

Overall Conclusions

The NERRS, NMSP, and SERC together developed a large-scale monitoring program for invasive species in marine protected areas along the west coast. The long-term intent of this program was to expand geographically to link all of NERRS and NMSP sites as well other US marine protected areas in order to support a national network of coordinated invasive species monitoring and research in coastal ecosystems. We are now ready to expand our sampling to include interannual sampling and to include these other protected coastal areas. We plan to adapt and increase sampling coverage over time and space to address both management and larger research questions, including measuring responses to changes in transport vectors (e.g., shipping patterns, ballast water treatment, fishery stock management and aquaculture) and large ecosystem changes (e.g., weather and oceanographic patterns, and human-mediated disturbance, such as freshwater usage, pollution, dredging).

While we have laid the groundwork for future studies, we have also already produced results useful for habitat managers and for testing research hypotheses. This study already identified five new range expansions, including two new US West Coast introductions. We found a strong pattern of decreasing number and percent of NIS with increasing latitude. A high number and proportion of Tunicata and Bryozoan species were nonindigenous, and both these taxa separately followed the same latitudinal pattern seen for all NIS together. We also found that NIS in non-marina sites, estuaries and bay sites in more natural habitats, almost entirely overlapped with those in marina sites but not vice versa, and marinas were more heavily invaded than these other sites. Offshore buoys had no NIS. We also collected samples that will allow us to test the pattern of NIS across a salinity gradient, interannual variation in NIS, and the role of flow and distance into an estuary.

While it was essential to use uniform protocols in order to gather quantitative data to determine spatial, temporal, and taxonomic patterns of invasion, the Olympic Coast Sanctuary site-specific project highlighted the importance of using multiple survey methods to create complete species lists of NIS. Olympic Coast rapid assessment study produced a list of NIS that barely overlapped with the list from this study. The list of overlapping species should increase from 2 when more taxonomic identifications are conducted on our settling plates. Nonetheless, both studies will still have noted species missing from the other.

The information from the broad-scale project is available to the managers and research coordinators of these protected areas via a web-accessible database. This information will be updated and available as more taxa are identified to species. Hence, managers of the protected areas can know which sites in and near their reserves harbor NIS and which NIS are widespread. In addition, the data on where NIS were present and missing will enable us to track the range limits and, given future sampling, the spread of NIS.

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Appendices

- A. Taxonomists who provided or will provide species identifications
 - B. Trapping data from all NERRS sites
 - C. Species found on settling plates at each Reserve or Sanctuary site
 - D. Nonindigenous fouling species found in this and other surveys
 - E. Wetland and marine NIS found in Elkhorn Slough and TRNERR and its surrounding bays.
 - F. NIS work at US West Coast National Estuarine Research Reserves and Marine Sanctuaries
- OC-A. Survey and Taxonomy Participants
OC-B. Nearshore survey sites sampled 27 June 2002 (north to south).

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Table 1. Sites in west coast Reserves and Sanctuaries, from south to north, and how we sampled them (geographic coordinates, year, # plates retrieved, # traps retrieved).

SWMP = System-wide water monitoring program stations of the NERRS (WM = other in-estuary regular water monitoring).

| Waterway | Site type | Site | Latitude (°N) | Longitude (°W) | Year | # Plates | # Traps |
|-------------------------------|--------------------------|---------------------------------|---------------|----------------|------|----------|---------|
| Tijuana River NERR | SWMP | Model Marsh | 32.55972 | 117.10655 | 2003 | 6 | 7 |
| | SWMP | Oneonta Slough | 32.56780 | 117.13153 | | 6 | 7 |
| | SWMP | Tidal Linkage | 32.57420 | 117.12695 | | 1 | 7 |
| | SWMP | Tijuana R. Main Channel | 32.55972 | 117.10655 | | 1 | 8 |
| | Marina | Mission Bay, Dana Point | 32.76753 | 117.23647 | | 6 | |
| | Marina | Mission Bay, Seaforth | 32.76302 | 117.23726 | | 6 | |
| | Marina | SD Bay, Sunroad | 32.72625 | 117.19217 | | 5 | |
| | Marina | SD Bay, Chula Vista | 32.62439 | 117.10376 | | 6 | |
| Channel Is NMS | Buoy | Alegria (PISCO) | 34.46175 | 120.29003 | 2004 | 2 | |
| | Buoy | Arguello (PISCO) | 34.54685 | 120.60883 | | 2 | |
| | Buoy | Ellwood (PISCO) | 34.42485 | 119.93163 | | 2 | |
| | Buoy | Jalama (PISCO) | 34.47385 | 120.48605 | | 2 | |
| | Buoy | Point Sal (PISCO) | 34.86982 | 120.63535 | | 2 | |
| | Buoy | Purisima Point (PISCO) | 34.72648 | 120.62680 | | 2 | |
| | Marina | Oxnard, Vintage | 34.17153 | 119.22884 | | 9 | |
| | Marina | Ventura West Harbor | 34.24638 | 119.26110 | | 9 | |
| Monterey Bay NMS | Buoy | Pt Sur (PISCO) | 36.27563 | 121.87194 | 2003 | 1 | |
| | Buoy | Sandhill Bluff (PISCO) | 36.97292 | 122.15773 | | 1 | |
| | Buoy | Soquel Pt (PISCO) | 36.93867 | 121.97547 | | 1 | |
| | Buoy | Stillwater Beach (PISCO) | 36.55905 | 121.94479 | | 1 | |
| | Buoy | Stillwater Cove (PISCO) | 36.55893 | 121.94477 | | 1 | |
| | Buoy | Terrace Pt (PISCO) | 36.94417 | 122.13293 | | 1 | |
| | Marina | Monterey | 36.60915 | 121.89203 | | 5 | |
| | Marina | Santa Cruz | 36.96580 | 122.00163 | | 6 | |
| Elkhorn Slough NERR | SWMP | Azevedo Pond | 36.84573 | 121.75358 | 2003 | 3 | 8 |
| | SWMP | North Marsh | 36.83463 | 121.73843 | | 3 | 8 |
| | SWMP | South Marsh Restoration | 36.81808 | 121.73963 | | 1 | |
| | SWMP | Vierra | 36.81110 | 121.77827 | | 4 | 8 |
| | WM | Hudson Landing West | 36.85673 | 121.75495 | | 3 | 8 |
| | In estuary | Hummingbird Island | 36.82372 | 121.74278 | | 6 | 8 |
| | In estuary | Kirby Park | 36.84103 | 121.74630 | | 6 | 7 |
| | In estuary | Whistle Stop Lagoon | 36.82397 | 121.73938 | | 3 | 8 |
| Marina | Moss Landing | 36.80022 | 121.78719 | 12 | | | |
| Gulf of Farallones NMS | Buoy, in bay | Tomales Bay, Clark | 38.18101 | 122.91047 | 2004 | 1 | |
| | Buoy, in bay | Tomales Bay, Duck Cove | 38.14000 | 122.89000 | | 1 | |
| | Buoy, in bay | Tomales Bay, Marshall | 38.14969 | 122.88853 | | 1 | |
| | Buoy, in bay | Tomales Bay, Nick's Cove | 38.20103 | 122.92281 | | 1 | |
| | Buoy, in bay | Tomales Bay, Shell Beach | 38.11473 | 122.86944 | | 1 | |
| | Buoy, in bay | Tomales Bay, Thomas Stn | 38.12865 | 122.86539 | | 1 | |
| | Buoy, in bay | Tomales Bay, Tomales Beach | 38.17558 | 122.92336 | | 1 | |
| | Float & Pier | Tomales Bay, Miller Park | 38.19956 | 122.92168 | | 4 | |
| | Float & Pier | Tomales Bay, Sacramento Landing | 38.15035 | 122.90575 | | 4 | |
| | Marina | Bodega Bay, Mason's | 38.33207 | 123.05880 | | 5 | |
| Marina | Bodega Bay, Porto Bodega | 38.33440 | 123.05263 | 6 | | | |

| Waterway (cont'd) | Site type | Site | Latitude (°N) | Longitude (°W) | Year | # Plates | # Traps |
|------------------------------|------------------------|---------------------------|------------------|-------------------|-------|-------------|------------|
| South Slough NERR | SWMP, Pier, Float | Charleston Bridge | 43.33768 | 124.32055 | 2003 | 1 | |
| | | | | | 2004 | 7 | |
| | SWMP, Piling | Coast Guard Beach | 43.34932 | 124.32477 | 2004 | 10 | |
| | SWMP, Piling | Sengstacken | 43.31738 | 124.32173 | 2003 | 1 | |
| | SWMP, Piling, Frame | Valino Island/Crown Point | 43.31665 | 124.32135 | 2003 | 1 | 7 |
| | | | | | 2004 | 10 | |
| | SWMP, Piling, Frame | Winchester | 43.31738 | 124.32173 | 2003 | 1 | |
| | | | | | 2004 | 10 | |
| | In estuary | Brown's Cove | 43.32692 | 124.32513 | 2003 | 0 | 7 |
| | In estuary | Sengstacken Arm | 43.30135 | 124.31583 | 2003 | 5 | 7 |
| | In estuary | Winchester arm | 43.30190 | 124.31945 | 2003 | 5 | 6 |
| | Marina | Charleston Boat Basin | 43.34650 | 124.32665 | 2003 | 5 | |
| | Pier | Empire boat ramp | 43.39330 | 124.28117 | 2003 | 6 | |
| | | | | 2004 | 5(10) | | |
| | Pier | Port of Coos Bay Citrus | 43.38225 | 124.21927 | 2004 | 6 | |
| Olympic Coast NMS | Buoy | Outer Coast, Cape Alava | 48.16613 | 124.80405 | 2004 | 2 | |
| | Buoy | Outer Coast, Kalalock | 47.59418 | 124.49460 | 2004 | 2 | |
| | Buoy | Outer Coast, Makah Bay | 48.32305 | 124.73953 | 2004 | 2 | |
| | Buoy | Outer Coast, Teawhit Head | 47.84603 | 124.62870 | 2004 | 2 | |
| | Marina | La Push, Quileute River | 47.91112 | 124.63698 | 2003 | 6 | |
| | Marina | Neah Bay, Makah | 48.36770 | 124.61157 | 2003 | 6 | |
| Padilla Bay NERR | 2 SWMP, buoy | Gong (high + low) | 48.55895 | 122.57300 | | 2 | |
| | SWMP, Piling | Joe Leary, Fresh | 48.51802 | 122.47443 | | 1 | |
| | SWMP | Joe Leary, Marine | 48.51808 | 122.47117 | | 1 | |
| | In estuary | Bayview Channel | 48.49607 | 122.50083 | 2003 | 6 | 8 |
| | In estuary | Middle Channel | 48.53332 | 122.52907 | | 0 | 6 |
| | In estuary | Ploug Channel | 48.55483 | 122.52712 | | 6 | 7 |
| | Marina | Anacortes, Cap Sante | 48.51097 | 122.60940 | | 4 | |
| | Marina | La Conner | 48.39943 | 122.49403 | | 6 | |
| Kachemak Bay NERR | SWMP, buoy | Bear Point | 59.42348 | 151.06611 | 2003 | 2 | |
| | SWMP, buoy | Homer Dolphin | 59.36213 | 151.40892 | 2003 | 2 | |
| | | | | | 2004 | 1 | |
| | SWMP, buoy | Port Graham | 59.22770 | 151.53834 | 2003 | 2 | |
| | SWMP, buoy | Seldovia Pier | 59.44071 | 151.72101 | 2003 | 2 | |
| | | | | | 2004 | 1 | |
| | In estuary | Halibut Cove | 59.59478 | 115.24695 | 2004 | 1 | |
| | Harbor piling | Homer pilings | 59.60294 | 151.41728 | 2003 | 5 | 8 |
| | Harbor piling | Seldovia pilings | 59.43695 | 151.71367 | 2003 | 6 | |
| | Marina | Homer Harbor | 59.60605 | 151.93063 | 2003 | 5 | |
| | | | | | 2004 | 5 | |
| Marina | Seldovia Harbor | 59.43718 | 151.71671 | 2003 | 6 | | |
| | | | | 2004 | 5 | | |

Table 2. Species found on plates in each Reserve or Sanctuary. Species are listed alphabetically within each class, and confirmed nonindigenous species are noted.

| TAXA | Sites (from south to north)¹ | | | | | | | | | |
|------------------------------|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Cnidaria, Hydrozoa | | | | | | | | | | |
| Aequorea sp. | | | | | | | SS | OC | | |
| Aglaophenia sp. | TR | | | | | | | | | |
| Aglaophenia struthionides | TR | | | | | | | | | |
| Athecata | | | | | | | | | | KB |
| Bougainvillia sp. | TR | | | | | | | | | |
| Bougainvilliidae | | | | ES | GF | | | | | |
| Calycella syringa | | CI | | | | | SS | OC | | KB |
| Campanulariidae | TR | CI | MB | ES | GF | | SS | OC | PB | KB |
| Campanulinidae | | | MB | ES | GF | | SS | OC | | KB |
| Clytia hemisphaerica | | | | | | | SS | | PB | |
| Clytia sp. | TR | | | ES | | | SS | OC | PB | KB |
| Corynidae | | CI | MB | | | | | | | KB |
| Cuspidella sp. | | | | | | | | | | KB |
| Ectopleura crocea NIS | | | | | | | SS | | | |
| Ectopleura dumortierii | | | | | | | SS | | | |
| Endothecium sp. | TR | | | | | | | | | |
| Eudendrium sp. | | | | | | | | OC | PB | |
| Gonothyraea clarki | | | | | | | | | | KB |
| Gonothyraea sp. | | | | | | | | | PB | KB |
| Laomedea sp. | | | | | | | SS | | PB | |
| Obelia dichotoma | | | | | | | SS | OC | | KB |
| Obelia longissima | TR | CI | MB | ES | GF | | SS | OC | PB | KB |
| Obelia sp. | TR | CI | | ES | GF | | SS | OC | PB | KB |
| Opercularella lacerata | | | | ES | | | SS | | | KB |
| Opercularella sp. | | | | | GF | | SS | | | |
| Perigonimus repens | | | | | | | SS | OC | | |
| Plumularia lagenifera | | CI | | | | | | OC | | |
| Plumularia sp. | | | | | | | | OC | | |
| Sarsia eximia | | CI | | | | | | | | |
| Sarsia tubulosa | | | | | | | | | | KB |
| Thecata | TR | | | | | | SS | | | |
| Tubularia sp. | | | | | | | SS | | | |
| Tubulariidae | | | | | | GF | SS | | | |
| Totals | Coast | TR | CI | MB | ES | GF | SS | OC | PB | KB |
| Max # species ² | 33 | 9 | 7 | 4 | 7 | 7 | 18 | 12 | 8 | 14 |
| Min # species ³ | 20 | 5 | 4 | 2 | 4 | 4 | 11 | 9 | 5 | 8 |
| # Named species ⁴ | 13 | 2 | 4 | 1 | 2 | 1 | 8 | 5 | 2 | 6 |
| # NIS ⁵ | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| % NIS ⁶ | 7.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 0.0 | 0.0 | 0.0 |

Mollusca, Gastropoda Nudibranchia

| | | | | | | | | | | |
|-------------------------|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Cumanotus sp. | | | | | | | | | PB | |
| Cuthona albocrusta | TR | | | | | | | | | |
| Cuthona concinna | | | | | | | | | | KB |
| Cuthona pustulata | | | | | | | | | | KB |
| Dendronotus frondosus | | | MB | | ES | GF | SS | OC | PB | KB |
| Dirona picta | | | | | | GF | | | | |
| Doto form A | | CI | | | | | | | | |
| Doto kya | | | | | | | | OC | | |
| Doto sp. | | | MB | | | | | | | |
| Eubranchus rupium | | | | | | | | | PB | KB |
| Eubranchus rustyus | | CI | | | | | | OC | | |
| Flabellina japonica | | | | | | | | | | KB |
| Flabellina trilineata | | CI | | | | | | | | |
| Hermisenda crassicornis | TR | CI | | | | GF | SS | OC | PB | |
| Janolus fuscus | | | | | | | SS | | | |
| Onchidoris bilamellata | | | | | | | SS | | | |
| Palio zosteræ | | | | | | | SS | | | |
| Stiliger sp. | | | | | | | SS | | | |
| Tenellia adspersa | NIS | | | | ES | | | | | |
| Triopha catalinae | | | MB | | | | | | | |
| Totals | Coast | TR | CI | MB | ES | GF | SS | OC | PB | KB |
| Max # species | 20 | 2 | 4 | 3 | 2 | 3 | 6 | 4 | 4 | 5 |
| Min # species | 19 | 2 | 4 | 3 | 2 | 3 | 6 | 4 | 4 | 5 |
| # Named species | 17 | 2 | 4 | 2 | 2 | 3 | 5 | 4 | 3 | 5 |
| # NIS | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| % NIS | 5.9 | 0.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Crustacea, Cirripedia

| | | | | | | | | | | |
|--------------------------|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Balanidae | | | | | | | | | | KB |
| Balanus amphitrite | NIS | TR | CI | | | | | | | |
| Balanus balanus | | | | | | GF | SS | OC | | |
| Balanus crenatus | | | CI | MB | ES | GF | SS | OC | PB | KB |
| Balanus glandula | | TR | | | | | SS | OC | PB | KB |
| Balanus improvisus | NIS, R.E.⁷ | TR | | | | | SS | OC | PB | |
| Balanus reticulatus | NIS, R.E.* | TR | | | | | | | | |
| Balanus sp. | | | CI | | | GF | SS | OC | | |
| Balanus trigonus | | TR | | | | | | | | |
| Chthamalus dalli | | | | | | GF | | | | |
| Chthamalus sp. | | TR | | | | | | | | |
| Lepas antiferæ | | | | MB | | | | | | |
| Lepas pectinata pacifica | | | | MB | | | | | | |
| Lepas sp. | | | | MB | | | | | | |
| Megabalanus californicus | | | CI | | | | | | | |
| Megabalanus sp. | | | CI | | | | | | | |
| Totals | Coast | TR | CI | MB | ES | GF | SS | OC | PB | KB |
| Max # species | 16 | 6 | 5 | 4 | 1 | 4 | 5 | 5 | 3 | 3 |
| Min # species | 11 | 6 | 3 | 3 | 1 | 3 | 4 | 4 | 3 | 2 |
| # Named species | 11 | 5 | 3 | 3 | 1 | 3 | 4 | 4 | 3 | 2 |
| # NIS | 3 | 3 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| % NIS | 27.3 | 60.0 | 33.3 | 0.0 | 0.0 | 0.0 | 25.0 | 25.0 | 33.3 | 0.0 |

| Urochordata, Ascidiacea | | | | | | | | | | |
|---------------------------------------|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Aplidium californicum | | TR | | | | | | | | |
| Aplidium sp. | | | CI | | | | | | | |
| Aplidium sp.A | | | CI | | | | | | | |
| Aplousobranchia | | | | | | GF | | | | |
| Ascidia ceratodes | | TR | CI | | | GF | | | | |
| Ascidia sp. | | TR | CI | MB | | GF | | | | KB |
| Ascidia sp. B | | | CI | | | GF | | | | |
| Ascidia zara NIS | | TR | CI | | ES | GF | | | | |
| Botryllidae | | | CI | | | GF | | | | |
| Botrylloides diegensis | | TR | | | ES | | | | | |
| Botrylloides perspicuum NIS | | TR | | | | | | | | |
| Botrylloides sp. | | | CI | | | GF | | | | PB |
| Botrylloides violaceus NIS | | TR | CI | MB | ES | GF | SS | OC | | PB |
| Botryllus schlosseri NIS | | TR | CI | MB | ES | GF | SS | OC | | PB |
| Ciona intestinalis NIS | | TR | CI | MB | | GF | | | | |
| Ciona savignyi NIS | | TR | CI | MB | ES | | | | | |
| Ciona sp. | | | | | ES | GF | | | | |
| Corella inflata | | | | | | | | OC | | PB |
| Corella sp. | | | | | | | | OC | | |
| Corella willmeriana | | | | | | | | OC | | PB |
| Didemnum sp. A NIS | | | | | ES | GF | | | | |
| Diplosoma listerianum NIS | | TR | CI | MB | ES | GF | | OC | | |
| Distaplia occidentalis | | TR | CI | | ES | GF | SS | OC | | KB |
| Distaplia sp. | | TR | | | | | | | | KB |
| Molgula manhattensis NIS | | | CI | MB | | GF | | | | PB |
| Molgula pugetiensis | | | | | | | SS | | | KB |
| Molgula sp. | | TR | | | | | SS | | | KB |
| Molgula sp. A NIS | | TR | | | | | | | | |
| Perophora annectens | | TR | | | | GF | | OC | | |
| Polyandrocarpa zorrutensis NIS | | TR | | | | | | | | |
| Stolidobranchia | | | CI | | | | | OC | | |
| Styela clava NIS | | TR | CI | | | | | | | |
| Styela plicata NIS, R.E. | | TR | CI | | ES | | | | | |
| Styela sp. | | TR | CI | MB | | GF | | OC | | PB |
| Styela truncata | | | | | | GF | | | | |
| Styelidae | | TR | | | ES | | | | | |
| Symplegma reptans NIS | | TR | | | | | | | | |
| Totals | Coast | TR | CI | MB | ES | GF | SS | OC | PB | KB |
| Max # species | 37 | 22 | 19 | 8 | 11 | 18 | 5 | 10 | 7 | 5 |
| Min # species | 26 | 17 | 13 | 8 | 10 | 12 | 4 | 8 | 6 | 3 |
| # Named species | 26 | 17 | 13 | 6 | 10 | 12 | 4 | 7 | 5 | 2 |
| # NIS | 14 | 12 | 9 | 6 | 7 | 7 | 2 | 3 | 3 | 0 |
| % NIS | 53.8 | 70.6 | 69.2 | 100.0 | 70.0 | 58.3 | 50.0 | 42.9 | 60.0 | 0.0 |

