

# Central and Northern California Coastal Marine Habitats: Oil Residence and Biological Sensitivity Indices

## RELATIVE ABUNDANCE OF MAJOR MACROBIOTA\*

| Taxa   | A   | B   | C   | D   | E   | F   | G   |
|--|-----|-----|-----|-----|-----|-----|-----|
| <b>ROCKY INTERTIDAL MACROBIOTA</b>             |     |     |     |     |     |     |     |
| Acorn barnacles                                | 0-C | C   | C   | C   | C   | C   | C   |
| Chlorophyta                                    | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Porphyra spp.                                  | 0-C | 0   | 0   | 0   | 0   | 0   | 0   |
| <i>Pelvetiopsis limitata</i>                   |     |     |     |     |     |     |     |
| <i>Endocladia muricata</i>                     | C   | C-A | C-A | C-A | C-A | C-A | C-A |
| <i>Pelvetia fastigiata</i>                     | 0-C | 0   | 0   | 0   | 0   | 0   | 0   |
| <i>Fucus distichus</i>                         | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| <i>Gigartina</i> spp.                          | C   | C   | C   | C   | C   | C   | C   |
| <i>Pollicipes polymerus</i>                    | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| <i>Mytilus californianus</i>                   | 0   | C   | C   | C   | C   | C   | C   |
| <i>Corallina</i> spp./ <i>Gigartina</i> spp.   | 0   | 0   | 0   | 0-C | 0-C | 0-C | 0-C |
| <i>Postelsia palmaeformis</i>                  |     |     |     |     |     |     |     |
| <i>Halosaccion glandiforme</i>                 | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| <i>Iridaea</i> spp.                            | 0   | 0-C | 0-C | 0-C | 0-C | 0-C | 0-C |
| <i>Odonthalia</i> spp./ <i>Rhodomela larix</i> | 0   |     |     |     |     |     |     |
| Coralline algae                                | C   | C   | C   | C   | C   | C   | C   |
| <i>Phyllospadix</i> spp.                       | C   | 0-C | 0-C | 0-C | 0-C | 0-C | 0-C |
| <i>Alaria marginata</i>                        |     |     |     |     |     |     |     |
| <i>Egregia menziesii</i>                       | C   | C   | C   | C   | C   | C   | C   |
| <i>Laminaria</i> spp.                          | C   | 0   | 0   | 0   | 0   | 0   | 0   |
| <i>Lessoniopsis littoralis</i>                 |     |     |     |     |     |     |     |
| <b>OTHER MACROBIOTA</b>                        |     |     |     |     |     |     |     |
| <b>Kelp beds:</b>                              |     |     |     |     |     |     |     |
| <i>Macrocystis</i> spp.                        | C   | C   | C   | C   | C   | C   | C   |
| <i>Nereocystis luetkeana</i>                   | C   | C   | C   | C   | C   | C   | C   |
| <b>Marine mammals:</b>                         |     |     |     |     |     |     |     |
| Elephant seal                                  |     |     |     |     |     |     |     |
| Harbor seal                                    | 0-C |     |     |     |     |     | 0   |
| Steller sea lion                               |     |     |     |     |     |     |     |
| California sea lion                            | 0-A |     |     |     |     |     | 0   |
| <b>Seabird nesting colonies:</b>               |     |     |     |     |     |     |     |
| Fork-tailed storm petrel                       |     |     |     |     |     |     |     |
| Leach's storm petrel                           |     |     |     |     |     |     |     |
| Ashy storm petrel                              |     |     |     |     |     |     |     |
| Brandt's cormorant                             |     |     |     |     |     |     | A   |
| Double-crested cormorant                       |     |     |     |     |     |     |     |
| Pelagic cormorant                              |     |     |     |     |     |     | 0-C |
| Black oystercatcher                            |     |     |     |     |     |     |     |
| Western gull                                   |     |     |     |     |     |     | 0   |
| Common murre                                   |     |     |     |     |     |     |     |
| Pigeon guillemot                               |     |     |     |     |     |     | 0   |
| Cassin's auklet                                |     |     |     |     |     |     |     |
| Rhinoceros auklet                              |     |     |     |     |     |     |     |
| Tufted puffin                                  |     |     |     |     |     |     |     |
| <b>Threatened/Endangered Species:</b>          |     |     |     |     |     |     |     |
| Aleutian Canada goose                          |     |     |     |     |     |     |     |
| Southern sea otter                             | C   | C   | C   | C   | C   | C   | C   |

