap usually is constructed at the high-tide line, which is where oil concentrations are strongest. Because of the large size of riprap boulders, oil penetrates deeply, and flushing is not always effective. Only by removing and replacing it can one ensure it is completely clean.</p>	
<ul style="list-style-type: none"> • 7 Exposed tidal flats 	<p>The sediments on this shoreline are water saturated, which limits the oil from penetrating. Low traffic, high infaunal densities, and a slope of less than 10° are also characteristics of this rank. Cleanup can be difficult because of a potential to penetrate oil deeper into the substrate because of increased foot traffic.</p>	
<ul style="list-style-type: none"> • 8A Sheltered scarps in bedrock, mud, or clay, Sheltered rocky shores (impermeable)* • 8B Sheltered, solid man-made structures, Sheltered rocky shores (permeable)* • 8C Sheltered riprap • 8D Sheltered rocky rubble shores • 8E Peat shorelines 	<p>This shore line is similar to that in Rank 2 except that it is sheltered from the wave and tidal forces. The substrate is compacted and hard, composed of bedrock, man-made materials, or stiff clay, and the slope is greater than 15°. High algae and organism coverage is usually present. Shoreline cleanup can be difficult and intrusive, usually done for aesthetic reasons.</p>	4
<ul style="list-style-type: none"> • 9A Sheltered tidal flats Seagrass • 9B Vegetated low banks • 9 Hypersaline tidal flats 	<p>This shoreline classification is sheltered from wave and tidal energy, with a slope less than 10°. The sediment is water saturated, limiting oil penetration. Cleanup efforts face the same difficulties as in ESI Rank 7.</p>	5

Table 1.2 *Sensitivity Index Ranks – Shallow sublittoral habitats*

Description	Example habitats	Sensitivity ranking for AIRA Assessment
Very high energy habitat, widespread	Barren sand or extremely exposed rocky shores	1
Locally important: High energy habitat which does not support an important resource or species Widely distributed and common	Exposed rock and boulders with common species	2
Regionally important Moderate energy sea bed where sediment is likely to be mobile but which supports some important but widespread resources	Shallow kelp habitat	3
Nationally important Low energy soft sediment, shallow diverse reef areas, or rare species found at moderate depth (~20 ft or 6 m)	Eelgrass beds Fish and shellfish breeding/spawning and nursery areas Corals (seapens, seafans) Food resources for predator fish, marine mammals and seabirds	4
Extremely sheltered areas with rare diverse faunal and floral communities. Or supports ESA-listed species Internationally important/protected	Lagoons Marine protected areas Or ESA-Listed species such as harbor seals	5

Table1.3 Sensitivity Index Ranking – Bird Populations

Description	Example Groups	Sensitivity ranking for AIRA Assessment
Species affected are not present in large numbers and are widely distributed	Very low specific sensitivity to birds identified	1
Habitat is locally important Species are not fully dependent on sea Lay more than 1 egg and have more than 1 brood	Gulls	2
Habitat is regionally important Species are dependent on the sea for most of the year Can have more than one brood and generally have multiple young	Ducks, terns and water fowl	3
Nationally important habitat Species are highly dependent on the sea for feeding and fledging young, have a small number of young in one brood Migratory birds in nationally important numbers	Auks and divers Some migratory waders and water fowl	4
ESA-Listed species As above but present in internationally important numbers (e.g. Ramsar sites, etc)	ESA-Listed species such as Steller's Eiders As above but in internationally important numbers	5

Table 1.4 Sensitivity Index Ranks to Marine Mammal Habitat

Group	Example species	Sensitivity rankings for AIRA Assessment
No specific importance to marine mammals Shoreline not used habitually	Transient species or species migrating through the area	1
Locally important marine mammal habitat Species present have low reliance on rocky haul out sites. Non gregarious breeders Pelagic feeders. Widely distributed and large population numbers Not dependent on fur for insulation	Cetacean species such as sperm whales	2
Regionally important marine mammal habitat Species present use rocky haul outs for a significant part of the year Gregarious breeding colonies/locations Benthic feeders	Resident cetacean populations such as some killer whales or blue whales	3
Nationally important marine mammal habitat Species are very dependent on rocky haul out sites Very gregarious breeding colonies comprising a significant proportion (>10%) of regional population Dependent on fur for insulation Benthic feeders Nationally important location for species or species present are protected	Pacific walrus Gray whales Harbor seals	4
ESA-Listed Species Internationally important area for sensitive/protected species	Steller sea lions or sea otters	5

Table1.4 *Sensitivity Index Ranks –Socioeconomic receptors*

General Group	Comments	Sensitivity groups for AIRA Assessment
No specific socioeconomic activity other than communications		1
Resource is locally important but widespread and common Alternative are available Small proportion of population reliant Recovery likely to be complete and effective within 1 to 2 months Effects on people will be localised and short lived	Pelagic fishing areas (exclusion likely but effects on resources not significant so fishing can continue when oil has been dispersed)	2
Resource is regionally significant, widespread but of relatively high value Alternative not feasibly available Recovery likely to be complete and effective within 6 months to 1 year	Shallow water fishing areas where there may be effects on the resource e.g. crab fishery. Area used for tourism Offshore fish processing	3
Resources are high (national) value and not widely distributed Alternatives are not available and large numbers of people are reliant Recovery likely to be greater than 1 year	Areas used for subsistence fishing or hunting Area important for commercial fishing (State or Federal) or nearshore processing Community Development Quota (CDQ) Fishery	4
Resources are of National Value upon which very sensitive economies and communities are totally reliant Impacts are likely to be difficult to mitigate	Small rural communities with few options for economic activity Local community fisheries or shore-based processors	5