Bryozoa

| | | | | | | | | | |
|----------------------------------|----|-----|----|----|----|----|----|----|----|
| Alcyonidium sp. | | | MB | | GF | SS | OC | | KB |
| Amathia sp. | TR | | | ES | | | | | |
| Amathia vidovici | | | | ES | | | | | |
| Bowerbankia aggregata | | CI? | MB | ES | | SS | | | |
| Bowerbankia sp. | TR | CI | MB | ES | GF | SS | OC | PB | KB |
| Bugula californica | | CI | | | GF | | | | |
| Bugula fulva NIS, R.E.* | | CI | MB | | | | | | |
| Bugula longirostrata | | | | ES | | | | | |
| Bugula neritina NIS | TR | CI | MB | ES | GF | | | | |
| Bugula pacifica | | | | | GF | SS | OC | PB | KB |
| Bugula sp. | TR | CI | MB | ES | GF | SS | OC | PB | |
| Bugula sp. 1 | | | | ES | GF | | | | |
| Bugula sp. X | | | MB | ES | | | | | |
| Bugula sp. Y | TR | CI | | | GF | | | | |
| Bugula stolonifera NIS | | CI | MB | ES | GF | | | | |
| Buskia seriata | | | | ES | | | | | |
| Callopora craticula | | | | | | | | | KB |
| Callopora sp. | | | | | | SS | | | KB |
| Callopora sp. 1 | | | | | | | OC | | |
| Caulibugula ciliata | | | | | | SS | | | |
| Celleporaria brunnea | TR | CI | MB | | GF | | | | |
| Celleporaria sp. | | CI | | | GF | | | | |
| Celleporella hyalina | | | MB | | GF | SS | OC | PB | KB |
| Celleporina robertsoniae | TR | CI | | | | | | | |
| Celleporina sp. | TR | CI | | | | | | | |
| Cheilopora praelonga | | | | | | SS | | | |
| Cheilostomata | | | | | | SS | | | |
| Conopeum osburni | | | | ES | GF | SS | | | |
| Conopeum seurati NIS | | | | ES | GF | SS | | | |
| Conopeum tenuissimum NIS | | | | | | SS | | | |
| Cribrilina annulata | | | | | | | | | KB |
| Cribrilina corbicula | | | | | | | OC | PB | KB |
| Cribrilina sp. | | | | | | SS | | | |
| Cribrilina sp. 1 | | | | | | SS | | | |
| Crisia occidentalis | | | | | | | OC | | |
| Crisia sp. | | CI | MB | | | SS | OC | | |
| Crisulipora occidentalis | TR | CI | | | | | | | |
| Crisulipora sp. | TR | | | | | | | | |
| Cryptosula pallasiana NIS | TR | CI | MB | ES | GF | SS | | PB | |
| Ctenostomata | TR | | | | | | | | |
| Cyclostomata | TR | | | | | | | | |
| Dendrobeania lichenoides | | | | | | SS | | | |
| Disporella sp. | TR | | | | | | | | |
| Electra crustulenta | | | | | | SS | | | |
| Filicrisia franciscana | | | | | | | OC | | |
| Filicrisia sp. | | | MB | | | | | | |
| Hippopodina feegeensis | TR | | | | GF | | | | |
| Lichenopora sp. 1 | TR | | | | | | | | |

Bryozoa, continued

| | | | | | | | | | | |
|---|----|----|----|----|----|-----|-----|----|--|----|
| Lichenopora verrucaria | | | | | | | | | | KB |
| Membranipora sp.? | | | | MB | | | | | | |
| Membranipora villosa | | | | | | | | | | PB |
| Microporella californica | | | | | | | SS | | | |
| Parasmittina sp. | | | | | | | SS | | | |
| Parasmittina trispinosa | | | | | | | SS? | OC | | |
| Reteporidae sp. | | | | | | | | | | KB |
| Schizoporella sp. | | | | | | GF? | | | | PB |
| Schizoporella sp. A | TR | | | | | | | | | |
| Schizoporella unicornis NIS | | | | MB | ES | GF | SS | | | PB |
| Scruparia sp. | | | | | | | SS | | | |
| Scrupocellaria bertholetti tenuirostris | TR | | | | | | | | | |
| Smittinidae sp. | | | | | | GF | | | | |
| Smittoidea prolifica | TR | | | | ES | | SS | | | |
| Tegella aquilirostris | | | | | | | | | | KB |
| Tegella armifera | | | | | | | | | | KB |
| Thalamoporella californica | TR | CI | | | | | | | | |
| Thalamoporella sp. | TR | | | | | | | | | |
| Tricellaria occidentalis | | | | | | | | OC | | |
| Tricellaria ternata | | | | | | | | OC | | |
| Tubulipora pacifica | TR | | | | | | | | | |
| Tubulipora sp. | TR | | | MB | | | | | | |
| Tubulipora tuba | TR | | | | | | | | | PB |
| Victorella pavida NIS, R.E. | TR | | | | ES | | | | | |
| Watersipora arcuata NIS | TR | CI | | | | | | | | |
| Watersipora subtorquata NIS | TR | CI | MB | ES | GF | | | | | |
| Zoobotryon verticillatum NIS | TR | | | | | | | | | |

| Totals | Coast | TR | CI | MB | ES | GF | SS | OC | PB | KB |
|-----------------|-------|------|------|------|------|------|------|-----|------|-----|
| Max # species | 75 | 28 | 18 | 17 | 18 | 20 | 25 | 13 | 10 | 12 |
| Min # species | 56 | 21 | 14 | 15 | 15 | 17 | 20 | 11 | 8 | 11 |
| # Named species | 43 | 15 | 12 | 9 | 13 | 12 | 15 | 8 | 7 | 8 |
| # NIS | 11 | 6 | 6 | 6 | 7 | 6 | 4 | 0 | 2 | 0 |
| % NIS | 25.0 | 40.0 | 50.0 | 66.7 | 53.8 | 50.0 | 28.6 | 0.0 | 28.6 | 0.0 |

All Taxa Combined

| Totals | Coast | TR | CI | MB | ES | GF | SS | OC | PB | KB |
|--------------------------|-------|------|------|------|------|------|------|------|------|-----|
| Max # species | 181 | 67 | 53 | 36 | 39 | 52 | 59 | 44 | 32 | 39 |
| Min # species | 132 | 51 | 38 | 31 | 32 | 39 | 45 | 36 | 26 | 29 |
| # Named species | 110 | 41 | 36 | 21 | 28 | 31 | 36 | 28 | 20 | 23 |
| # NIS | 30 | 21 | 16 | 12 | 15 | 13 | 8 | 4 | 6 | 0 |
| % NIS | 27.0 | 51.2 | 44.4 | 57.1 | 53.6 | 41.9 | 22.9 | 14.3 | 30.0 | 0.0 |
| # plates retrieved | 313 | 37 | 30 | 17 | 41 | 26 | 73 | 20 | 26 | 43 |
| # plates with these taxa | 298 | 37 | 29 | 16 | 37 | 26 | 69 | 20 | 26 | 38 |
| # non-marina plates | 157 | 14 | 12 | 6 | 29 | 7 | 54 | 8 | 16 | 22 |

Notes:

- 1: **TR** = Tijuana River NERR; **CI** = Channel Islands NMS; **MB** = Monterey Bay NMS;
ES = Elkhorn Slough NERR; **GF** = Gulf of Farallones NMS; **SS** = South Slough NERR;
OC = Olympic Coast NMS; **PB** = Padilla Bay NERR; **KB** = Kachemak Bay NER

When a species was found on plates at NERRS YSI Datasondes and other in-reserve sites that were

not marinas, the Reserves and Sanctuaries are in *italix* in the table; when the species is an NIS, the Reserve/Sanctuary initials are **bolded**.

2. Maximum number of speices per Reserve or Sanctuary on the plates
- 3: Minimum number of different species per Reserve or Sanctuary on the plates
- 4: Number of named, described (recorded?) species identified to the species level in this study
- 5: Minimum number of nonindigenous species per Reserve or Sanctuary
- 6: Percent nonindigenous species, as calculated by (minimum # NIS ÷ # named species * 100)
- 7: R.E. = Range extension; R.E.* = New record for US West Coast

Table 3. The origin and arrival of the NIS found in our survey.

| Taxonomy | Species | Origin | 1st West Coast date | 1st West Coast location | Probable vector to West Coast |
|-----------------|---------------------------------|----------------|---------------------------------------|--|---|
| Hydrozoa | <i>Ectopleura crocea</i> | NW Atlantic? | 1865 | CA/ San Diego Bay | Shipping (Hull Fouling) |
| Serpulidae | <i>Ficopomatus enigmaticus</i> | Unknown | 1921 | CA/San Francisco Bay | Shipping (Hull Fouling; Ballast Water) |
| Nudibranchia | <i>Tenellia adpersa</i> | Amphi-Atlantic | 1953 | CA/San Francisco Bay | Shipping (Hull Fouling; Ballast Water) |
| Cirripedia | <i>Balanus amphitrite</i> | Indo-Pacific | 1921 | La Jolla/CA/Pacific Ocean | Shipping (Hull Fouling; Ballast Water) |
| Cirripedia | <i>Balanus improvisus</i> | NW Atlantic | 1853 | CA/San Francisco Bay | Shipping (Hull Fouling); Fisheries (Oysters-Accidental) |
| Cirripedia | <i>Balanus reticulatus</i> | Indo-Pacific | 1985 | Mazatlan/Mexico/Pacific Ocean | Shipping (Hull Fouling; Ballast Water) |
| Bryozoa | <i>Bugula fulva</i> | Amphi-Atlantic | 2003 | CA/Monterey Bay | Shipping (Hull Fouling) |
| Bryozoa | <i>Bugula neritina</i> | Unknown | 1905 | CA/Monterey Bay | Shipping (Hull Fouling); Fisheries (Oysters-Accidental) |
| Bryozoa | <i>Bugula stolonifera</i> | NW Atlantic? | 1985 | CA/Monterey Bay | Shipping (Hull Fouling); Fisheries (Oysters-Accidental) |
| Bryozoa | <i>Conopeum seurati</i> | NE Atlantic? | Unknown | Unknown | Shipping (Hull Fouling; Ballast Water) |
| Bryozoa | <i>Conopeum tenuissimum</i> | NW Atlantic | 1951 | CA/San Francisco Bay | Shipping (Hull Fouling; Ballast Water) |
| Bryozoa | <i>Cryptosula pallasiana</i> | Amphi-Atlantic | 1947 | CA/San Francisco Bay | Shipping (Hull Fouling); Fisheries (Oysters-Accidental) |
| Bryozoa | <i>Schizoporella unicornis</i> | NE Atlantic? | 1927 | WA/Puget Sound | Shipping (Hull Fouling); Fisheries (Oysters-Accidental) |
| Bryozoa | <i>Victorella pavida</i> | Unknown | 1967 | CA/San Francisco Bay | Shipping (Hull Fouling); Fisheries (Oysters-Accidental) |
| Bryozoa | <i>Watersipora arcuata</i> | Unknown | 1959 | Mexico/Scammon's Lagoon (Gulf of California) | Shipping (Hull Fouling) |
| Bryozoa | <i>Watersipora subtorquata</i> | Unknown | 1989 | CA/Drakes Estero | Shipping (Hull Fouling) |
| Bryozoa | <i>Zoobotryon verticillatum</i> | Unknown | 1900 | CA/ San Diego Bay | Shipping (Hull Fouling) |

| | | | | | |
|----------|-----------------------------------|----------------|---------|----------------------|---|
| Tunicata | <i>Ascidia zara</i> | NW Pacific | 1982 | CA/Long Beach Harbor | Shipping (Hull Fouling) |
| Tunicata | <i>Botrylloides perspicuum</i> | Indo-Pacific | 1997 | CA/ San Diego Bay | Shipping (Hull Fouling) |
| Tunicata | <i>Botrylloides violaceus</i> | NW Pacific | 1973 | CA/San Francisco Bay | Shipping (Hull Fouling); Fisheries (Oysters-Accidental) |
| Tunicata | <i>Botryllus schlosseri</i> | NE Atlantic? | 1947 | CA/San Francisco Bay | Shipping (Hull Fouling); Fisheries (Oysters-Accidental) |
| Tunicata | <i>Ciona intestinalis</i> | Amphi-Atlantic | 1897 | CA/San Diego Bay | Shipping (Hull Fouling) |
| Tunicata | <i>Ciona savignyi</i> | NW Pacific | 1985 | CA/Long Beach Harbor | Shipping (Hull Fouling; Ballast Water) |
| Tunicata | <i>Didemnum sp. A.</i> | Unknown | 1993 | CA/San Francisco Bay | Shipping (Hull Fouling) |
| Tunicata | <i>Diplosoma listerianum</i> | NE Atlantic? | 1917 | CA/ San Diego Bay | Shipping (Hull Fouling) |
| Tunicata | <i>Molgula manhattensis</i> | Amphi-Atlantic | 1949 | CA/Tomales Bay | Shipping (Hull Fouling); Fisheries (Oysters-Accidental) |
| Tunicata | <i>Molgula sp. A.</i> | Unknown | Unknown | southern CA | Shipping (Hull Fouling); Fisheries (Oysters-Accidental) |
| Tunicata | <i>Polyandrocarpa zorritensis</i> | SE Pacific? | 1994 | CA/Oceanside Harbor | Shipping (Hull Fouling) |
| Tunicata | <i>Styela clava</i> | NW Pacific | 1933 | CA/Newport Bay | Shipping (Hull Fouling); Fisheries (Oysters-Accidental) |
| Tunicata | <i>Styela plicata</i> | Unknown | 1915 | CA/ San Diego Bay | Shipping (Hull Fouling) |
| Tunicata | <i>Symplegma reptans</i> | Indo-Pacific | 1997 | CA/Mission Bay | Shipping (Hull Fouling) |

Table 4. Species overlap and beta diversity between marinas and other sites, for all species and NIS.

| Reserve | # Species in marinas (#plates) | # Species in reserve, buoy or frame (# plates) | # Species in both habitats (% overlap) | # Non-overlapping species (%) | # NIS in marinas | # NIS in reserve (buoy or frame) | # NIS in both habitats (%) | # Non-overlapping NIS (%) |
|--------------------|--------------------------------|--|--|-------------------------------|------------------|----------------------------------|----------------------------|---------------------------|
| Tijuana River | 44 (23) | 10 (14 frame) | 3 (5.9) | 48 (94.1) | 19 | 3 | 1 (4.8) | 20 (95.2) |
| Channel Islands | 31 (18) | 9 (12 buoy) | 1 (2.6) | 38 (97.4) | 16 | 0 | 0 (0) | 16 (N/A) |
| Monterey Bay | 25 (11) | 8 (5 buoy) | 1 (3.1) | 31 (96.9) | 12 | 0 | 0 (0) | 12 (N/A) |
| Elkhorn Slough | 23 (12) | 18 (29 frame) | 10 (32.3) | 21 (67.7) | 13 | 8 | 6 (40.0) | 9 (60.0) |
| Gulf of Farallones | 38 (15) | 11 (6 buoy) | 10 (25.6) | 29 (74.4) | 13 | 6 | 6 (46.3) | 7 (53.8) |
| South Slough | 29 (11) | 26 (41 frame) | 12 (27.9) | 31 (72.1) | 7 | 3 | 3 (42.9) | 4 (57.1) |
| Olympic Coast | 22 (12) | 20 (8 buoy) | 6 (16.7) | 30 (83.3) | 4 | 0 | 0 (0) | 4 (N/A) |
| Padilla Bay | 18 (10) | 17 (16 frame, buoy) | 8 (29.6) | 19 (70.4) | 5 | 2 | 2 (28.6) | 5 (71.4) |
| Kachemak Bay | 22 (11) | 17 (8 buoy) | 10 (34.5) | 19 (65.5) | 0 | 0 | N/A | N/A |

Table 5. Average number individuals per trap per species at each Reserve.

| Species | Site | | | | | |
|---|-------|---------|---------|---------|---------|---------|
| | NERR: | TR (29) | ES (55) | SS (27) | PB (21) | KB* (8) |
| Crabs | | | | | | |
| <i>Hemigrapsus oregonensis</i> (Hairy shore crab) | | 8.45 | 12.5 | 0 | 0 | 0 |
| <i>Pachygrapsus crassipes</i> (Striped shore crab) | | 1.38 | .69 | 0 | 0 | 0 |
| <i>Telmessus cheiragonus</i> (Helmet crab) | | 0 | 0 | 0 | 0 | 1.13 |
| <i>Cancer gracilis</i> (Graceful crab) | | 0 | 0 | 0 | .10 | 0 |
| <i>Cancer magister</i> (Dungeness crab) | | 0 | 0 | 7.48 | 0 | 0.25 |
| <i>Cancer productus</i> (Red rock crab) | | 0 | 0.71 | 1.78 | .10 | 0 |
| <i>Carcinus maenas</i> (Green crab) NIS | | 0 | 17.09 | 0 | 0 | 0 |
| Fish | | | | | | |
| <i>Fundulus parvipinnis</i> (California killifish) | | 0.07 | 0 | 0 | 0 | 0 |
| <i>Scorpaenichthys marmoratus</i> (Cabezon sculpin) | | 0 | 0.02 | 0 | 0 | 0 |
| <i>Leptocottus armatus</i> (Staghorn sculpin) | | 0 | 0.20 | 0.26 | .24 | 0 |
| <i>Paralabrax clathratus</i> (Kelp bass) | | 0 | 0.02 | 0 | 0 | 0 |
| <i>Cymatogaster aggregata</i> (Shiner surfperch) | | 0 | 0 | 0 | .05 | 0 |
| <i>Pholis ornata</i> (Saddleback gunnel) | | 0 | 0 | 0 | .05 | 0 |
| <i>Tridentiger trigonocephalus</i> ** (Chameleon goby) NIS | | 0.10 | 0 | 0 | 0 | 0 |
| <i>Gillichthys mirabilis</i> (Longjaw mudsucker) | | 0.28 | 0.55 | 0 | 0 | 0 |
| <i>Clevelandia ios</i> (Arrow goby) | | 0.03 | 0 | 0 | 0 | 0 |

NERR: TR = Tijuana River; ES = Elkhorn Slough; SS = South Slough; PB = Padilla Bay; KB = Kachemak Bay. Number of traps in parentheses (N).

* All results are from 2003 except the Kachemak Bay NERR results, which are from 2004. No organisms were caught in traps at Kachemak in 2003.