\*Relative abundance for summer conditions: 0 = occasional, C = common, A = abundant

## PHYSICAL SHORE-ZONE CHARACTERISTICS

| UNIT IDENTIFIERS                              | A                                   | B                 | C                                   | D                                   | E                            | F                | G                                   |
|---|-------------------------------------|-------------------|-------------------------------------|-------------------------------------|------------------------------|------------------|-------------------------------------|
| ALONGSHORE LENGTH (km)                        | 0.5                                 | 0.2               | 2.0                                 | 0.5                                 | 0.4                          | 0.2              | 5.8                                 |
| ACROSS-SHORE WIDTH (m)                        | 5-30                                | <5                | 5-30                                | 10                                  | 25                           | 25               | 5-30                                |
| WAVE EXPOSURE                                 | 10                                  | 10                | 10                                  | 10                                  | 10                           | 10               | 10                                  |
| ACROSS-SHORE COMPONENTS (morphology, texture) | Ca, Rs<br>Bi, Chr:<br>Rs<br>Ore, Rs | Ca, Rm<br>Ore, Rs | Ca, Rs<br>Bi, Chr:<br>Rs<br>Ore, Rs | Ca, Rs<br>Bi, Chr:<br>Rs<br>Ore, Rs | As, Cb<br>Bi, Cbg<br>Ore, Rs | As, Cb<br>Bi, Cg | Ca, Rs<br>Bi, Chr:<br>Rs<br>Ore, Rs |
| Primary                                       | Ca, Rs                              |                   | Ca, Rs                              |                                     | Ca, Rs                       |                  | Ca, Rs                              |
| Secondary                                     | Bi, Cbg<br>Bi, Cb<br>Ore, Rs        |                   | Bi, Cbg<br>Bi, Cb<br>Ore, Rs        |                                     | Bi, Cbg<br>Ore, Rs           |                  | Bi, Cbg<br>Bi, Cb<br>Ore, Rs        |
| MICRO RELIEF                                  | R                                   | R                 | R                                   | R                                   | R                            | S                | R                                   |
| MACRO RELIEF                                  | R                                   | R                 | R                                   | R                                   | R                            | S                | R                                   |
| SUMMARY CHARACTERISTICS                       | Rb'mv0                              | R                 | Rb'mv0                              | Rv0                                 | bmv                          | bm               | RbmV0                               |
| OIL RESIDENCE INDEX                           | 3                                   | 3                 | 3                                   | 3                                   | 3                            | 3                | 3                                   |
| GROUND TRUTH                                  | 0                                   | 0                 | 0                                   | 0                                   | 0                            | 0                | 3                                   |

## ABBREVIATED PHYSICAL SHORE-ZONE CODING EXPLANATION

This is an abbreviated legend for the physical shore-zone coding sheets; consult the main text for a complete discussion of codes and rationale. Only the across-shore descriptors for morphology and texture are discussed.