** = ID not verified

| Table OC-1. Site Location Characteristics and Survey Schedule | | | | | | | |
|--|--------------------------------------|-----------------------------|--------------------|-------------------|-----------------|-----------------------|----------------------------|
| Site Code | Site Name | Habitat | Sample Date | Start Time | End Time | Surf Temp (°C) | Surf Salinity (ppt) |
| BP | Strawberry Island (Bahobohosh Point) | Rock Shelf | 8/19/01 | 700 | 800 | 13 | 31.6 |
| | Strawberry Island (Bahobohosh Point) | Rock Shelf | 7/24/02 | | | | |
| CARS | Cape Alava Rock Shelf | Rock Shelf | 8/7/02 | 620 | 720 | 14.9 | 32.7 |
| CAWR | Wedding Rocks | Rock Shelf | 8/7/02 | 550 | 650 | 13.3 | 32.6 |
| CB | Cannonball | Rock Shelf | 8/7/02 | 830 | 937 | 14 | 34 |
| CBM | Cannonball Mud | Mud Flat | 8/7/02 | 950 | 1005 | 16.5 | 32 |
| CME | Chilean Memorial Exposed | Rock Shelf | 8/20/01 | 800 | 900 | 11 | 34 |
| CMP | Chilean Memorial Protected | Rock Shelf | 8/20/01 | 930 | 1030 | 12 | 32.8 |
| DI | Destruction Island | Boulders with rock outcrops | 8/11/02 | 945 | 1115 | 11 | 32.8 |
| HRC | Diamond Rock (Hoh River) | Cobble Beach | 8/22/01 | 845 | 945 | 12.5 | 25.1 |
| KBS | Kayostla Beach Sand | Sandy Beach | 8/9/02 | 955 | 1030 | | |
| LP | La Push Marina | Dock | 8/20/01 | 1400 | 1445 | 12.5 | 31.2 |
| NB1 | Neah Bay Marina | Dock | 8/12/02 | | | | |
| | Neah Bay Marina | Dock | 7/23/02 | | | | |
| | Neah Bay Marina | Dock | 8/18/01 | 1345 | 1445 | 12 | 30.2 |
| NB2 | Neah Bay School Creek | Rock Shelf | 8/18/01 | 1010 | 1100 | 15 | 30 |
| NMM | Norwegian Memorial Middle | Rock Shelf | 8/9/02 | 845 | 945 | 13.1 | 32.7 |
| NPRS | Norwegian Point Rock Shelf | Rock Shelf | 8/9/02 | 702 | 830 | 11.5 | 32.7 |
| PG | Point Grenville Rock | Rock Shelf | 8/10/02 | 840 | 945 | 10.9 | 32.2 |
| PGS | Point Grenville Sand | Sandy Beach | 8/10/02 | 1025 | 1120 | 12 | 32.2 |
| QR | Quillayute River | Salt Water Wedge | 8/21/01 | | | | |
| RB | Rialto Beach | Gravel Beach | 8/20/01 | 1130 | 1200 | 13.5 | 32 |
| SB | Sooes Beach | Sandy Beach | 8/19/01 | 820 | 920 | 13 | 31.9 |
| SB1 | Second Beach Rock Shelf | Rock Shelf | 8/6/02 | 624 | 730 | 12 | 32.4 |

Table 4. Native Invertebrate Species with Range Expansions in OCNMS 2001-2002

| Category | Species_Name | BP | CARS | CAWR | CME | CMP | DI | HRC | LP | NB1 | NB2 | NMM | NPRS | PG | SB1 | SB2 | TBR | WP | WR |
|--------------------------------------|------------------------------|----|------|------|-----|-----|----|-----|----|-----|-----|-----|------|----|-----|-----|-----|----|----|
| Mollusca: Bivalvia: Pteriomorpha | Adula diegensis | | | | | | | X | | | | | | | X | X | X | | |
| Arthropoda: Crustacea: Isopoda | Idotea (Pentidotea) recta | | | | | | | X | | | | | | | X | | | X | |
| Arthropoda: Crustacea: Isopoda | Joeropsis dubia dubia | | | | | | | | | | | | | | X | | | | |

Appendix A. Taxonomists who provided or will provide identifications to taxa in study

ANNELIDA

Serpulids

Linda McCann (Smithsonian Environmental Research Center, MD)

Rolando Bastida-Zavala, Universidad del Mar (Oaxaca, Mexico)

BRYOZOA

Linda McCann (Smithsonian Environmental Research Center, MD)

Natasha Gray Hitchcock (Smithsonian Environmental Research Center, MD)

Judy Winston (Virginia Museum of Natural History, VA)

Scott Santagata (Smithsonian Marine Station at Fort Pierce, FL)

Matthew H. Dick (Hokkaido University, Sapporo, Japan)

Josh Mackie (SUNY Stony Brook, NY)

CIRRIPEDIA

Chris W. Brown (Smithsonian Environmental Research Center, CA)

Francis Kerckhof (Royal Belgian Institute of Natural Sciences, Oostende, Belgium)

HYDROZOA

Lea-Anne Henry (Argyll, UK)

MOLLUSCA

Bivalvia

Nora Foster (University of Alaska Museum of the North, AK)

Nudibranchia

Jeff Goddard (Marine Science Institute UCSB, CA)

PORIFERA

Chris W. Brown (Smithsonian Environmental Research Center, CA)

TUNICATA

Gretchen and Charlie Lambert (UC Fullerton, CA)

Appendix B. Number of each species caught in traps at west coast NERRS sites in fall 2003.

| Site | # Traps | Crabs | | | | | | | Fish | | | | | | | | | |
|-----------------------|------------|-------|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|------|-----|-----|---|
| | | H.o | Pac | T.c | C.g | Can | C.p | Car | F.p | S.m | L.a | Par | C.a | P.o | T.t* | G.m | C.i | |
| Tijuana River | 29 (13,16) | 245 | 40 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 8 | 1 |
| Main Channel | 8 (4,4) | 18 | 4 | | | | | | | | | | | | | | | |
| Model Marsh | 7 (3,4) | 2 | 16 | | | | | | | | | | | | | | 7 | |
| Oneonta Slough | 7 (3,4) | 201 | 6 | | | | | | | | | | | | | | 1 | |
| Tidal Linkage | 7 (3,4) | 24 | 14 | | | | | | 2 | | | | | | 3 | | | 1 |
| Elkhorn Slough | 55 (28,27) | 693 | 38 | 0 | 0 | 0 | 39 | 940 | 0 | 1 | 11 | 1 | 0 | 0 | 0 | 30 | 0 | 0 |
| Azevedo Pond | 8 (4,4) | 1 | 38 | | | | | 149 | | | 1 | | | | | | | |
| Hudson Landing | 8 (4,4) | 72 | | | | | | 19 | | | | | | | | 1 | | |
| Hummingbird Is | 8 (4,4) | 2 | | | | | | 204 | | | 7 | | | | | | | |
| Kirby Park | 7 (4,3) | 351 | | | | | 1 | 41 | | | | | | | | | | |
| North Marsh | 8 (4,4) | 3 | | | | | | 402 | | | | | | | | 27 | | |
| Vierra's | 8 (4,4) | 1 | | | | | | 38 | 0 | 1 | | 1 | | | | | | |
| Whistle Stop Lgn | 8 (4,4) | 267 | | | | | | 125 | | | 3 | | | | | | 2 | |
| South Slough | 27 (16,11) | 0 | 0 | 0 | 0 | 202 | 48 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Brown's Cove | 7 (4,3) | | | | | | 33 | 38 | | | | | 5 | | | | | |
| Sengstaken arm | 7 (4,3) | | | | | | 73 | | | | | | 2 | | | | | |
| Valino Is | 7 (4,3) | | | | | | 41 | 10 | | | | | | | | | | |
| Winchester arm | 6 (4,2) | | | | | | 55 | | | | | | | | | | | |
| Padilla Bay | 21 (12,9) | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 5 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| Bayview Channel | 8 (4,4) | | | | 1 | | | | | | | 2 | | | | | | |
| Middle Channel | 6 (4,2) | | | | | | | 2 | | | | | | 1 | | | | |
| Ploug Channel | 7 (4,3) | | | | 1 | | | | | | | 3 | | | 1 | | | |
| Kachemak Bay | 16 (8,8) | 0 | 0 | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Homer pilings 2003 | 8 (4,4) | | | | | | | | | | | | | | | | | |
| Homer pilings 2004 | 8 (4,4) | | | 9 | | | 2 | | | | | | | | | | | |

Traps retrieved (# Collapsible traps, # Minnow traps)

Crabs: H.o: *Hemigrapsus oregonensis* (Hairy shore crab); Pac: *Pachygrapsus crassipes* (Striped shore crab); T.c: *Telmessus cheiragonus* (Helmet crab); C.g: *Cancer gracilis* (Graceful crab); Can: *Cancer magister* (Dungeness crab); C.p: *Cancer productus* (Red rock crab); Car: *Carcinus maenas* (Green crab);

Fish: F.p: *Fundulus parvipinnis* (California killifish); S.m: *Scorpaenichthys marmoratus* (Cabezon sculpin); L.a: *Leptocottus armatus* (Staghorn sculpin); Par: *Paralabrax clathratus* (Kelp bass); C.a: *Cymatogaster aggregata* (Shiner surfperch); O,i: *Pholis ornata* (Saddleback gunnel); T.t: *Tridentiger trigonocephalus* (Chameleon goby – ID not verified); G.m: *Gillichthys mirabilis* (Longjaw mudsucker); C.i: *Clevelandia ios* (Arrow goby)

*ID not verified

ng plates at each Reserve or Sanctuary site.

| Year | Reserve | Site | ModTaxa | Genus | Species | #Plates at site with taxa | Notes | NIS? |
|------|---------------|--------------------------------|--------------|----------------|---------------|---------------------------------|-------|------|
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Bowerbankia | sp. | 3 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Bugula | neritina | 2 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Bugula | sp. Y | 2 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Celleporaria | brunnea | 6 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Celleporina | robertsoniae | 1 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Crisulipora | occidentalis | 6 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Crisulipora | sp. | 4 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Cryptosula | pallasiana | 1 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Cyclostomata | | 1 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Hippopodina | feegeensis | 1 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Schizoporella | sp. A | 4 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Smittoidea | prolifca | 4 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Thalamoporella | californica | 6 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Tubulipora | pacifica | 2 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Tubulipora | sp. | 2 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Tubulipora | tuba | 1 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Watersipora | arcuata | 5 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Watersipora | subtorquata | 6 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Bryozoa | Zoobotryon | verticillatum | 4 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Cirripedia | Balanus | amphitrite | 1 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Cirripedia | Balanus | trigonus | 1 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Hydrozoa | Aglaophenia | sp. | 1 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Hydrozoa | Aglaophenia | struthionides | 1 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Nudibranchia | Hermisenda | crassicornis | 1 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Aplidium | californicum | 1 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Ascidia | sp. | 1 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Ascidia | zara | 4 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Botrylloides | perspicuum | 5 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Botryllus | schlosseri | 6 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Ciona | intestinalis | 4 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Ciona | savignyi | 2 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Diplosoma | listerianum | 3 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Perophora | annectens | 2 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Polyandrocarpa | zorritensis | 2 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Styela | clava | 1 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Styela | plicata | 3 | | yes |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Styela | sp. | 3 | | no |
| 2003 | Tijuana River | Mission Bay, Dana Point Marina | Tunicata | Symplegma | reptans | 4 | | yes |

| | | | | | | | |
|------|---------------|------------------------------|------------|-----------------|---------------|---|-----|
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Bugula | neritina | 1 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Bugula | sp. | 2 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Bugula | sp. Y | 3 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Celleporaria | brunnea | 6 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Celleporina | robertsoniae | 1 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Celleporina | sp. | 1 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Crisulipora | occidentalis | 3 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Cryptosula | pallasiana | 1 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Schizoporella | sp. A | 1 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Thalamoporella | californica | 6 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Tubulipora | sp. | 2 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Tubulipora | tuba | 5 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Watersipora | arcuata | 4 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Watersipora | subtorquata | 6 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Bryozoa | Zoobotryon | verticillatum | 1 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Cirripedia | Balanus | amphitrite | 3 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Aplidium | californicum | 2 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Ascidia | sp. | 1 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Ascidia | zara | 2 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Botrylloides | perspicuum | 5 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Botrylloides | violaceus | 1 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Botryllus | schlosseri | 6 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Ciona | intestinalis | 4 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Ciona | savignyi | 6 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Diplosoma | listerianum | 4 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Distaplia | occidentalis | 4 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Polyandrocarpa | zorritensis | 1 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Styela | plicata | 1 | yes |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Styela | sp. | 1 | no |
| 2003 | Tijuana River | Mission Bay, Seaforth Marina | Tunicata | Styelidae | | 1 | no |
| 2003 | Tijuana River | Model Marsh | Bryozoa | Bowerbankia | sp. | 1 | no |
| 2003 | Tijuana River | Model Marsh | Bryozoa | Victorella | pavida | 4 | yes |
| 2003 | Tijuana River | Model Marsh | Cirripedia | Balanus | amphitrite | 5 | yes |
| 2003 | Tijuana River | Model Marsh | Cirripedia | Balanus | glandula | 1 | no |
| 2003 | Tijuana River | Model Marsh | Cirripedia | Chthamalus | sp. | 3 | no |
| 2003 | Tijuana River | Model Marsh | Hydrozoa | Thecata | | 1 | no |
| 2003 | Tijuana River | Oneonta Slough | Bryozoa | Bowerbankia | sp. | 1 | no |
| 2003 | Tijuana River | Oneonta Slough | Cirripedia | Balanus | amphitrite | 4 | yes |
| 2003 | Tijuana River | Oneonta Slough | Cirripedia | Balanus | improvisus | 1 | yes |
| 2003 | Tijuana River | Oneonta Slough | Cirripedia | Balanus | trigonus | 1 | no |
| 2003 | Tijuana River | Oneonta Slough | Hydrozoa | Campanulariidae | | 3 | no |
| 2003 | Tijuana River | Oneonta Slough | Hydrozoa | Clytia | sp. | 2 | no |
| 2003 | Tijuana River | Oneonta Slough | Hydrozoa | Obelia | longissima | 1 | no |

| | | | | | | | | |
|------|---------------|----------------------------|--------------|----------------|---------------|---|---|-----|
| 2003 | Tijuana River | Oneonta Slough | Hydrozoa | Obelia | sp. | 2 | | no |
| 2003 | Tijuana River | Oneonta Slough | Nudibranchia | Cuthona | albocrusta | 2 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Bryozoa | Amathia | sp. | 1 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Bryozoa | Celleporaria | brunnea | 1 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Bryozoa | Disporella | sp. | 1 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Bryozoa | Hippopodina | feegeensis | 1 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Bryozoa | Lichenopora | sp. 1 | 2 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Bryozoa | Scrupocellaria | bertholetti | 1 | | no |
| | | | | | tenuirostris | | | |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Bryozoa | Thalamoporella | californica | 4 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Bryozoa | Thalamoporella | sp. | 1 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Bryozoa | Watersipora | subtorquata | 1 | | yes |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Bryozoa | Zoobotryon | verticillatum | 6 | | yes |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Cirripedia | Balanus | amphitrite | 2 | | yes |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Hydrozoa | Endothecium | sp. | 1 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Tunicata | Aplidium | californicum | 1 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Tunicata | Ascidia | zara | 3 | | yes |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Tunicata | Botrylloides | diegensis | 2 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Tunicata | Botrylloides | perspicuum | 1 | | yes |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Tunicata | Ciona | savignyi | 1 | | yes |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Tunicata | Diplosoma | listerianum | 4 | | yes |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Tunicata | Distaplia | occidentalis | 1 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Tunicata | Distaplia | sp. | 1 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Tunicata | Molgula | sp. | 1 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Tunicata | Perophora | annectens | 3 | | no |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Tunicata | Polyandrocarpa | zorritensis | 3 | | yes |
| 2003 | Tijuana River | SD Bay, Chula Vista Marina | Tunicata | Styela | sp. | 4 | | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Bryozoa | Bugula | sp. Y | 1 | | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Bryozoa | Celleporaria | brunnea | 2 | | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Bryozoa | Celleporina | robertsoniae | 2 | | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Bryozoa | Crisulipora | occidentalis | 2 | | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Bryozoa | Cyclostomata | | 1 | | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Bryozoa | Thalamoporella | californica | 1 | | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Bryozoa | Tubulipora | sp. | 2 | ? | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Bryozoa | Tubulipora | tuba | 1 | | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Bryozoa | Watersipora | arcuata | 4 | | yes |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Bryozoa | Watersipora | subtorquata | 3 | | yes |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Bryozoa | Zoobotryon | verticillatum | 4 | | yes |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Cirripedia | Balanus | amphitrite | 1 | | yes |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Cirripedia | Balanus | reticulatus | 1 | | yes |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Hydrozoa | Bougainvillia | sp. | 2 | | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Tunicata | Ascidia | ceratodes | 1 | | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Tunicata | Ascidia | zara | 2 | | yes |

| | | | | | | | | |
|------|---------------|----------------------------|--------------|-----------------|--------------|---|------------------|-----|
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Tunicata | Botrylloides | violaceus | 3 | | yes |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Tunicata | Botryllus | schlosseri | 4 | | yes |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Tunicata | Ciona | intestinalis | 2 | | yes |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Tunicata | Ciona | savignyi | 4 | | yes |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Tunicata | Diplosoma | listerianum | 5 | | yes |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Tunicata | Distaplia | occidentalis | 3 | | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Tunicata | Molgula | sp. | 1 | | no |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Tunicata | Molgula | sp. A | 1 | was verrucifera, | yes |
| | | | | | | | GL changed | |
| 2003 | Tijuana River | SD Bay, Sunroad Marina | Tunicata | Perophora | annectens | 4 | | no |
| 2003 | Tijuana River | Tidal Linkage | Bryozoa | Ctenostomata | | 1 | | no |
| 2003 | Tijuana River | Tidal Linkage | Cirripedia | Balanus | amphitrite | 1 | | yes |
| 2003 | Tijuana River | Tidal Linkage | Hydrozoa | Campanulariidae | | 1 | | no |
| 2003 | Tijuana River | Tijuana River Main Channel | Bryozoa | Victorella | pavida | 1 | | yes |
| 2004 | Channel Is | Alegria (PISCO) | Bryozoa | Alcyonidium | | | ID not verified | no |
| 2004 | Channel Is | Alegria (PISCO) | Bryozoa | Bryo sp. | | | ID not verified | |
| 2004 | Channel Is | Alegria (PISCO) | Hydrozoa | Obelia | longissima | 2 | | no |
| 2004 | Channel Is | Alegria (PISCO) | Nudibranchia | Eubranchus | rustyus | 1 | | no |
| 2004 | Channel Is | Arguello (PISCO) | Bryozoa | Bryo sp. | | | ID not verified | |
| 2004 | Channel Is | Arguello (PISCO) | Bryozoa | Membraniporidae | | | ID not verified | no |
| 2004 | Channel Is | Arguello (PISCO) | Hydrozoa | Campanulariidae | | 1 | | no |
| 2004 | Channel Is | Arguello (PISCO) | Hydrozoa | Obelia | sp. | 1 | | no |
| 2004 | Channel Is | Ellwood (PISCO) | Bryozoa | Alcyonidium | | | ID not verified | no |
| 2004 | Channel Is | Ellwood (PISCO) | Bryozoa | Bryozoa | | | ID not verified | |
| 2004 | Channel Is | Ellwood (PISCO) | Bryozoa | Victorellidae | | | ID not verified | |
| 2004 | Channel Is | Ellwood (PISCO) | Cirripedia | Megabalanus | californicus | 1 | | no |
| 2004 | Channel Is | Ellwood (PISCO) | Cirripedia | Megabalanus | sp. | 1 | | no |
| 2004 | Channel Is | Ellwood (PISCO) | Hydrozoa | Campanulariidae | | 1 | | no |
| 2004 | Channel Is | Ellwood (PISCO) | Hydrozoa | Obelia | longissima | 1 | | no |
| 2004 | Channel Is | Ellwood (PISCO) | Hydrozoa | Obelia | sp. | 1 | | no |
| 2004 | Channel Is | Jalama (PISCO) | Bryozoa | Alcyonidium | | | ID not verified | no |
| 2004 | Channel Is | Jalama (PISCO) | Bryozoa | Bryozoa | | | ID not verified | |
| 2004 | Channel Is | Jalama (PISCO) | Bryozoa | Conopeum | | | ID not verified | |
| 2004 | Channel Is | Jalama (PISCO) | Bryozoa | Victorellidae | | | ID not verified | |
| 2004 | Channel Is | Jalama (PISCO) | Cirripedia | Balanus | sp. | 1 | | no |
| 2004 | Channel Is | Jalama (PISCO) | Cirripedia | Megabalanus | californicus | 1 | | no |
| 2004 | Channel Is | Jalama (PISCO) | Hydrozoa | Calycella | syringa | 1 | | no |
| 2004 | Channel Is | Jalama (PISCO) | Hydrozoa | Campanulariidae | | 2 | | no |
| 2004 | Channel Is | Jalama (PISCO) | Hydrozoa | Sarsia | eximia | 1 | | no |
| 2004 | Channel Is | Jalama (PISCO) | Nudibranchia | Hermisenda | crassicornis | 1 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Bowerbankia | sp. | 2 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Bugula | californica | 1 | | no |

| | | | | | | | | |
|------|------------|------------------------|--------------|-----------------|-------------------|---|----------------------------|-----|
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Bugula | fulva | 1 | flabellata, as original ID | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Bugula | neritina | 6 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Bugula | sp. | 2 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Bugula | stolonifera | 1 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Celleporaria | brunnea | 4 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Celleporaria | sp. | 1 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Celleporina | robertsoniae | 1 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Celleporina | sp. | 1 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Crisia | sp. | 1 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Crisulipora | occidentalis | 1 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Cryptosula | pallasiana | 5 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Thalamoporella | californica | 1 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Watersipora | arcuata | 3 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Bryozoa | Watersipora | subtorquata | 6 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Hydrozoa | Plumularia | lagenifera | 1 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Nudibranchia | Hermisenda | crassicornis | 1 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Ascidia | ceratodes | 8 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Ascidia | sp. | 2 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Ascidia | zara | 1 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Botryllidae | | 3 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Botrylloides | sp. | 1 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Botrylloides | violaceus | 5 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Botryllus | schlosseri | 7 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Ciona | intestinalis | 8 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Ciona | savignyi | 1 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Diplosoma | listerianum | 5 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Distaplia | occidentalis | 4 | | no |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Styela | clava | 2 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Styela | plicata | 6 | | yes |
| 2004 | Channel Is | Oxnard, Vintage Marina | Tunicata | Styela | sp. | 2 | | no |
| 2004 | Channel Is | Point Sal (PISCO) | Bryozoa | Bryo sp. | | | ID not verified | |
| 2004 | Channel Is | Point Sal (PISCO) | Bryozoa | Victorellidae | | | ID not verified | |
| 2004 | Channel Is | Point Sal (PISCO) | Hydrozoa | Calycella | syringa | 1 | | no |
| 2004 | Channel Is | Point Sal (PISCO) | Hydrozoa | Campanulariidae | | 2 | | no |
| 2004 | Channel Is | Point Sal (PISCO) | Hydrozoa | Corynidae | | 1 | | no |
| 2004 | Channel Is | Point Sal (PISCO) | Hydrozoa | Obelia | longissima | 1 | | no |
| 2004 | Channel Is | Point Sal (PISCO) | Hydrozoa | Obelia | sp. | 1 | | no |
| 2004 | Channel Is | Point Sal (PISCO) | Hydrozoa | Sarsia | eximia | 2 | | no |
| 2004 | Channel Is | Point Sal (PISCO) | Nudibranchia | Doto | form A of Goddard | 1 | | no |
| 2004 | Channel Is | Point Sal (PISCO) | Nudibranchia | Eubranchus | rustyus | 2 | | no |
| 2004 | Channel Is | Point Sal (PISCO) | Nudibranchia | Flabellina | trilineata | 1 | | no |

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|------|--------------|------------------------|--------------|-----------------|----------------------|---|-----------------|-----|
| 2004 | Channel Is | Point Sal (PISCO) | Nudibranchia | Hermisenda | crassicornis | 1 | | no |
| 2004 | Channel Is | Purisima Point (PISCO) | Bryozoa | Bowerbankia | | | ID not verified | |
| 2004 | Channel Is | Purisima Point (PISCO) | Bryozoa | Membraniporidae | | | ID not verified | |
| 2004 | Channel Is | Purisima Point (PISCO) | Cirripedia | Balanus | crenatus | 1 | | no |
| 2004 | Channel Is | Purisima Point (PISCO) | Cirripedia | Megabalanus | californicus | 2 | | no |
| 2004 | Channel Is | Purisima Point (PISCO) | Hydrozoa | Campanulariidae | | 1 | | no |
| 2004 | Channel Is | Purisima Point (PISCO) | Hydrozoa | Obelia | sp. | 2 | | no |
| 2004 | Channel Is | Purisima Point (PISCO) | Hydrozoa | Sarsia | eximia | 2 | | no |
| 2004 | Channel Is | Purisima Point (PISCO) | Nudibranchia | Doto | form A of Goddard | 1 | | no |
| 2004 | Channel Is | Purisima Point (PISCO) | Nudibranchia | Hermisenda | crassicornis | 1 | | no |
| 2004 | Channel Is | Ventura West Harbor | Bryozoa | Bowerbankia | aggregata | 1 | ? | no |
| 2004 | Channel Is | Ventura West Harbor | Bryozoa | Bowerbankia | sp. | 2 | | no |
| 2004 | Channel Is | Ventura West Harbor | Bryozoa | Bugula | neritina | 7 | | yes |
| 2004 | Channel Is | Ventura West Harbor | Bryozoa | Bugula | sp. | 2 | | no |
| 2004 | Channel Is | Ventura West Harbor | Bryozoa | Bugula | sp. Y | 2 | | no |
| 2004 | Channel Is | Ventura West Harbor | Bryozoa | Bugula | stolonifera | 5 | | yes |
| 2004 | Channel Is | Ventura West Harbor | Bryozoa | Cryptosula | pallasiana | 6 | | yes |
| 2004 | Channel Is | Ventura West Harbor | Bryozoa | Watersipora | arcuata | 5 | | yes |
| 2004 | Channel Is | Ventura West Harbor | Bryozoa | Watersipora | subtorquata | 6 | | yes |
| 2004 | Channel Is | Ventura West Harbor | Cirripedia | Balanus | amphitrite | 3 | | yes |
| 2004 | Channel Is | Ventura West Harbor | Hydrozoa | Corynidae | | 1 | | no |
| 2004 | Channel Is | Ventura West Harbor | Tunicata | Aplidium | sp. | 2 | | no |
| 2004 | Channel Is | Ventura West Harbor | Tunicata | Aplidium | sp. A | 3 | | no |
| 2004 | Channel Is | Ventura West Harbor | Tunicata | Ascidia | ceratodes | 3 | | no |
| 2004 | Channel Is | Ventura West Harbor | Tunicata | Ascidia | sp. | 3 | | no |
| 2004 | Channel Is | Ventura West Harbor | Tunicata | Ascidia | sp. B | 1 | | no |
| 2004 | Channel Is | Ventura West Harbor | Tunicata | Botryllus | schlosseri | 1 | | yes |
| 2004 | Channel Is | Ventura West Harbor | Tunicata | Ciona | intestinalis | 9 | | yes |
| 2004 | Channel Is | Ventura West Harbor | Tunicata | Diplosoma | listerianum | 4 | | yes |
| 2004 | Channel Is | Ventura West Harbor | Tunicata | Molgula | manhattensis | 3 | | yes |
| 2004 | Channel Is | Ventura West Harbor | Tunicata | Stolidobranchia | | 1 | | no |
| 2004 | Channel Is | Ventura West Harbor | Tunicata | Styela | plicata | 3 | | yes |
| 2004 | Channel Is | Ventura West Harbor | Tunicata | Styela | sp. | 1 | | no |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Alcyonidium | sp. | 1 | | no |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Bowerbankia | aggregata | 2 | | no |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Bowerbankia | sp. | 2 | | no |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Bugula | fulva | 1 | | yes |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Bugula | neritina | 4 | | yes |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Bugula | sp. | 2 | | no |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Bugula | sp. X | 2 | | no |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Bugula | stolonifera | 1 | ? | yes |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Celleporaria | brunnea | 5 | | no |

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|------|--------------|--------------------------|--------------|-----------------|--------------|---|--------------------------|-----|
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Celleporella | hyalina | 1 | | no |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Crisia | sp. | 1 | | no |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Cryptosula | pallasiana | 4 | | yes |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Filicrisia | sp. | 1 | | no |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Membranipora | sp. | 1 | ? | no |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Schizoporella | unicornis | 2 | | yes |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Tubulipora | sp. | 1 | | no |
| 2003 | Monterey Bay | Monterey Marina | Bryozoa | Watersipora | subtorquata | 5 | | yes |
| 2003 | Monterey Bay | Monterey Marina | Cirripedia | Balanus | crenatus | 2 | | no |
| 2003 | Monterey Bay | Monterey Marina | Nudibranchia | Triopha | catalinae | 1 | | no |
| 2003 | Monterey Bay | Monterey Marina | Tunicata | Ascidia | sp. | 1 | | no |
| 2003 | Monterey Bay | Monterey Marina | Tunicata | Botrylloides | violaceus | 3 | | yes |
| 2003 | Monterey Bay | Monterey Marina | Tunicata | Botryllus | schlosseri | 3 | | yes |
| 2003 | Monterey Bay | Monterey Marina | Tunicata | Ciona | intestinalis | 3 | | yes |
| 2003 | Monterey Bay | Monterey Marina | Tunicata | Ciona | savignyi | 2 | | yes |
| 2003 | Monterey Bay | Monterey Marina | Tunicata | Diplosoma | listerianum | 3 | | yes |
| 2003 | Monterey Bay | Monterey Marina | Tunicata | Styela | sp. | 1 | | no |
| 2003 | Monterey Bay | Pt Sur (PISCO) | Cirripedia | Lepas | antifera | 1 | | no |
| 2003 | Monterey Bay | Pt Sur (PISCO) | Cirripedia | Lepas | pectinata | 1 | | no |
| | | | | | pacifica | | | |
| 2003 | Monterey Bay | Pt Sur (PISCO) | Hydrozoa | Obelia | longissima | 1 | | no |
| 2003 | Monterey Bay | Pt Sur (PISCO) | Nudibranchia | Dendronotus | frondosus | 1 | | no |
| 2003 | Monterey Bay | Sandhill Bluff (PISCO) | Cirripedia | Balanus | crenatus | 1 | | no |
| 2003 | Monterey Bay | Santa Cruz Harbor | Bryozoa | Bowerbankia | sp. | 2 | | no |
| 2003 | Monterey Bay | Santa Cruz Harbor | Bryozoa | Bugula | neritina | 2 | | yes |
| 2003 | Monterey Bay | Santa Cruz Harbor | Bryozoa | Bugula | stolonifera | 4 | | yes |
| 2003 | Monterey Bay | Santa Cruz Harbor | Bryozoa | Cryptosula | pallasiana | 4 | | yes |
| 2003 | Monterey Bay | Santa Cruz Harbor | Bryozoa | Schizoporella | unicornis | 4 | | yes |
| 2003 | Monterey Bay | Santa Cruz Harbor | Bryozoa | Watersipora | subtorquata | 6 | | yes |
| 2003 | Monterey Bay | Santa Cruz Harbor | Tunicata | Ascidia | sp. | 1 | was sp. A, GL changed | no |
| 2003 | Monterey Bay | Santa Cruz Harbor | Tunicata | Botrylloides | violaceus | 1 | | yes |
| 2003 | Monterey Bay | Santa Cruz Harbor | Tunicata | Botryllus | schlosseri | 5 | | yes |
| 2003 | Monterey Bay | Santa Cruz Harbor | Tunicata | Diplosoma | listerianum | 3 | | yes |
| 2003 | Monterey Bay | Santa Cruz Harbor | Tunicata | Molgula | manhattensis | 3 | | yes |
| 2003 | Monterey Bay | Stillwater Beach (PISCO) | Cirripedia | Lepas | antifera | 1 | | no |
| 2003 | Monterey Bay | Stillwater Beach (PISCO) | Cirripedia | Lepas | pectinata | 1 | | no |
| | | | | | pacifica | | | |
| 2003 | Monterey Bay | Stillwater Beach (PISCO) | Hydrozoa | Campanulariidae | | 1 | | no |
| 2004 | Monterey Bay | Stillwater Cove (PISCO) | Cirripedia | Lepas | sp. | 1 | | no |
| 2004 | Monterey Bay | Stillwater Cove (PISCO) | Hydrozoa | Campanulinidae | | 1 | | no |
| 2004 | Monterey Bay | Stillwater Cove (PISCO) | Hydrozoa | Corynidae | | 1 | | no |
| 2004 | Monterey Bay | Stillwater Cove (PISCO) | Nudibranchia | Dendronotus | frondosus | 1 | | no |

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|------|----------------|-------------------------|--------------|---------------|-------------|---|---|-----|
| 2004 | Monterey Bay | Stillwater Cove (PISCO) | Nudibranchia | Doto | sp. | 1 | | no |
| 2003 | Monterey Bay | Terrace Pt (PISCO) | Cirripedia | Balanus | crenatus | 1 | ? | no |
| 2003 | Monterey Bay | Terrace Pt (PISCO) | Cirripedia | Lepas | antifera | 1 | | no |
| 2003 | Elkhorn Slough | Azevedo Pond | Bryozoa | Amathia | sp. | 1 | | no |
| 2003 | Elkhorn Slough | Azevedo Pond | Bryozoa | Amathia | vidovici | 2 | | no |
| 2003 | Elkhorn Slough | Azevedo Pond | Bryozoa | Bowerbankia | aggregata | 2 | | no |
| 2003 | Elkhorn Slough | Azevedo Pond | Bryozoa | Bowerbankia | sp. | 3 | | no |
| 2003 | Elkhorn Slough | Azevedo Pond | Bryozoa | Bugula | neritina | 2 | | yes |
| 2003 | Elkhorn Slough | Azevedo Pond | Bryozoa | Bugula | stolonifera | 1 | ? | yes |
| 2003 | Elkhorn Slough | Azevedo Pond | Bryozoa | Buskia | seriata | 2 | | no |
| 2003 | Elkhorn Slough | Azevedo Pond | Bryozoa | Conopeum | seurati | 2 | | yes |
| 2003 | Elkhorn Slough | Azevedo Pond | Bryozoa | Cryptosula | pallasiana | 3 | | yes |
| 2003 | Elkhorn Slough | Azevedo Pond | Bryozoa | Smittoidea | prolifera | 1 | | no |
| 2003 | Elkhorn Slough | Azevedo Pond | Hydrozoa | Obelia | longissima | 1 | | no |
| 2003 | Elkhorn Slough | Azevedo Pond | Nudibranchia | Tenellia | adpersa | 1 | | yes |
| 2003 | Elkhorn Slough | Hudson Landing West | Bryozoa | Amathia | vidovici | 1 | | no |
| 2003 | Elkhorn Slough | Hudson Landing West | Bryozoa | Bowerbankia | aggregata | 1 | ? | no |
| 2003 | Elkhorn Slough | Hudson Landing West | Bryozoa | Bowerbankia | sp. | 2 | | no |
| 2003 | Elkhorn Slough | Hudson Landing West | Bryozoa | Conopeum | seurati | 3 | | yes |
| 2003 | Elkhorn Slough | Hudson Landing West | Bryozoa | victorella | pavida | 1 | | yes |
| 2003 | Elkhorn Slough | Hudson Landing West | Tunicata | Botryllus | schlosseri | 1 | | yes |
| 2003 | Elkhorn Slough | Hummingbird Island | Bryozoa | Amathia | vidovici | 2 | | no |
| 2003 | Elkhorn Slough | Hummingbird Island | Bryozoa | Buskia | seriata | 1 | | no |
| 2003 | Elkhorn Slough | Kirby Park | Bryozoa | Amathia | sp. | 4 | | no |
| 2003 | Elkhorn Slough | Kirby Park | Bryozoa | Amathia | vidovici | 6 | | no |
| 2003 | Elkhorn Slough | Kirby Park | Bryozoa | Bowerbankia | sp. | 1 | | no |
| 2003 | Elkhorn Slough | Kirby Park | Bryozoa | Bugula | neritina | 6 | | yes |
| 2003 | Elkhorn Slough | Kirby Park | Bryozoa | Bugula | sp. | 2 | | no |
| 2003 | Elkhorn Slough | Kirby Park | Bryozoa | Conopeum | osburni | 5 | ? | no |
| 2003 | Elkhorn Slough | Kirby Park | Bryozoa | Cryptosula | pallasiana | 5 | | yes |
| 2003 | Elkhorn Slough | Kirby Park | Bryozoa | victorella | pavida | 1 | | yes |
| 2003 | Elkhorn Slough | Kirby Park | Bryozoa | Watersipora | subtorquata | 3 | | yes |
| 2003 | Elkhorn Slough | Moss Landing, North | Bryozoa | Amathia | sp. | 1 | | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Bryozoa | Amathia | vidovici | 2 | ? | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Bryozoa | Bowerbankia | aggregata | 1 | | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Bryozoa | Bowerbankia | sp. | 1 | | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Bryozoa | Bugula | neritina | 6 | | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Bryozoa | Bugula | sp. X | 3 | | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Bryozoa | Bugula | stolonifera | 6 | | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Bryozoa | Cryptosula | pallasiana | 2 | | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Bryozoa | Schizoporella | unicornis | 1 | | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Bryozoa | victorella | pavida | 1 | | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Bryozoa | Watersipora | subtorquata | 6 | | no |

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|------|----------------|---------------------|--------------|------------------|---------------|---|-----|
| 2003 | Elkhorn Slough | Moss Landing, North | Hydrozoa | Obelia | sp. | 2 | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Nudibranchia | Dirona | picta | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Tunicata | Ascidia | zara | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Tunicata | Botrylloides | diegensis | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Tunicata | Botrylloides | violaceus | 4 | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Tunicata | Botryllus | schlosseri | 6 | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Tunicata | Didemnum | sp. A | 6 | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Tunicata | Diplosoma | listerianum | 6 | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Tunicata | Distaplia | occidentalis | 6 | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Tunicata | Styela | plicata | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, North | Tunicata | Styelidae | | 2 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Bryozoa | Amathia | vidovici | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Bryozoa | Bowerbankia | aggregata | 2 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Bryozoa | Bowerbankia | sp. | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Bryozoa | Bugula | longirostrata | 2 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Bryozoa | Bugula | neritina | 6 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Bryozoa | Bugula | sp. | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Bryozoa | Bugula | sp. 1 | 6 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Bryozoa | Bugula | stolonifera | 6 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Bryozoa | Cryptosula | pallasiana | 5 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Bryozoa | Schizoporella | unicornis | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Bryozoa | Watersipora | subtorquata | 6 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Cirripedia | Balanus | crenatus | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Hydrozoa | Bougainvilliidae | | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Hydrozoa | Campanulariidae | | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Nudibranchia | Dirona | picta | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Tunicata | Ascidia | zara | 4 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Tunicata | Botrylloides | violaceus | 3 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Tunicata | Botryllus | schlosseri | 4 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Tunicata | Ciona | savignyi | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Tunicata | Ciona | sp. | 1 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Tunicata | Didemnum | sp. A | 4 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Tunicata | Diplosoma | listerianum | 6 | no |
| 2003 | Elkhorn Slough | Moss Landing, South | Tunicata | Distaplia | occidentalis | 5 | no |
| 2003 | Elkhorn Slough | North Marsh | Bryozoa | Amathia | sp. | 1 | no |
| 2003 | Elkhorn Slough | North Marsh | Bryozoa | Amathia | vidovici | 3 | no |
| 2003 | Elkhorn Slough | North Marsh | Bryozoa | Bowerbankia | sp. | 2 | no |
| 2003 | Elkhorn Slough | North Marsh | Bryozoa | Bugula | neritina | 3 | yes |
| 2003 | Elkhorn Slough | North Marsh | Bryozoa | Bugula | sp. | 2 | no |
| 2003 | Elkhorn Slough | North Marsh | Bryozoa | Bugula | sp. X | 1 | no |
| 2003 | Elkhorn Slough | North Marsh | Bryozoa | Bugula | stolonifera | 3 | yes |
| 2003 | Elkhorn Slough | North Marsh | Bryozoa | Buskia | seriata | 3 | no |
| 2003 | Elkhorn Slough | North Marsh | Bryozoa | Conopeum | osburni | 1 | no |