ACROSS-SHORE COMPONENTS - dominant morphologic and textural character of each across-shore component, described in a landward to seaward sequence. Each component consists of a geomorphic form descriptor and a substrate descriptor:  
FORM → Bb, Cbg ← TEXTURE

The primary geomorphic forms are initially described by a series of 12 codes:

|                 |                                |              |
|-----------------|--------------------------------|--------------|
| A Anthropogenic | E Coastal Bay, Lagoon, Estuary | P Platform   |
| B Beach         | I Inlet                        | R River      |
| C Cliff         | M Marsh                        | S Bar/Trough |
| D Dune          | O Offshore Rocks               | T Delta      |

Each of these groups is then further modified by codes as indicated below.

|   |  |                    |           |
|---|--|--------------------|-----------|
| <b>Anthropogenic (A)</b>  | j jetty                                | m marina           | t trench  |
| e causeway  | r groin                                | r boat ramp        | s seawall |
| f float   |  |                    | w wharf   |
| <b>Beach (B)</b>  |  |                    |           |
| b berm  | i inclined slope                       | s storm ridge      |           |
| c washover channel  | m multiple intertidal bars             | t low-tide terrace |           |
| f beach face  | r single intertidal bar                | w washover         |           |
| <b>Cliff (C)</b>  |  |                    |           |
| a active or erosional   | p passive                              | c caves present    |           |
| <b>Dune (D)</b>   |  |                    |           |
| b blowout   | f foredune                             | s ridge and swale  |           |
| d stabilized  | r random form                          | l longitudinal     |           |
| <b>Coastal Bay, Lagoon, Estuary (E)</b>                         |  |                    |           |
| b enclosed bay  | e estuary                              |                    |           |
| <b>Inlet (I)</b>  |  |                    |           |
| e ephemeral   | a opening fixed by offshore structures | e ebb-tidal delta  |           |
| s stable  | f flood-tidal delta                    | l ebb-tidal delta  |           |
| <b>Marsh (M)</b>  | c tidal creek                          |                    |           |
| <b>Offshore Rocks (O)</b>                                       |  |                    |           |
| e intertidal reef   | s sea stack                            |                    |           |
| r rock outcrop (>2 m above M.S.L. and <10 m in width or length) |  |                    |           |

|                       |                      |                     |                  |
|-----------------------|----------------------|---------------------|------------------|
| <b>Platform (P)</b>   | h high-tide platform | f horizontal        | t terraced       |
|                       | l low-tide platform  | r ramp              | i irregular      |
| <b>River (R)</b>      | b braided            | m multiple          | s single channel |
| <b>Bar/Trough (S)</b> | subtidal             | r with rip channels |                  |
| <b>Delta (T)</b>      | c channel            | m multiple channels | p delta plain    |
|                       | f fan                | s single channel    | v crevasse       |
|                       | l levee              |                     |                  |

Substrate type or sediment texture are described in detail by a series of codes. The sediments or materials of the shore are initially coded into one of four groups:

|                           |                     |
|---------------------------|---------------------|
| A anthropogenic materials | C clastic sediments |
| B biogenic sediments      | R bedrock           |

Each of these groups is then further modified by texture or composition as indicated below.

|                                    |                                  |                    |  |
|------------------------------------|----------------------------------|--------------------|--|
| <b>Anthropogenic materials (A)</b> | a metal                          | n concrete (solid) | w bark or wood debris                        |
|                                    | d debris, rubble                 | l logs             | u wood (structural; e.g., pilings or boards) |
|                                    | e concrete (individually formed) |                    |  |

|                               |  |                  |               |
|-------------------------------|--|------------------|---------------|
| <b>Biogenic sediments (B)</b> | t trees or wood particles                        | o organic litter |               |
|                               | s shell hash (with a texture as described below) |                  |               |
| <b>Clastic sediments (C)</b>  | b boulder  | s sand           | m mud         |
|                               | c cobble   | g silt           | g gravel      |
|                               | p pebble   | cl clay          | r rubble      |
| <b>Bedrock (R)</b>            | i igneous  | m metamorphic    | s sedimentary |

Where more than one texture is present in an across-shore component, several substrates or textures may be indicated. Where one texture physically overlies another, it is indicated by a slash (e.g., Cg/As, and over rock). Where several mutually exclusive textures occur within a component, such as rock outcrops within a sand beach, a colon is used to indicate that association (e.g., Cg:R).

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**M.M.S. Map# 55**

**Sheet 2 of 2**