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|------|--------------------|----------------------------|--------------|------------------|--------------|---|---|-----|
| 2003 | Elkhorn Slough | North Marsh | Bryozoa | Cryptosula | pallasiana | 2 | | yes |
| 2003 | Elkhorn Slough | North Marsh | Bryozoa | Watersipora | subtorquata | 1 | ? | yes |
| 2003 | Elkhorn Slough | North Marsh | Hydrozoa | Campanulariidae | | 2 | | no |
| 2003 | Elkhorn Slough | South Marsh Restoration | Bryozoa | Amathia | vidovici | 1 | | no |
| 2003 | Elkhorn Slough | South Marsh Restoration | Bryozoa | Bugula | neritina | 1 | | yes |
| 2003 | Elkhorn Slough | South Marsh Restoration | Bryozoa | Bugula | sp. | 1 | | no |
| 2003 | Elkhorn Slough | South Marsh Restoration | Bryozoa | Smittoidea | prolifera | 1 | | no |
| 2003 | Elkhorn Slough | Vierra | Bryozoa | Bugula | sp. | 1 | | no |
| 2003 | Elkhorn Slough | Vierra | Bryozoa | Watersipora | subtorquata | 1 | | yes |
| 2003 | Elkhorn Slough | Vierra | Cirripedia | Balanus | crenatus | 3 | | no |
| 2003 | Elkhorn Slough | Vierra | Hydrozoa | Campanulariidae | | 1 | | no |
| 2003 | Elkhorn Slough | Vierra | Hydrozoa | Campanulinidae | | 1 | | no |
| 2003 | Elkhorn Slough | Vierra | Hydrozoa | Clytia | sp. | 2 | | no |
| 2003 | Elkhorn Slough | Vierra | Hydrozoa | Opercularella | lacerata | 1 | | no |
| 2003 | Elkhorn Slough | Whistle Stop Lagoon | Bryozoa | Bugula | neritina | 3 | | yes |
| 2003 | Elkhorn Slough | Whistle Stop Lagoon | Hydrozoa | Campanulariidae | | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Alcyonidium | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Bowerbankia | sp. | 5 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Bugula | californica | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Bugula | neritina | 5 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Bugula | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Bugula | sp. 1 | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Bugula | sp. Y | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Bugula | stolonifera | 5 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Celleporaria | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Conopeum | seurati | 1 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Cryptosula | pallasiana | 3 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Schizoporella | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Schizoporella | unicornis | 5 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Bryozoa | Watersipora | subtorquata | 5 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Cirripedia | Balanus | balanus | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Cirripedia | Balanus | crenatus | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Hydrozoa | Bougainvilliidae | | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Hydrozoa | Obelia | longissima | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Hydrozoa | Obelia | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Nudibranchia | Hermisenda | crassicornis | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Ascidia | ceratodes | 3 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Ascidia | sp. | 2 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Ascidia | sp. B | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Ascidia | zara | 3 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Botryllidae | | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Botrylloides | sp. | 2 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Botrylloides | violaceus | 5 | | yes |

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|------|--------------------|---------------------------------|--------------|------------------|--------------|---|------------------|-----|
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Botryllus | schlosseri | 4 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Ciona | intestinalis | 2 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Didemnum | sp. A | 5 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Diplosoma | listerianum | 5 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Distaplia | occidentalis | 5 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Mason's Marina | Tunicata | Styela | sp. | 2 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Bowerbankia | sp. | 5 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Bugula | neritina | 4 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Bugula | pacifica | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Bugula | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Bugula | stolonifera | 5 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Celleporaria | brunnea | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Celleporella | hyalina | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Conopeum | osburni | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Conopeum | seurati | 1 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Cryptosula | pallasiana | 4 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Hippopodina | feegeensis | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Schizoporella | unicornis | 5 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Smittinidae | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Bryozoa | Watersipora | subtorquata | 5 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Cirripecta | Balanus | balanus | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Cirripecta | Balanus | crenatus | 3 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Cirripecta | Balanus | sp. | 3 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Hydrozoa | Bougainvilliidae | | 2 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Hydrozoa | Campanulariidae | | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Hydrozoa | Campanulinidae | | 2 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Hydrozoa | Obelia | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Hydrozoa | Opercularella | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Nudibranchia | Dendronotus | frondosus | 2 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Nudibranchia | Dirona | picta | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Tunicata | Ascidia | ceratodes | 4 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Tunicata | Ascidia | sp. | 3 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Tunicata | Botryllidae | | 1 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Tunicata | Botrylloides | sp. | 2 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Tunicata | Botrylloides | violaceus | 6 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Tunicata | Botryllus | schlosseri | 4 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Tunicata | Didemnum | sp. A | 5 | alt. listed as D | yes |
| | | | | | | | sp. | |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Tunicata | Diplosoma | listerianum | 6 | | yes |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Tunicata | Distaplia | occidentalis | 5 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Tunicata | Styela | sp. | 5 | | no |
| 2004 | Gulf of Farallones | Bodega Bay, Porto Bodega Marina | Tunicata | Styela | truncata | 1 | | no |
| 2004 | Gulf of Farallones | Tomaes Bay, Clark | Bryozoa | Bryo sp | | | ID not verified | |

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|------|--------------------|--------------------------|------------|------------------|--------------|---|-------------------------|-----|
| 2004 | Gulf of Farallones | Tomales Bay, Clark | Bryozoa | Bugula sp | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Clark | Hydrozoa | Campanulariidae | | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Clark | Hydrozoa | Obelia | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Clark | Tunicata | Ascidia | ceratodes | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Clark | Tunicata | Botrylloides | violaceus | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Clark | Tunicata | Botryllus | schlosseri | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Clark | Tunicata | Ciona | intestinalis | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Clark | Tunicata | Didemnum | sp. A | 1 | alt. listed as D sp. | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Clark | Tunicata | Diplosoma | listerianum | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Duck Cove | Bryozoa | Bugula sp | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Duck Cove | Tunicata | Ascidia | ceratodes | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Duck Cove | Tunicata | Botryllidae | | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Bryozoa | Bryo sp | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Bryozoa | Bugula | neritina | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Bryozoa | Bugula | sp | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Hydrozoa | Tubulariidae | | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Tunicata | Ascidia | ceratodes | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Tunicata | Ascidia | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Tunicata | Botrylloides | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Tunicata | Botrylloides | violaceus | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Tunicata | Botryllus | schlosseri | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Tunicata | Ciona | intestinalis | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Tunicata | Ciona | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Tunicata | Didemnum | sp. A | 1 | alt. listed as D sp. | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Tunicata | Diplosoma | listerianum | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Marshall | Tunicata | Molgula | manhattensis | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Miller Park | Bryozoa | Bryo sp | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Miller Park | Bryozoa | Cryptosula | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Miller Park | Bryozoa | Victorellidae | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Miller Park | Bryozoa | Watersipora | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Miller Park | Cirripedia | Chthamalus | dalli | 2 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Miller Park | Hydrozoa | Bougainvilliidae | | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Miller Park | Hydrozoa | Campanulinidae | | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Miller Park | Hydrozoa | Obelia | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Miller Park | Tunicata | Botryllidae | | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Miller Park | Tunicata | Botrylloides | violaceus | 4 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Miller Park | Tunicata | Didemnum | sp. A | 2 | alt. listed as D sp. | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Nick's Cove | Hydrozoa | Campanulariidae | | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Nick's Cove | Hydrozoa | Obelia | longissima | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Nick's Cove | Hydrozoa | Obelia | sp. | 1 | | no |

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|------|--------------------|---------------------------------|--------------|-----------------|--------------|---|-------------------------|-----|
| 2004 | Gulf of Farallones | Tomales Bay, Nick's Cove | Nudibranchia | Dendronotus | frondosus | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Nick's Cove | Tunicata | Aplousobranchia | | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Nick's Cove | Tunicata | Botrylloides | violaceus | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Nick's Cove | Tunicata | Botryllus | schlosseri | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Nick's Cove | Tunicata | Distaplia | occidentalis | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Nick's Cove | Tunicata | Molgula | manhattensis | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Bryozoa | Bryozoa | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Bryozoa | Bugula | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Bryozoa | Bugula | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Bryozoa | Conopeum | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Bryozoa | Cryptosula | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Bryozoa | Schizoporella | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Bryozoa | Victorellidae | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Bryozoa | Watersipora | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Nudibranchia | Dendronotus | frondosus | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Ascidia | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Ascidia | sp. B | 2 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Botryllidae | | 4 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Botrylloides | sp. | 2 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Botrylloides | violaceus | 2 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Botryllus | schlosseri | 2 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Ciona | intestinalis | 3 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Ciona | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Didemnum | sp. A | 4 | alt. listed as D sp. | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Diplosoma | listerianum | 2 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Distaplia | occidentalis | 3 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Molgula | manhattensis | 3 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Sacramento Landing | Tunicata | Perophora | annectens | 3 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Shell Beach | Bryozoa | Bryo sp | | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Shell Beach | Bryozoa | Bugula | neritina | | | |
| 2004 | Gulf of Farallones | Tomales Bay, Shell Beach | Bryozoa | Bugula | sp | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Shell Beach | Hydrozoa | Obelia | longissima | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Shell Beach | Tunicata | Botrylloides | violaceus | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Shell Beach | Tunicata | Botryllus | schlosseri | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Shell Beach | Tunicata | Ciona | sp. | 1 | | no |
| 2004 | Gulf of Farallones | Tomales Bay, Shell Beach | Tunicata | Molgula | manhattensis | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Thomas Station | Bryozoa | Bugula | neritina | | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Thomas Station | Bryozoa | Bugula | sp | | ID not verified | |
| 2004 | Gulf of Farallones | Tomales Bay, Thomas Station | Tunicata | Botrylloides | violaceus | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Thomas Station | Tunicata | Ciona | intestinalis | 1 | | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Thomas Station | Tunicata | Didemnum | sp. A | 1 | alt. listed as D sp. | yes |

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|------|--------------------|-----------------------------|--------------|-----------------|--------------|---|-----|
| 2004 | Gulf of Farallones | Tomales Bay, Thomas Station | Tunicata | Diplosoma | listerianum | 1 | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Thomas Station | Tunicata | Molgula | manhattensis | 1 | yes |
| 2004 | Gulf of Farallones | Tomales Bay, Tomales Beach | Tunicata | Botrylloides | violaceus | 1 | yes |
| 2003 | South Slough | Charleston Boat Basin | Bryozoa | Alcyonidium | sp. | 2 | no |
| 2003 | South Slough | Charleston Boat Basin | Bryozoa | Bowerbankia | aggregata | 1 | no |
| 2003 | South Slough | Charleston Boat Basin | Bryozoa | Bowerbankia | sp. | 4 | no |
| 2003 | South Slough | Charleston Boat Basin | Bryozoa | Bugula | pacifica | 2 | no |
| 2003 | South Slough | Charleston Boat Basin | Bryozoa | Bugula | sp. | 1 | no |
| 2003 | South Slough | Charleston Boat Basin | Bryozoa | Celleporella | hyalina | 1 | no |
| 2003 | South Slough | Charleston Boat Basin | Bryozoa | Conopeum | seurati | 1 | yes |
| 2003 | South Slough | Charleston Boat Basin | Bryozoa | Cryptosula | pallasiana | 3 | yes |
| 2003 | South Slough | Charleston Boat Basin | Bryozoa | Schizoporella | unicornis | 4 | yes |
| 2003 | South Slough | Charleston Boat Basin | Cirripedia | Balanus | crenatus | 3 | no |
| 2003 | South Slough | Charleston Boat Basin | Cirripedia | Balanus | glandula | 3 | no |
| 2003 | South Slough | Charleston Boat Basin | Cirripedia | Balanus | improvisus | 1 | yes |
| 2003 | South Slough | Charleston Boat Basin | Hydrozoa | Campanulariidae | | 1 | no |
| 2003 | South Slough | Charleston Boat Basin | Hydrozoa | Obelia | longissima | 2 | no |
| 2003 | South Slough | Charleston Boat Basin | Tunicata | Botrylloides | violaceus | 4 | yes |
| 2003 | South Slough | Charleston Boat Basin | Tunicata | Botryllus | schlosseri | 3 | yes |
| 2003 | South Slough | Charleston Boat Basin | Tunicata | Distaplia | occidentalis | 5 | no |
| 2003 | South Slough | Charleston Boat Basin | Tunicata | Molgula | pugetiensis | 1 | no |
| 2003 | South Slough | Charleston Boat Basin | Tunicata | Molgula | sp. | 1 | no |
| 2004 | South Slough | Charleston Bridge, float | Cirripedia | Balanus | balanus | 2 | no |
| 2004 | South Slough | Charleston Bridge, float | Cirripedia | Balanus | crenatus | 7 | no |
| 2004 | South Slough | Charleston Bridge, float | Cirripedia | Balanus | sp. | 2 | no |
| 2004 | South Slough | Charleston Bridge, float | Hydrozoa | Aequorea | sp. | 1 | no |
| 2004 | South Slough | Charleston Bridge, float | Hydrozoa | Calycella | syringa | 1 | no |
| 2004 | South Slough | Charleston Bridge, float | Hydrozoa | Campanulariidae | | 1 | no |
| 2004 | South Slough | Charleston Bridge, float | Hydrozoa | Campanulinidae | | 1 | no |
| 2004 | South Slough | Charleston Bridge, float | Hydrozoa | Obelia | dichotoma | 1 | no |
| 2004 | South Slough | Charleston Bridge, float | Hydrozoa | Obelia | longissima | 4 | no |
| 2004 | South Slough | Charleston Bridge, float | Hydrozoa | Obelia | sp. | 1 | no |
| 2004 | South Slough | Charleston Bridge, float | Hydrozoa | Opercularella | lacerata | 2 | no |
| 2004 | South Slough | Charleston Bridge, float | Nudibranchia | Dendronotus | frondosus | 3 | no |
| 2003 | South Slough | Charleston Bridge, pier | Bryozoa | Alcyonidium | sp. | 1 | no |
| 2003 | South Slough | Charleston Bridge, pier | Bryozoa | Bowerbankia | aggregata | 1 | no |
| 2003 | South Slough | Charleston Bridge, pier | Bryozoa | Celleporella | hyalina | 1 | no |
| 2003 | South Slough | Charleston Bridge, pier | Cirripedia | Balanus | crenatus | 1 | no |
| 2003 | South Slough | Charleston Bridge, pier | Hydrozoa | Obelia | longissima | 1 | no |
| 2003 | South Slough | Charleston Bridge, pier | Hydrozoa | Obelia | sp. | 1 | no |
| 2003 | South Slough | Charleston Bridge, pier | Nudibranchia | Hermisenda | crassicornis | 1 | no |
| 2004 | South Slough | Coast Guard Beach | Cirripedia | Balanus | crenatus | 9 | no |
| 2004 | South Slough | Coast Guard Beach | Cirripedia | Balanus | sp. | 7 | no |

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|------|--------------|-------------------|--------------|-----------------|---------------|---|---|-----|
| 2004 | South Slough | Coast Guard Beach | Hydrozoa | Campanulariidae | | 4 | | no |
| 2004 | South Slough | Coast Guard Beach | Hydrozoa | Campanulinidae | | 2 | | no |
| 2004 | South Slough | Coast Guard Beach | Hydrozoa | Clytia | hemisphaerica | 3 | | no |
| 2004 | South Slough | Coast Guard Beach | Hydrozoa | Clytia | sp. | 2 | | no |
| 2004 | South Slough | Coast Guard Beach | Hydrozoa | Obelia | longissima | 1 | | no |
| 2004 | South Slough | Coast Guard Beach | Hydrozoa | Obelia | sp. | 3 | | no |
| 2004 | South Slough | Coast Guard Beach | Hydrozoa | Thecata | | 1 | | no |
| 2004 | South Slough | Coast Guard Beach | Nudibranchia | Dendronotus | frondosus | 4 | | no |
| 2004 | South Slough | Coast Guard Beach | Nudibranchia | Hermisenda | crassicornis | 1 | | no |
| 2004 | South Slough | Coast Guard Beach | Nudibranchia | Janolus | fuscus | 1 | | no |
| 2004 | South Slough | Coast Guard Beach | Nudibranchia | Onchidoris | bilamellata | 4 | | no |
| 2004 | South Slough | Coast Guard Beach | Nudibranchia | Palio | zosteriae | 1 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Alcyonidium | sp. | 4 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Bowerbankia | aggregata | 1 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Bowerbankia | sp. | 4 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Callopora | sp. | 2 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Caulibugula | ciliata | 4 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Celleporella | hyalina | 6 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Cheilopora | praelonga | 1 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Cheilostomata | | 1 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Conopeum | osburni | 1 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Conopeum | seurati | 4 | | yes |
| 2003 | South Slough | Empire Pier | Bryozoa | Conopeum | tenuissimum | 1 | | yes |
| 2003 | South Slough | Empire Pier | Bryozoa | Cribrilina | sp. | 1 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Cribrilina | sp. 1 | 3 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Crisia | sp. | 1 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Dendrobeanina | lichenoides | 1 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Electra | sp. A | 1 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Microporella | californica | 5 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Parasmittina | sp. | 2 | | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Parasmittina | trispinosa | 1 | ? | no |
| 2003 | South Slough | Empire Pier | Bryozoa | Schizoporella | unicornis | 1 | | yes |
| 2003 | South Slough | Empire Pier | Bryozoa | Scruparia | sp. | 1 | | no |
| 2004 | South Slough | Empire Pier | Cirripedia | Balanus | crenatus | 2 | | no |
| 2003 | South Slough | Empire Pier | Cirripedia | Balanus | crenatus | 5 | | no |
| 2003 | South Slough | Empire Pier | Cirripedia | Balanus | glandula | 2 | ? | no |
| 2003 | South Slough | Empire Pier | Cirripedia | Balanus | improvisus | 1 | | yes |
| 2004 | South Slough | Empire Pier | Hydrozoa | Clytia | hemisphaerica | 2 | | no |
| 2004 | South Slough | Empire Pier | Hydrozoa | Clytia | sp. | 1 | | no |
| 2004 | South Slough | Empire Pier | Hydrozoa | Obelia | longissima | 2 | | no |
| 2004 | South Slough | Empire Pier | Hydrozoa | Opercularella | lacerata | 1 | | no |
| 2004 | South Slough | Empire Pier | Hydrozoa | Thecata | | 1 | | no |
| 2003 | South Slough | Empire Pier | Hydrozoa | Tubulariidae | | 2 | | no |

| | | | | | | | |
|------|--------------|------------------------------|--------------|-----------------|---------------|---|-----|
| 2004 | South Slough | Empire Pier | Nudibranchia | Hermisenda | crassicornis | 1 | no |
| 2003 | South Slough | Empire Pier | Tunicata | Botrylloides | violaceus | 1 | yes |
| 2004 | South Slough | Port of Coos Bay Citrus Dock | Cirripedia | Balanus | improvisus | 5 | yes |
| 2004 | South Slough | Port of Coos Bay Citrus Dock | Cirripedia | Balanus | sp. | 1 | no |
| 2004 | South Slough | Port of Coos Bay Citrus Dock | Hydrozoa | Campanulariidae | | 1 | no |
| 2004 | South Slough | Port of Coos Bay Citrus Dock | Hydrozoa | Ectopleura | crocea | 2 | yes |
| 2004 | South Slough | Port of Coos Bay Citrus Dock | Hydrozoa | Ectopleura | dumortierii | 2 | yes |
| 2004 | South Slough | Port of Coos Bay Citrus Dock | Hydrozoa | Tubularia | sp. | 1 | no |
| 2004 | South Slough | Port of Coos Bay Citrus Dock | Hydrozoa | Tubulariidae | | 1 | no |
| 2004 | South Slough | Port of Coos Bay Citrus Dock | Tunicata | Botrylloides | violaceus | 1 | yes |
| 2003 | South Slough | Sengstacken Arm | Bryozoa | Bowerbankia | aggregata | 4 | no |
| 2003 | South Slough | Sengstacken Arm | Bryozoa | Bowerbankia | sp. | 1 | no |
| 2003 | South Slough | Sengstacken Arm | Cirripedia | Balanus | crenatus | 5 | no |
| 2003 | South Slough | Sengstacken Arm | Cirripedia | Balanus | glandula | 5 | no |
| 2003 | South Slough | Sengstacken Arm | Cirripedia | Balanus | improvisus | 2 | yes |
| 2003 | South Slough | Sengstacken Arm | Hydrozoa | Clytia | hemisphaerica | 1 | no |
| 2003 | South Slough | Sengstacken Arm | Hydrozoa | Laomedea | sp. | 1 | no |
| 2003 | South Slough | Sengstacken Arm | Hydrozoa | Obelia | longissima | 1 | no |
| 2003 | South Slough | Sengstacken Arm | Hydrozoa | Opercularella | sp. | 1 | no |
| 2003 | South Slough | Sengstacken Arm | Nudibranchia | Stiliger | sp. | 1 | no |
| 2003 | South Slough | Sengstacken YSI | Bryozoa | Bowerbankia | sp. | 1 | no |
| 2003 | South Slough | Sengstacken YSI | Cirripedia | Balanus | glandula | 1 | no |
| 2003 | South Slough | Sengstacken YSI | Cirripedia | Balanus | improvisus | 1 | yes |
| 2003 | South Slough | Valino Is YSI | Bryozoa | Alcyonidium | sp. | 1 | no |
| 2003 | South Slough | Valino Is YSI | Bryozoa | Bowerbankia | sp. | 1 | no |
| 2003 | South Slough | Valino Is YSI | Bryozoa | Bugula | pacifica | 1 | no |
| 2003 | South Slough | Valino Is YSI | Bryozoa | Celleporella | hyalina | 1 | no |
| 2003 | South Slough | Valino Is YSI | Bryozoa | Schizoporella | unicornis | 1 | yes |
| 2003 | South Slough | Valino Is YSI | Bryozoa | Smittoidea | prolifera | 1 | no |
| 2004 | South Slough | Valino Is/ Crown Pt | Cirripedia | Balanus | crenatus | 7 | no |
| 2003 | South Slough | Valino Is YSI | Cirripedia | Balanus | glandula | 1 | no |
| 2004 | South Slough | Valino Is/ Crown Pt | Cirripedia | Balanus | improvisus | 1 | yes |
| 2004 | South Slough | Valino Is/ Crown Pt | Cirripedia | Balanus | sp. | 4 | no |
| 2003 | South Slough | Valino Is YSI | Hydrozoa | Obelia | longissima | 1 | no |
| 2003 | South Slough | Valino Is YSI | Tunicata | Botrylloides | violaceus | 1 | yes |
| 2003 | South Slough | Winchester Arm | Bryozoa | Bowerbankia | aggregata | 4 | no |
| 2003 | South Slough | Winchester Arm | Bryozoa | Bowerbankia | sp. | 1 | no |
| 2003 | South Slough | Winchester Arm | Bryozoa | Celleporella | hyalina | 1 | no |
| 2003 | South Slough | Winchester Arm | Bryozoa | Electra | sp. A | 1 | no |
| 2003 | South Slough | Winchester Arm | Cirripedia | Balanus | crenatus | 5 | no |
| 2003 | South Slough | Winchester Arm | Cirripedia | Balanus | glandula | 5 | no |
| 2003 | South Slough | Winchester Arm | Hydrozoa | Campanulariidae | | 1 | no |
| 2003 | South Slough | Winchester Arm | Hydrozoa | Obelia | longissima | 4 | no |

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|------|---------------|-------------------------|--------------|-----------------|--------------|----|-----|
| 2003 | South Slough | Winchester Arm | Nudibranchia | Dendronotus | frondosus | 3 | no |
| 2003 | South Slough | Winchester Arm | Nudibranchia | Hermisenda | crassicornis | 1 | no |
| 2003 | South Slough | Winchester YSI | Bryozoa | Bowerbankia | aggregata | 1 | no |
| 2004 | South Slough | Winchester YSI | Cirripedia | Balanus | crenatus | 4 | no |
| 2003 | South Slough | Winchester YSI | Cirripedia | Balanus | glandula | 1 | no |
| 2004 | South Slough | Winchester YSI | Cirripedia | Balanus | improvisus | 6 | yes |
| 2003 | South Slough | Winchester YSI | Cirripedia | Balanus | improvisus | 1 | yes |
| 2004 | South Slough | Winchester YSI | Cirripedia | Balanus | sp. | 2 | no |
| 2003 | South Slough | Winchester YSI | Hydrozoa | Campanulariidae | | 1 | no |
| 2004 | South Slough | Winchester YSI | Hydrozoa | Perigonimus | repens | 10 | no |
| 2003 | Olympic Coast | La Push, Quileute River | Cirripedia | Balanus | crenatus | 6 | no |
| 2003 | Olympic Coast | La Push, Quileute River | Cirripedia | Balanus | glandula | 6 | no |
| 2003 | Olympic Coast | La Push, Quileute River | Cirripedia | Balanus | improvisus | 1 | yes |
| 2003 | Olympic Coast | La Push, Quileute River | Hydrozoa | Campanulariidae | | 5 | no |
| 2003 | Olympic Coast | La Push, Quileute River | Hydrozoa | Eudendrium | sp. | 2 | no |
| 2003 | Olympic Coast | La Push, Quileute River | Hydrozoa | Obelia | sp. | 1 | no |
| 2003 | Olympic Coast | La Push, Quileute River | Hydrozoa | Perigonimus | repens | 2 | no |
| 2003 | Olympic Coast | La Push, Quileute River | Tunicata | Perophora | annectens | 1 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Bryozoa | Alcyonidium | sp. | 2 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Bryozoa | Bowerbankia | sp. | 2 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Bryozoa | Bugula | pacifica | 6 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Bryozoa | Bugula | sp. | 2 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Bryozoa | Celleporella | hyalina | 6 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Bryozoa | Cribrilina | corbicula | 4 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Cirripedia | Balanus | crenatus | 3 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Hydrozoa | Calycella | syringa | 1 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Hydrozoa | Campanulariidae | | 2 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Hydrozoa | Campanulinidae | | 1 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Hydrozoa | Obelia | dichotoma | 1 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Hydrozoa | Obelia | longissima | 2 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Tunicata | Botrylloides | violaceus | 3 | yes |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Tunicata | Botryllus | schlosseri | 2 | yes |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Tunicata | Corella | inflata | 3 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Tunicata | Corella | sp. | 1 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Tunicata | Corella | willmeriana | 2 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Tunicata | Diplosoma | listerianum | 6 | yes |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Tunicata | Distaplia | occidentalis | 5 | no |
| 2003 | Olympic Coast | Neah Bay, Makah Marina | Tunicata | Styela | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Bryozoa | Bowerbankia | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Bryozoa | Callopora | sp. 1 | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Bryozoa | Celleporella | hyalina | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Bryozoa | Crisia | occidentalis | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Bryozoa | Tricellaria | occidentalis | 1 | no |

| | | | | | | | |
|------|---------------|---------------------------|--------------|-----------------|--------------|---|----|
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Cirripedia | Balanus | balanus | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Cirripedia | Balanus | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Hydrozoa | Aequorea | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Hydrozoa | Campanulariidae | | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Hydrozoa | Clytia | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Hydrozoa | Plumularia | lagenifera | 2 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Hydrozoa | Plumularia | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Nudibranchia | Dendronotus | frondosus | 2 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Nudibranchia | Doto | kya | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Nudibranchia | Eubranchus | rustyus | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Nudibranchia | Hermisenda | crassicornis | 2 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Tunicata | Stolidobranchia | | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Cape Alava | Tunicata | Styela | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Kalalock | Cirripedia | Balanus | crenatus | 2 | no |
| 2004 | Olympic Coast | Outer Coast, Kalalock | Cirripedia | Balanus | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Kalalock | Hydrozoa | Obelia | longissima | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Kalalock | Hydrozoa | Obelia | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Kalalock | Nudibranchia | Dendronotus | frondosus | 2 | no |
| 2004 | Olympic Coast | Outer Coast, Kalalock | Nudibranchia | Hermisenda | crassicornis | 2 | no |
| 2004 | Olympic Coast | Outer Coast, Kalalock | Tunicata | Styela | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Bryozoa | Callopora | sp. 1 | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Bryozoa | Celleporella | hyalina | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Bryozoa | Crisia | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Cirripedia | Balanus | balanus | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Cirripedia | Balanus | crenatus | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Hydrozoa | Campanulariidae | | 2 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Hydrozoa | Clytia | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Hydrozoa | Plumularia | lagenifera | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Nudibranchia | Dendronotus | frondosus | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Nudibranchia | Doto | kya | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Nudibranchia | Eubranchus | rustyus | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Nudibranchia | Hermisenda | crassicornis | 2 | no |
| 2004 | Olympic Coast | Outer Coast, Makah Bay | Tunicata | Styela | sp. | 2 | no |
| 2004 | Olympic Coast | Outer Coast, Teawhit Head | Bryozoa | Alcyonidium | sp. | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Teawhit Head | Bryozoa | Celleporella | hyalina | 2 | no |
| 2004 | Olympic Coast | Outer Coast, Teawhit Head | Bryozoa | Crisia | occidentalis | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Teawhit Head | Bryozoa | Filicrisia | franciscana | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Teawhit Head | Bryozoa | Parasmittina | trispinosa | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Teawhit Head | Bryozoa | Tricellaria | ternata | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Teawhit Head | Cirripedia | Balanus | crenatus | 2 | no |
| 2004 | Olympic Coast | Outer Coast, Teawhit Head | Hydrozoa | Obelia | sp. | 2 | no |
| 2004 | Olympic Coast | Outer Coast, Teawhit Head | Hydrozoa | Plumularia | lagenifera | 1 | no |
| 2004 | Olympic Coast | Outer Coast, Teawhit Head | Nudibranchia | Hermisenda | crassicornis | 1 | no |

| | | | | | | | | |
|------|---------------|---------------------------|--------------|-----------------|---------------|---|--------------------------|-----|
| 2004 | Olympic Coast | Outer Coast, Teawhit Head | Tunicata | Styela | sp. | 1 | | no |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Bryozoa | Bowerbankia | sp. | 2 | | no |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Bryozoa | Bugula | pacifica | 3 | | no |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Bryozoa | Bugula | sp. | 1 | | no |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Bryozoa | Cribrilina | corbicula | 4 | | no |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Bryozoa | Cryptosula | pallasiana | 2 | | yes |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Bryozoa | Membranipora | villosa | 1 | | no |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Bryozoa | Schizoporella | unicornis | 3 | | yes |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Cirripedia | Balanus | crenatus | 4 | | no |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Cirripedia | Balanus | glandula | 1 | | no |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Hydrozoa | Clytia | sp. | 1 | | no |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Hydrozoa | Obelia | longissima | 1 | | no |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Tunicata | Botrylloides | sp. | 1 | was labeled diegensis | no |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Tunicata | Botrylloides | violaceus | 3 | | yes |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Tunicata | Botryllus | schlosseri | 1 | | yes |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Tunicata | Corella | inflata | 1 | | no |
| 2003 | Padilla Bay | Anacortes, Cap Sante | Tunicata | Corella | willmeriana | 1 | | no |
| 2003 | Padilla Bay | Bayview Channel | Bryozoa | Bugula | pacifica | 1 | | no |
| 2003 | Padilla Bay | Bayview Channel | Bryozoa | Celleporella | hyalina | 1 | | no |
| 2003 | Padilla Bay | Bayview Channel | Bryozoa | Cribrilina | corbicula | 2 | | no |
| 2003 | Padilla Bay | Bayview Channel | Bryozoa | Schizoporella | sp. | 1 | | no |
| 2003 | Padilla Bay | Bayview Channel | Bryozoa | Schizoporella | unicornis | 1 | | yes |
| 2003 | Padilla Bay | Bayview Channel | Bryozoa | Tubulipora | tuba | 1 | | no |
| 2003 | Padilla Bay | Bayview Channel | Cirripedia | Balanus | crenatus | 3 | | no |
| 2003 | Padilla Bay | Bayview Channel | Cirripedia | Balanus | improvisus | 1 | | yes |
| 2003 | Padilla Bay | Bayview Channel | Hydrozoa | Campanulariidae | | 1 | | no |
| 2003 | Padilla Bay | Bayview Channel | Hydrozoa | Clytia | hemisphaerica | 2 | | no |
| 2003 | Padilla Bay | Bayview Channel | Hydrozoa | Obelia | longissima | 4 | | no |
| 2003 | Padilla Bay | Bayview Channel | Hydrozoa | Obelia | sp. | 1 | | no |
| 2003 | Padilla Bay | Bayview Channel | Nudibranchia | Hermisenda | crassicornis | 1 | | no |
| 2003 | Padilla Bay | Bayview Channel | Tunicata | Styela | sp. | 1 | | no |
| 2003 | Padilla Bay | Gong | Bryozoa | Membranipora | villosa | 1 | | no |
| 2003 | Padilla Bay | Gong | Cirripedia | Balanus | crenatus | 1 | | no |
| 2003 | Padilla Bay | Gong | Hydrozoa | Campanulariidae | | 1 | | no |
| 2003 | Padilla Bay | Gong | Hydrozoa | Clytia | hemisphaerica | 1 | | no |
| 2003 | Padilla Bay | Gong | Hydrozoa | Obelia | longissima | 2 | | no |
| 2003 | Padilla Bay | Gong | Nudibranchia | Cumanotus | sp. | 1 | | no |
| 2003 | Padilla Bay | Gong | Nudibranchia | Dendronotus | frondosus | 1 | | no |
| 2003 | Padilla Bay | Gong | Nudibranchia | Eubranchus | rupium | 1 | | no |
| 2003 | Padilla Bay | Joe Leary, Fresh | Hydrozoa | Eudendrium | sp. | 1 | | no |
| 2003 | Padilla Bay | Joe Leary, Marine | Bryozoa | Bowerbankia | sp. | 1 | | no |
| 2003 | Padilla Bay | Joe Leary, Marine | Hydrozoa | Eudendrium | sp. | 1 | | no |

| | | | | | | | |
|------|--------------|------------------|--------------|-----------------|---------------|---|-----|
| 2003 | Padilla Bay | La Conner Marina | Bryozoa | Bowerbankia | sp. | 6 | no |
| 2003 | Padilla Bay | La Conner Marina | Bryozoa | Celleporella | hyalina | 5 | no |
| 2003 | Padilla Bay | La Conner Marina | Bryozoa | Schizoporella | unicornis | 1 | yes |
| 2003 | Padilla Bay | La Conner Marina | Cirripedia | Balanus | crenatus | 6 | no |
| 2003 | Padilla Bay | La Conner Marina | Cirripedia | Balanus | glandula | 2 | no |
| 2003 | Padilla Bay | La Conner Marina | Hydrozoa | Campanulariidae | | 4 | no |
| 2003 | Padilla Bay | La Conner Marina | Hydrozoa | Gonothyrea | sp. | 1 | no |
| 2003 | Padilla Bay | La Conner Marina | Hydrozoa | Laomedea | sp. | 1 | no |
| 2003 | Padilla Bay | La Conner Marina | Hydrozoa | Obelia | longissima | 1 | no |
| 2003 | Padilla Bay | La Conner Marina | Tunicata | Molgula | manhattensis | 2 | yes |
| 2003 | Padilla Bay | Ploug Channel | Bryozoa | Cribrilina | corbicula | 2 | no |
| 2003 | Padilla Bay | Ploug Channel | Bryozoa | Schizoporella | unicornis | 4 | yes |
| 2003 | Padilla Bay | Ploug Channel | Cirripedia | Balanus | crenatus | 6 | no |
| 2003 | Padilla Bay | Ploug Channel | Hydrozoa | Clytia | hemisphaerica | 1 | no |
| 2003 | Padilla Bay | Ploug Channel | Hydrozoa | Clytia | sp. | 2 | no |
| 2003 | Padilla Bay | Ploug Channel | Hydrozoa | Obelia | longissima | 5 | no |
| 2003 | Padilla Bay | Ploug Channel | Hydrozoa | Obelia | sp. | 1 | no |
| 2003 | Padilla Bay | Ploug Channel | Nudibranchia | Eubbranchus | rupium | 2 | no |
| 2003 | Kachemak Bay | Bear Point | Cirripedia | Balanus | crenatus | 1 | no |
| 2003 | Kachemak Bay | Bear Point | Cirripedia | Balanus | glandula | 1 | no |
| 2003 | Kachemak Bay | Bear Point | Hydrozoa | Obelia | longissima | 2 | no |
| 2003 | Kachemak Bay | Bear Point | Nudibranchia | Dendronotus | frondosus | 1 | no |
| 2003 | Kachemak Bay | Bear Point | Nudibranchia | Eubbranchus | rupium | 1 | no |
| 2003 | Kachemak Bay | Bear Point | Nudibranchia | Flabellina | japonica | 1 | no |
| 2003 | Kachemak Bay | Homer Dolphin | Bryozoa | Bowerbankia | sp. | 1 | no |
| 2003 | Kachemak Bay | Homer Dolphin | Bryozoa | Callopora | craticula | 1 | no |
| 2003 | Kachemak Bay | Homer Dolphin | Bryozoa | Tegella | armifera | 1 | no |
| 2004 | Kachemak Bay | Homer Dolphin | Cirripedia | Balanidae | | 1 | no |
| 2004 | Kachemak Bay | Homer Dolphin | Cirripedia | Balanus | crenatus | 1 | no |
| 2003 | Kachemak Bay | Homer Dolphin | Cirripedia | Balanus | crenatus | 1 | no |
| 2003 | Kachemak Bay | Homer Dolphin | Cirripedia | Balanus | glandula | 1 | no |
| 2004 | Kachemak Bay | Homer Dolphin | Hydrozoa | Campanulariidae | | 1 | no |
| 2003 | Kachemak Bay | Homer Dolphin | Hydrozoa | Obelia | dichotoma | 1 | no |
| 2004 | Kachemak Bay | Homer Dolphin | Hydrozoa | Obelia | longissima | 1 | no |
| 2004 | Kachemak Bay | Homer Dolphin | Hydrozoa | Sarsia | tubulosa | 1 | no |
| 2004 | Kachemak Bay | Homer Dolphin | Nudibranchia | Cuthona | concinna | 1 | no |
| 2003 | Kachemak Bay | Homer Harbor | Bryozoa | Bowerbankia | sp. | 3 | no |
| 2003 | Kachemak Bay | Homer Harbor | Bryozoa | Bugula | pacifica | 1 | no |
| 2003 | Kachemak Bay | Homer Harbor | Bryozoa | Celleporella | hyalina | 5 | no |
| 2003 | Kachemak Bay | Homer Harbor | Bryozoa | Cribrilina | annulata | 1 | no |
| 2003 | Kachemak Bay | Homer Harbor | Bryozoa | Tegella | aquilirostris | 3 | no |
| 2003 | Kachemak Bay | Homer Harbor | Bryozoa | Tegella | armifera | 1 | no |
| 2004 | Kachemak Bay | Homer Harbor | Cirripedia | Balanus | crenatus | 3 | no |

| | | | | | | | | |
|------|--------------|-----------------|--------------|-----------------|---------------|---|-----------------|----|
| 2003 | Kachemak Bay | Homer Harbor | Cirripedia | Balanus | crenatus | 1 | | no |
| 2003 | Kachemak Bay | Homer Harbor | Cirripedia | Balanus | glandula | 3 | | no |
| 2004 | Kachemak Bay | Homer Harbor | Hydrozoa | Calycella | syringa | 1 | | no |
| 2003 | Kachemak Bay | Homer Harbor | Hydrozoa | Campanulariidae | | 1 | | no |
| 2003 | Kachemak Bay | Homer Harbor | Hydrozoa | Clytia | sp. | 1 | | no |
| 2003 | Kachemak Bay | Homer Harbor | Hydrozoa | Corynidae | | 1 | | no |
| 2004 | Kachemak Bay | Homer Harbor | Hydrozoa | Cuspidella | sp. | 1 | | no |
| 2004 | Kachemak Bay | Homer Harbor | Hydrozoa | Gonothyrea | clarki | 3 | | no |
| 2003 | Kachemak Bay | Homer Harbor | Hydrozoa | Gonothyrea | sp. | 2 | | no |
| 2004 | Kachemak Bay | Homer Harbor | Hydrozoa | Obelia | longissima | 3 | | no |
| 2003 | Kachemak Bay | Homer Harbor | Hydrozoa | Obelia | longissima | 2 | | no |
| 2003 | Kachemak Bay | Homer Harbor | Hydrozoa | Obelia | sp. | 2 | | no |
| 2004 | Kachemak Bay | Homer Harbor | Hydrozoa | Opercularella | lacerata | 1 | | no |
| 2004 | Kachemak Bay | Homer Harbor | Nudibranchia | Cuthona | concinna | 1 | | no |
| 2004 | Kachemak Bay | Homer Harbor | Nudibranchia | Cuthona | pustulata | 1 | | no |
| 2004 | Kachemak Bay | Homer Harbor | Tunicata | Distaplia | occidentalis | 5 | ID not verified | no |
| 2003 | Kachemak Bay | Homer Harbor | Tunicata | Distaplia | occidentalis | 4 | | no |
| 2003 | Kachemak Bay | Homer Harbor | Tunicata | Molgula | sp. | 1 | | no |
| 2003 | Kachemak Bay | Homer piling | Bryozoa | Alcyonidium | sp. | 2 | | no |
| 2003 | Kachemak Bay | Homer piling | Bryozoa | Callopora | sp. | 1 | | no |
| 2003 | Kachemak Bay | Homer piling | Bryozoa | Celleporella | hyalina | 2 | | no |
| 2003 | Kachemak Bay | Homer piling | Bryozoa | Cribrilina | corbicula | 1 | | no |
| 2003 | Kachemak Bay | Homer piling | Cirripedia | Balanus | crenatus | 2 | | no |
| 2003 | Kachemak Bay | Homer piling | Cirripedia | Balanus | glandula | 1 | | no |
| 2003 | Kachemak Bay | Homer piling | Hydrozoa | Gonothyrea | clarki | 3 | | no |
| 2003 | Kachemak Bay | Port Graham | Bryozoa | Celleporella | hyalina | 1 | | no |
| 2003 | Kachemak Bay | Port Graham | Hydrozoa | Campanulariidae | | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Bryozoa | Bowerbankia | sp. | 5 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Bryozoa | Bugula | pacifica | 3 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Bryozoa | Celleporella | hyalina | 6 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Bryozoa | Cribrilina | corbicula | 2 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Bryozoa | Tegella | aquilirostris | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Bryozoa | Tegella | armifera | 1 | | no |
| 2004 | Kachemak Bay | Seldovia Harbor | Cirripedia | Balanidae | | 1 | | no |
| 2004 | Kachemak Bay | Seldovia Harbor | Cirripedia | Balanus | crenatus | 4 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Cirripedia | Balanus | crenatus | 4 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Hydrozoa | Athecata | | 1 | | no |
| 2004 | Kachemak Bay | Seldovia Harbor | Hydrozoa | Calycella | syringa | 2 | | no |
| 2004 | Kachemak Bay | Seldovia Harbor | Hydrozoa | Campanulariidae | | 2 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Hydrozoa | Campanulariidae | | 2 | | no |
| 2004 | Kachemak Bay | Seldovia Harbor | Hydrozoa | Campanulinidae | | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Hydrozoa | Clytia | sp. | 1 | | no |
| 2004 | Kachemak Bay | Seldovia Harbor | Hydrozoa | Obelia | longissima | 5 | | no |

| | | | | | | | | |
|------|--------------|-----------------|--------------|---------------|---------------|---|-----------------|----|
| 2003 | Kachemak Bay | Seldovia Harbor | Hydrozoa | Obelia | longissima | 6 | | no |
| 2004 | Kachemak Bay | Seldovia Harbor | Hydrozoa | Obelia | sp. | 1 | | no |
| 2004 | Kachemak Bay | Seldovia Harbor | Hydrozoa | Opercularella | lacerata | 4 | | no |
| 2004 | Kachemak Bay | Seldovia Harbor | Nudibranchia | Dendronotus | frondosus | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Tunicata | Ascidia | sp. | 2 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Tunicata | Distaplia | occidentalis | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Tunicata | Distaplia | sp. | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Tunicata | Molgula | pugetiensis | 2 | | no |
| 2003 | Kachemak Bay | Seldovia Harbor | Tunicata | Molgula | sp. | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Pier | Bryozoa | Callopora | craticula | 2 | | no |
| 2003 | Kachemak Bay | Seldovia Pier | Bryozoa | Celleporella | hyalina | 2 | | no |
| 2003 | Kachemak Bay | Seldovia Pier | Bryozoa | Lichenopora | verrucaria | 1 | ID not verified | no |
| 2004 | Kachemak Bay | Seldovia Pier | Bryozoa | Reterporidae | sp. | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Pier | Bryozoa | Tegella | aquilirostris | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Pier | Bryozoa | Tegella | armifera | 2 | | no |
| 2004 | Kachemak Bay | Seldovia Pier | Cirripedia | Balanidae | | 1 | | no |
| 2004 | Kachemak Bay | Seldovia Pier | Cirripedia | Balanus | crenatus | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Pier | Cirripedia | Balanus | crenatus | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Pier | Hydrozoa | Obelia | dichotoma | 1 | | no |
| 2004 | Kachemak Bay | Seldovia Pier | Hydrozoa | Obelia | longissima | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Pier | Hydrozoa | Obelia | longissima | 1 | | no |
| 2004 | Kachemak Bay | Seldovia Pier | Nudibranchia | Cuthona | pustulata | 1 | | no |
| 2004 | Kachemak Bay | Seldovia Pier | Nudibranchia | Dendronotus | frondosus | 1 | | no |
| 2003 | Kachemak Bay | Seldovia Pier | Nudibranchia | Dendronotus | frondosus | 1 | | no |
| 2003 | Kachemak Bay | Seldovia piling | Cirripedia | Balanus | crenatus | 2 | | no |
| 2003 | Kachemak Bay | Seldovia piling | Cirripedia | Balanus | glandula | 1 | | no |

**Appendix D. Nonindigenous fouling species found in this and other surveys. Note, NIS are listed for all sites combined and per site.
Overall Species List**

| Broad Taxa Group | Phylum | Species | Common Name | In or Near | Seen in SERC NERRS Survey? | Notes |
|-------------------------|---------------------------|-----------------------------------|--------------------|---|-----------------------------------|--------------|
| Invertebrate | Chordata (Urochordata) | <i>Ascidia sp.A</i> | solitary tunicate | Tijuana River, Channel Islands | Yes | |
| Invertebrate | Chordata (Urochordata) | <i>Ascidia zara</i> | solitary tunicate | Tijuana River, Channel Islands; Elkhorn Slough/Monterey Bay | Yes | |
| Invertebrate | Mollusca (Gastropoda) | <i>Babakina festiva</i> | nudibranch | Tijuana River | No | |
| Invertebrate | Crustacea (Cirripedia) | <i>Balanus amphitrite</i> | Striped Barnacle | Tijuana River, Channel Islands | Yes | |
| Invertebrate | Crustacea (Cirripedia) | <i>Balanus improvisus</i> | Bay Barnacle | Tijuana River, Elkhorn Slough/Monterey Bay; South Slough; Olympic Coast; Padilla Bay | Yes | |
| Invertebrate | Crustacea (Cirripedia) | <i>Balanus reticulatus</i> | barnacle | Tijuana River | Yes | |
| Invertebrate | Entoprocta (Kamptozoa) | <i>Barentsia benedeni</i> | kamptozoa | Elkhorn Slough/Monterey Bay; South Slough; Padilla Bay | No | |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Blackfordia virginica</i> | hydroid and medusa | South Slough | No | |
| Invertebrate | Chordata (Urochordata) | <i>Botrylloides perspicuum</i> | colonial tunicate | Tijuana River | Yes | |
| Invertebrate | Chordata (Urochordata) | <i>Botrylloides violaceus</i> | colonial tunicate | Tijuana River, Channel Islands; Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough; Olympic Coast; Padilla Bay; Kachemak Bay | Yes | |
| Invertebrate | Chordata (Urochordata) | <i>Botryllus schlosseri</i> | colonial tunicate | Tijuana River, Channel Islands; Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough; Olympic Coast; Padilla Bay | Yes | |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula "neritina"</i> | bryozoan | Tijuana River, Channel Islands; Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough | Yes | |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula fulva (flabellata?)</i> | bryozoan | Channel Islands; Elkhorn Slough/Monterey Bay | Yes | |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula sp. 1</i> | bryozoan | Padilla Bay | No | |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula sp. 2</i> | bryozoan | Padilla Bay | No | |

| | | | | | |
|--------------|---------------------------|---------------------------------|-----------------------|---|-----|
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula stolonifera</i> | bryozoan | Channel Islands; Elkhorn Slough/Monterey Bay; Gulf of Farallon; Padilla Bay | Yes |
| Invertebrate | Crustacea (Decapoda) | <i>Carcinus maenas</i> | Green Crab | Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough | Yes |
| Invertebrate | Mollusca (Gastropoda) | <i>Catriona rickettsi</i> | nudibranch | Tijuana River, | No |
| Invertebrate | Chordata (Urochordata) | <i>Ciona intestinalis</i> | solitary tunicate | Tijuana River, Channel Islands; Elkhorn Slough/Monterey Bay; Gulf of Farallon | Yes |
| Invertebrate | Chordata (Urochordata) | <i>Ciona savignyi</i> | solitary tunicate | Elkhorn Slough/Monterey Bay; Gulf of Farallon; Padilla Bay | Yes |
| Invertebrate | Porifera | <i>Cliona sp.</i> | Boring sponge | Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough; Padilla Bay; Kachemak Bay | No |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Conopeum seurati?</i> | bryozoan | Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough | Yes |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Conopeum tenuissimum</i> | bryozoan | Elkhorn Slough/Monterey Bay; South Slough | Yes |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Cordylophora caspia</i> | Freshwater Hydroid | South Slough; Padilla Bay | No |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Cryptosula pallasiana</i> | bryozoan | Tijuana River, Elkhorn Slough/Monterey Bay; South Slough; Padilla Bay | Yes |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene franciscana</i> | San Francisco Anemone | Tijuana River, Channel Islands; Elkhorn Slough/Monterey Bay; Gulf of Farallon | No |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene leucolena</i> | Ghost Anemone | Elkhorn Slough; South Slough | No |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene lineata</i> | Striped Anemone | Tijuana River, Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough; Padilla Bay | No |
| Invertebrate | Chordata (Urochordata) | <i>Didemnum sp. A</i> | colonial tunicate | Elkhorn Slough/Monterey Bay; Gulf of Farallon; Padilla Bay | Yes |
| Invertebrate | Chordata (Urochordata) | <i>Diplosoma listerianum</i> | colonial tunicate | Tijuana River, Channel Islands; Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough; Olympic Coast; Padilla Bay | Yes |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Ectopleura crocea</i> | hydroid | Tijuana River, Elkhorn Slough/Monterey Bay; South Slough | Yes |
| Invertebrate | Annelida (Polychaeta) | <i>Ficopomatus enigmaticus</i> | tubeworm | , Elkhorn Slough/Monterey Bay | Yes |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Garveia franciscana</i> | hydroid | Tijuana River; Kachemak Bay | No |
| Invertebrate | Porifera | <i>Halichondria bowerbankii</i> | sponge | Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough; | No |

| | | | | | |
|--------------|---------------------------|-----------------------------------|--|--|-----|
| Invertebrate | Porifera | <i>Haliclona loosanoffi</i> | sponge | Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough; Padilla Bay | No |
| Invertebrate | Annelida (Polychaeta) | <i>Hydroides diramphus</i> | tubeworm | Tijuana River | No |
| Invertebrate | Annelida (Polychaeta) | <i>Hydroides elegans</i> | tubeworm | Tijuana River, Channel Islands | Yes |
| Invertebrate | Porifera | <i>Hymeniacidon sp.</i> | sponge | Elkhorn Slough | No |
| Invertebrate | Chordata (Urochordata) | <i>Microcosmus squamiger</i> | colonial tunicate | Tijuana River, Channel Islands | Yes |
| Invertebrate | Chordata (Urochordata) | <i>Molgula manhattensis</i> | solitary tunicate | Channel Islands; Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough; Padilla Bay | Yes |
| Invertebrate | Chordata (Urochordata) | <i>Molgula sp. A</i> | colonial tunicate | Tijuana River | Yes |
| Invertebrate | Cnidaria (Scyphozoa) | <i>Phyllorhiza punctata</i> | Australian Spotted Jellyfish and polyp | Tijuana River | No |
| Invertebrate | Chordata (Urochordata) | <i>Polyandrocarpa zorritensis</i> | colonial tunicate | Tijuana River | Yes |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Schizoporella unicornis?</i> | bryozoan | Tijuana River, Channel Islands; Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough; Padilla Bay; Kachemak Bay | Yes |
| Invertebrate | Chordata (Urochordata) | <i>Styela canopus</i> | solitary tunicate | Tijuana River | No |
| Invertebrate | Chordata (Urochordata) | <i>Styela clava</i> | solitary tunicate | Tijuana River, Channel Islands; Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough; Padilla Bay | Yes |
| Invertebrate | Chordata (Urochordata) | <i>Styela plicata</i> | solitary tunicate | Tijuana River, Channel Islands; Elkhorn Slough/Monterey Bay | Yes |
| Invertebrate | Chordata (Urochordata) | <i>Symplegma reptans</i> | solitary tunicate | Elkhorn Slough/Monterey Bay; South Slough | Yes |
| Invertebrate | Mollusca (Gastropoda) | <i>Tenellia adspersa</i> | nudibranch | Elkhorn Slough; Monterey Bay | Yes |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Victorella "pavida"</i> | | Tijuana River, Elkhorn Slough/Monterey Bay | Yes |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Watersipora arcuata</i> | bryozoan | Tijuana River, Channel Islands | Yes |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Watersipora subtorquata</i> | bryozoan | Tijuana River, Channel Islands; Elkhorn Slough/Monterey Bay; Gulf of Farallon; South Slough | Yes |

| | | | | | | |
|--------------|-------------------------|---------------------------------|------------------|------------------|-----|--|
| Invertebrate | Cnidaria (Hydrozoa) | <i>Zanclaea costata</i> | hydroid & medusa | Gulf of Farallon | No | in Carlton 1979, could change to cryptogenic, regarded as "circumglobal" but hydroid found on bivalves |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Zoobotryon verticillatum</i> | bryozoan | Tijuana River | Yes | |

Appendix D continued, Tijuana River

| Broad Taxa Group | Phylum | Species | Common Name | In Refuge proper? |
|-------------------------|---------------------------|--------------------------------|-----------------------|-----------------------------------|
| Invertebrate | Ectoprocta (Bryozoa) | <i>Victorella "pavida"</i> | | Yes (Tijuana River, Model Marsh) |
| Invertebrate | Chordata (Urochordata) | <i>Ascidia sp.A</i> | solitary tunicate | No |
| Invertebrate | Chordata (Urochordata) | <i>Ascidia zara</i> | solitary tunicate | No |
| Invertebrate | Mollusca (Gastropoda) | <i>Babakina festiva</i> | nudibranch | ? |
| Invertebrate | Crustacea (Cirripedia) | <i>Balanus amphitrite</i> | Striped Barnacle | Yes (Model Marsh; Oneonta Slough) |
| Invertebrate | Crustacea (Cirripedia) | <i>Balanus improvisus</i> | Bay Barnacle | Yes (Oneonta Slough) |
| Invertebrate | Crustacea (Cirripedia) | <i>Balanus reticulatus</i> | | No |
| Invertebrate | Chordata (Urochordata) | <i>Botrylloides perspicuum</i> | colonial tunicate | |
| Invertebrate | Chordata (Urochordata) | <i>Botrylloides violaceus</i> | colonial tunicate | No |
| Invertebrate | Chordata (Urochordata) | <i>Botryllus schlosseri</i> | colonial tunicate | No |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula "neritina"</i> | bryozoan | No |
| Invertebrate | Mollusca (Gastropoda) | <i>Catirona rickettsi</i> | nudibranch | ? |
| Invertebrate | Chordata (Urochordata) | <i>Ciona intestinalis</i> | solitary tunicate | No |
| Invertebrate | Chordata (Urochordata) | <i>Ciona savignyi</i> | solitary tunicate | No |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Cryptosula pallasiana</i> | bryozoan | ? |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene franciscana</i> | San Francisco Anemone | ? |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene lineata</i> | Striped Anemone | ? |
| Invertebrate | Chordata (Urochordata) | <i>Diplosoma listerianum</i> | colonial tunicate | ? |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Ectopleura crocea</i> | hydroid | ? |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Garveia franciscana</i> | hydroid | ? |

| | | | | |
|--------------|---------------------------|-------------------------------------|--|------------------------------|
| Invertebrate | Annelida (Polychaeta) | <i>Hydroides diramphus</i> | tubeworm | ? |
| Invertebrate | Annelida (Polychaeta) | <i>Hydroides elegans</i> | tubeworm | ? |
| Invertebrate | Chordata (Urochordata) | <i>Microcosmus squamiger</i> | colonial tunicate | ? |
| Invertebrate | Chordata (Urochordata) | <i>Molgula sp. A</i> | colonial tunicate | ? |
| Invertebrate | Cnidaria (Scyphozoa) | <i>Phyllorhiza punctata</i> | Australian Spotted Jellyfish & polyp | ? |
| Invertebrate | Chordata (Urochordata) | <i>Poly&rocarpa zorritensis</i> | colonial tunicate | ? |
| Invertebrate | Chordata (Urochordata) | <i>Styela canopus</i> | solitary tunicate | ? |
| Invertebrate | Chordata (Urochordata) | <i>Styela clava</i> | solitary tunicate | ? |
| Invertebrate | Chordata (Urochordata) | <i>Styela plicata</i> | solitary tunicate | ? |
| Invertebrate | Chordata (Urochordata) | <i>Symplegma reptans</i> | solitary tunicate | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Watersipora arcuata</i> | bryozoan | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Watersipora subtorquata</i> | bryozoan | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Zoobotryon verticillatum</i> | bryozoan | ? |
| Invertebrate | Cnidaria (Anthozoa) | <i>Bunodeopsis sp.</i> | anemone | San Diego/Mission Bays |

| In Adjacent Area | Established? | References | Notes |
|--|---------------------|---|--|
| No? | Yes | SERC | |
| San Diego-Mission Bays | Yes | Lambert & Lambert 2003; SERC | |
| San Diego-Mission Bays | Yes | Lambert & Lambert 2003; SERC | |
| La Jolla/CA/Pacific Ocean | Yes | Carlton 1979 | |
| La Jolla/CA/Pacific Ocean; San Diego/CA/San Diego Bay; San Diego/CA/Mission Bay | Yes | Carlton et al. 1969; Carlton 1979; Cohen & Carlton 1995; Cohen et al. 2002; SERC | |
| Yes- 1939, on buoy, San Diego Bay, single record | Unknown | Carlton 1979; SERC | |
| Sunroad Marina/CA/San Diego Bay | Unknown | SERC | |
| Yes | | | |
| San Diego-Mission Bays | Yes | Cohen et al. 2002; Lambert & Lambert 2003; SERC | |
| San Diego-Mission Bays | Yes | Cohen et al. 2002; Lambert & Lambert 2003; SERC | |
| San Diego-Mission Bays | Yes | Carlton 1979; Cohen et al. 2002; SERC | |
| La Jolla/CA/Pacific Ocean | Yes | Cohen & Carlton 1995 | |
| San Diego-Mission Bays | Yes | Carlton 1979; Cohen et al. 2002; Lambert & Lambert 2003; SERC | |
| San Diego-Mission Bays | Yes | Carlton 1979; Cohen et al. 2002; Lambert & Lambert 2003; SERC | |
| San Diego-Mission Bays | Yes | Carlton 1979; SERC | |
| San Diego-Mission Bays | Yes | Carlton 1979; Cohen & Carlton 1995; Cohen et al. 2000 | |
| San Diego-Mission Bays | Yes | Crooks 1998 | |
| San Diego-Mission Bays | Yes | Lambert & Lambert 2003; SERC | |
| San Diego-Mission Bays | Yes | Carlton 1979; Crooks 1998; Ruiz et al., unpublished data | |
| San Diego Bay | Unknown | Ruiz et al., unpublished data | (1st records for San Diego Bay?. This is an unusual habitat for this low-salinity form. |

| | | | |
|------------------------|-----|--|----------------------------|
| San Diego-Mission Bays | Yes | Cohen et al. 2002; Ruiz et al., unpublished data | |
| San Diego-Mission Bays | Yes | Carlton 1979; Crooks 1998 | |
| San Diego-Mission Bays | Yes | Lambert & Lambert 2003 | |
| San Diego-Mission Bays | Yes | SERC, Lambert, pers. comm. | |
| San Diego-Mission Bays | Yes | Larson & Arneson 1990 | |
| San Diego-Mission Bays | Yes | Lambert & Lambert 2003; SERC | |
| San Diego-Mission Bays | Yes | Lambert & Lambert 2003 | |
| San Diego-Mission Bays | Yes | Lambert & Lambert 2003; SERC | |
| San Diego-Mission Bays | Yes | Lambert & Lambert 2003; SERC | |
| San Diego-Mission Bays | Yes | Lambert & Lambert 2003; SERC | |
| San Diego-Mission Bays | Yes | Carlton 1979; SERC | |
| San Diego-Mission Bays | Yes | Crooks 1998; Cohen et al. 2002; SERC | |
| San Diego-Mission Bays | Yes | Carlton 1979; Crooks 1998; SERC | |
| Yes | Yes | Crooks 1998; Crooks, personal communication | Introduced or cryptogenic? |

Appendix D continued, Channel Islands

| Broad Taxa Group | Phylum | Species | Common Name | In Refuge? |
|-------------------------|---------------------------|--------------------------------|-----------------------|--|
| Invertebrate | Chordata (Urochordata) | <i>Ascidia sp.A</i> | solitary tunicate | ? |
| Invertebrate | Chordata (Urochordata) | <i>Ascidia zara</i> | solitary tunicate | Anacapa Island (Channel Islands)/CA/Anacapa Islands Harbor |
| Invertebrate | Crustacea (Cirripedia) | <i>Balanus amphitrite</i> | Striped Barnacle | ? |
| Invertebrate | Chordata (Urochordata) | <i>Botrylloides violaceus</i> | colonial tunicate | Anacapa Island (Channel Islands)/CA/Anacapa Islands Harbor |
| Invertebrate | Chordata (Urochordata) | <i>Botryllus schlosseri</i> | colonial tunicate | Anacapa Island (Channel Islands)/CA/Anacapa Islands Harbor |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula "neritina"</i> | bryozoan | ? |
| | Ectoprocta (Bryozoa) | <i>Bugula fulva?</i> | bryozoan | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula stolonifera</i> | bryozoan | ? |
| Invertebrate | Chordata (Urochordata) | <i>Ciona intestinalis</i> | solitary tunicate | Anacapa Island (Channel Islands)/CA/Anacapa Islands Harbor |
| Invertebrate | Chordata (Urochordata) | <i>Ciona savignyi</i> | solitary tunicate | Anacapa Island (Channel Islands)/CA/Anacapa Islands Harbor |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene franciscana</i> | San Francisco Anemone | Anacapa Island (Channel Islands)/CA/Anacapa Islands Harbor |
| Invertebrate | Chordata (Urochordata) | <i>Diplosoma listerianum</i> | colonial tunicate | ? |
| Invertebrate | Annelida (Polychaeta) | <i>Hydroides elegans</i> | tubeworm | ? |
| Invertebrate | Chordata (Urochordata) | <i>Microcosmus squamiger</i> | colonial tunicate | Anacapa Island (Channel Islands)/CA/Anacapa Islands Harbor |
| Invertebrate | Chordata (Urochordata) | <i>Molgula manhattensis</i> | solitary tunicate | Anacapa Island (Channel Islands)/CA/Anacapa Islands Harbor |
| Invertebrate | Chordata (Urochordata) | <i>Styela clava</i> | solitary tunicate | Anacapa Island (Channel Islands)/CA/Anacapa Islands Harbor |
| Invertebrate | Chordata (Urochordata) | <i>Styela plicata</i> | solitary tunicate | Anacapa Island (Channel Islands)/CA/Anacapa Islands Harbor |
| Invertebrate | Chordata (Urochordata) | <i>Watersipora arcuata</i> | bryozoan | Anacapa Island (Channel Islands)/CA/Anacapa Islands Harbor |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Watersipora subtorquata</i> | bryozoan | ? |

| In Adjacent Area | Established? | References |
|---|---------------------|---|
| Ventura/CA, Port Hueneme/CA | Yes | Lambert & Lambert 2003; |
| Ventura/CA, Port Hueneme/CA; | Yes | Cohen et al. 2002; Lambert & Lambert 2003; SERC |
| 'Ventura West harbor; | Yes | SERC |
| Ventura/CA, Port Hueneme/CA; Anacapa Island (Channel Islands)/CA/Anacapa Islands Harbor | Yes | Cohen et al. 2002; Lambert & Lambert 2003; SERC |
| Ventura/CA, Port Hueneme/CA; | Yes | Cohen et al. 2002; Lambert & Lambert 2003; SERC |
| Ventura West harbor; | Yes | SERC |
| Vintage Marina, Oxnard | | |
| Ventura West harbor; | Yes | SERC |
| Vintage Marina, Oxnard | | |
| Ventura West harbor; | Yes | Cohen et al. 2002; Lambert & Lambert 2003; SERC |
| Vintage Marina, Oxnard | Yes | Cohen et al. 2002; Lambert & Lambert 2003; SERC |
| Vintage Marina, Oxnard | Yes | Carlton 1979; Cohen & Carlton 1995; Cohen et al. 2000 |
| ? | Yes | |
| Ventura West harbor; | Yes | SERC |
| Vintage Marina, Oxnard | | |
| 'Ventura West harbor; | Yes | Carlton 1979; SERC |
| Ventura/CA, Port Hueneme/CA; | | Lambert & Lambert 2003 |
| Ventura/CA | Yes | Lambert & Lambert 2003; SERC |
| Ventura West harbor; | Yes | Lambert & Lambert 2003; SERC |
| Vintage Marina, Oxnard; | | |
| Port Hueneme/CA; | | |
| Ventura West harbor; | Yes | Lambert & Lambert 2003; SERC |
| Vintage Marina, Oxnard; | | |
| Port Hueneme/CA; | | |
| Ventura West harbor; | | Cohen et al. 2000; SERC |
| Vintage Marina, Oxnard; | | |
| Port Hueneme/CA; | | |
| 'Ventura West harbor; | Yes | SERC |
| Vintage Marina, Oxnard; | | |

Appendix D continued, Elkhorn Slough and Monterey Bay

Broad Taxa

| Group | Phylum | Species | Common Name | In Refuge proper? |
|--------------|---------------------------|---------------------------------|-----------------------|--|
| Invertebrate | Ectoprocta (Bryozoa) | <i>Victorella pavida</i> | bryozoan | Yes(Elkhorn Slough- Moss Landing, North; Kirby Park) |
| Invertebrate | Chordata | <i>Ascidia zara</i> | solitary tunicate | Elkhorn Slough |
| Invertebrate | Crustacea (Cirripedia) | <i>Balanus improvisus</i> | Bay Barnacle | Elkhorn Slough |
| Invertebrate | Chordata (Urochordata) | <i>Botrylloides violaceus</i> | colonial tunicate | Monterey Bay, Elkhorn Slough; Monterey Marina/CA/Monterey Bay; Santa Cruz Harbor/CA/Monterey Bay |
| Invertebrate | Chordata (Urochordata) | <i>Botryllus schlosseri</i> | colonial tunicate | Elkhorn Slough; Monterey Marina/CA/Monterey Bay; Santa Cruz Harbor/CA/Monterey Bay |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula "neritina"</i> | bryozoan | Elkhorn Slough; Monterey Marina/CA/Monterey Bay; Santa Cruz Harbor/CA/Monterey Bay |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula fulva</i> | bryozoan | Monterey Marina/CA/Monterey Bay |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula stolonifera</i> | bryozoan | Elkhorn Slough; Monterey Marina/CA/Monterey Bay; Santa Cruz Harbor/CA/Monterey Bay |
| Invertebrate | Crustacea (Decapoda) | <i>Carcinus maenas</i> | Green Crab | Monterey Bay, Elkhorn Slough |
| Invertebrate | Porifera | <i>Cliona sp.</i> | Boring sponge | Elkhorn Slough |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Conopeum seurati?</i> | bryozoan | Azevedo Pond; Hudson Landing West |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Conopeum tenuissimum</i> | bryozoan | Elkhorn Slough |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Cryptosula pallasiana</i> | bryozoan | Elkhorn Slough; Monterey Bay |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene franciscana</i> | San Francisco Anemone | Elkhorn Slough |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene leucolena</i> | Ghost Anemone | Elkhorn Slough |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene lineata</i> | Striped Anemone | Elkhorn Slough |
| Invertebrate | Chordata (Urochordata) | <i>Didemnum sp.</i> | colonial tunicate | Elkhorn Slough |
| Invertebrate | Chordata (Urochordata) | <i>Diplosoma listerianum</i> | colonial tunicate | Elkhorn Slough; Monterey Bay |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Ectopleura crocea</i> | hydroid | Elkhorn Slough |
| Invertebrate | Annelida (Polychaeta) | <i>Ficopomatus enigmaticus</i> | tubeworm | Elkhorn Slough |
| Invertebrate | Porifera | <i>Halichondria bowerbankii</i> | sponge | Elkhorn Slough |
| Invertebrate | Porifera | <i>Haliclona loosanoffi</i> | sponge | Elkhorn Slough; Monterey Bay |
| Invertebrate | Porifera | <i>Hymeniacidon sp.</i> | sponge | Elkhorn Slough |
| Invertebrate | Chordata (Urochordata) | <i>Molgula manhattensis</i> | solitary tunicate | Elkhorn Slough; Monterey Bay |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Schizoporella unicornis?</i> | bryozoan | Elkhorn Slough; Monterey Bay |
| Invertebrate | Chordata (Urochordata) | <i>Styela clava</i> | solitary tunicate | Elkhorn Slough; Monterey Bay |
| Invertebrate | Chordata (Urochordata) | <i>Styela plicata</i> | solitary tunicate | Elkhorn Slough |
| Invertebrate | Mollusca (Gastropoda) | <i>Tenellia adspersa</i> | nudibranch | Elkhorn Slough; Monterey Bay |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Watersipora subtorquata</i> | bryozoan | Elkhorn Slough; Monterey Bay |

| In Adjacent Area | Established | References | Notes |
|------------------|-------------|---|--|
| ? | Yes | SERC | |
| ? | Yes | SERC | |
| Yes | Yes | Wasson et al. 2001; SERC | |
| ? | Yes | Wasson et al. 2001; SERC | |
| ? | Yes | Wasson et al. 2001; SERC | |
| | Yes | Wasson et al. 2001; SERC | |
| ? | Unknown | SERC Wasson et al. 2001; SERC | Uncertain ID- could be <i>flabellata</i> ? |
| Yes | Yes | Grosholz & Ruiz 1995; Miller 1996; Ruiz et al. 1998 | |
| ? | Yes | Wasson et al. 2001 | |
| ? | Yes | SERC | Taxonomically difficult, but apparently introduced |
| ? | Yes | Wasson et al. 2001 | |
| Yes | Yes | Wasson et al. 2001; SERC | |
| ? | Yes | Wasson et al. 2001 | |
| ? | Yes | Wasson et al. 2001 | |
| ? | Yes | Carlton 1979; Wasson et al. 2001 | |
| ? | Yes | Lambert, pers. comm.; SERC | |
| Yes | Yes | SERC | |
| Yes | Yes | Carlton 1979; Wasson et al. 2001 | |
| ? | Yes | Wasson et al. 2001; SERC | |
| ? | Yes | Wasson et al. 2001 | |
| ? | Yes | Wasson et al. 2001 | |
| ? | Yes | Wasson et al. 2001 | |
| ? | Yes | Wasson et al. 2001; SERC | |
| Yes | Yes | Wasson et al. 2001; SERC | Identity of this species is unclear. |
| ? | Yes | Carlton 1979; Wasson et al. 2001; SERC | |
| ? | Yes | SERC | |
| ? | Yes | Carlton 1979; Wasson et al. 2001; SERC | |
| ? | Yes | Wasson et al. 2001; SERC | |

Appendix D continued, Gulf of Farallones

| Broad Taxa Group | Phylum | Species | Common Name | In Refuge? |
|-------------------------|---------------------------|---------------------------------|-----------------------|-------------------|
| Invertebrate | Chordata (Urochordata) | <i>Ascidia zara</i> | solitary tunicate | ? |
| Invertebrate | Chordata (Urochordata) | <i>Botrylloides violaceus</i> | colonial tunicate | ? |
| Invertebrate | Chordata (Urochordata) | <i>Botryllus schlosseri</i> | colonial tunicate | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula "neritina"</i> | bryozoan | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula flabellata</i> | bryozoan | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula stolonifera</i> | bryozoan | ? |
| Invertebrate | Crustacea (Decapoda) | <i>Carcinus maenas</i> | Green Crab | ? |
| Invertebrate | Chordata (Urochordata) | <i>Ciona intestinalis</i> | solitary tunicate | ? |
| Invertebrate | Chordata (Urochordata) | <i>Ciona savignyi</i> | solitary tunicate | ? |
| Invertebrate | Porifera | <i>Cliona sp.</i> | Boring sponge | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Conopeum seurati?</i> | bryozoan | ? |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene franciscana</i> | San Francisco Anemone | ? |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene lineata</i> | Striped Anemone | ? |
| Invertebrate | Chordata (Urochordata) | <i>Didemnum sp.</i> | colonial tunicate | ? |
| Invertebrate | Chordata (Urochordata) | <i>Diplosoma listerianum</i> | colonial tunicate | ? |
| Invertebrate | Porifera | <i>Halichondria bowerbankii</i> | sponge | ? |
| Invertebrate | Porifera | <i>Haliclona loosanoffi</i> | sponge | ? |
| Invertebrate | Chordata (Urochordata) | <i>Molgula manhattensis</i> | solitary tunicate | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Schizoporella unicornis?</i> | bryozoan | ? |
| Invertebrate | Chordata (Urochordata) | <i>Styela clava</i> | solitary tunicate | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Watersipora subtorquata</i> | bryozoan | ? |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Zanclaea costata</i> | hydroid & medusa | ? |

| In Adjacent Area | Established | References | Notes |
|---|--------------------|---|--|
| Tomales Bay; Bodega Bay; Mason's Marina/CA/Bodega Bay | Yes | Fairey et al. 2002; SERC | |
| Tomales Bay; Bodega Bay | Yes | Fairey et al. 2002; SERC | |
| Tomales Bay; Bodega Bay | Yes | Fairey et al. 2002; SERC | |
| Tomales Bay; Bodega Bay | Yes | Fairey et al. 2002; SERC | |
| | Yes | SERC | |
| Mason's marina/CA/Bodega Bay; Porto Bodega marina/CA/Bodega Bay | Yes | SERC | |
| Tomales Bay; Bodega Bay | Yes | Grosholz & Ruiz 1995; Miller 1996; Ruiz et al. 1998 | |
| Tomales Bay; Bodega Bay | Yes | Fairey et al. 2002; SERC | |
| Tomales Bay | Yes | Fairey et al. 2002; SERC | CHECK |
| Tomales Bay | Yes | Carlton 1979; Cohen & Carlton 1995 | |
| Mason's marina/CA/Bodega Bay; Porto Bodega marina/CA/Bodega Bay | Yes | SERC | Taxonomically difficult, but apparently introduced |
| Tomales Bay | Yes | Cohen & Carlton 1995 | |
| Tomales Bay; Bodega Bay | Yes | Carlton 1979; Wasson et al. 2001 | |
| Tomales Bay; Bodega Bay | Yes | Ruiz et al. unpublished; Lambert, pers. comm., SERC | |
| Tomales Bay; Bodega Bay | Yes | SERC | |
| Tomales Bay | Yes | Fairey et al. 2002 | |
| Tomales Bay | Yes | Fairey et al. 2002 | |
| Tomales Bay; Bodega Bay | Yes | SERC | |
| Tomales Bay; Bodega Bay | Yes | Carlton 1979; Fairey et al. 2002; SERC | Identity of this species is unclear. |
| Bodega Bay | Yes | Fairey et al. 2002 | |
| Tomales Bay; Bodega Bay | Yes | Cohen & Carlton 1995; SERC | |
| Bodega Bay | Yes | Carlton 1979 | |

Appendix D continued, South Slough

Broad Taxa

| Group | Phylum | Species | Common Name | In Refuge? |
|--------------|---------------------------|---------------------------------|-----------------------|--|
| Invertebrate | Crustacea (Cirripedia) | <i>Balanus improvisus</i> | Bay Barnacle | Coos Bay/OR/South Slough; Sengstocken Arm; Empire Boat Ramp; Charleston Boat Basin; Winchester; Port of Coos Bay; Citrus Dock; Valino Is; Crown Pt |
| Invertebrate | Entoprocta (Kamptozoa) | <i>Barentsia benedeni</i> | kamptozoon | ? |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Blackfordia virginica</i> | hydroid and medusa | |
| Invertebrate | Chordata (Urochordata) | <i>Botrylloides violaceus</i> | colonial tunicate | Coos Bay; Coos Bay/OR/South Slough; Empire Boat Ramp; Charleston Boat Basin/OR/South Slough; Valino Is/ Crown Pt |
| Invertebrate | Chordata (Urochordata) | <i>Botryllus schlosseri</i> | colonial tunicate | Coos Bay; Charleston Boat Basin/OR/South Slough |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula "neritina"</i> | bryozoan | ? |
| Invertebrate | Crustacea (Decapoda) | <i>Carcinus maenas</i> | Green Crab | Coos Bay |
| Invertebrate | Porifera | <i>Cliona sp.</i> | Boring sponge | Coos Bay |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Conopeum seurati?</i> | bryozoan | Empire Boat Ramp; Charleston Boat Basin |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Conopeum tenuissimum</i> | bryozoan | Coos Bay; 'Empire Boat Ramp |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Cordylophora caspia</i> | Freshwater Hydroid | |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Cryptosula pallasiana</i> | bryozoan | Charleston Boat Basin |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene leucolena</i> | Ghost Anemone | Coos Bay |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene lineata</i> | Striped Anemone | Coos Bay |
| Invertebrate | Chordata (Urochordata) | <i>Diplosoma listerianum</i> | colonial tunicate | Isthmus Slough (Coos Bay) |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Ectopleura crocea</i> | hydroid | Coos Bay |
| Invertebrate | Porifera | <i>Halichondria bowerbankii</i> | sponge | Coos Bay |
| Invertebrate | Porifera | <i>Haliclona loosanoffi</i> | sponge | Coos Bay |
| Invertebrate | Chordata (Urochordata) | <i>Molgula manhattensis</i> | solitary tunicate | Isthmus Slough (Coos Bay) |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Schizoporella unicornis?</i> | bryozoan | Coos Bay/OR/Charlestown Boat Basin |
| Invertebrate | Chordata (Urochordata) | <i>Styela clava</i> | solitary tunicate | Coos Bay/OR/Inner Boat Basin |
| Invertebrate | Mollusca (Gastropoda) | <i>Tenellia adspersa</i> | nudibranch | Coos Bay |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Watersipora subtorquata</i> | bryozoan | Coos Bay |

| In Adjacent Area | Established | References | Notes |
|---------------------------------|-------------|--|--|
| Yes, OR/Coos Bay | Yes | Carlton 1979; Carlton 1989; Cohen & Carlton 1995; Wonham et al. 2005; SERC | |
| Yes, Coos Bay/OR/Isthmus Slough | Yes | Carlton 1989; Wasson 1997 | |
| Yes, Coos Bay/OR/Isthmus Slough | Yes | Ruiz et al. 2000; Wonham et al. 2005 | |
| Yes | Yes | Hewitt et al. 1993; Ruiz et al. 2000, SERC; Carlton, unpublished data; | |
| Yes | Yes | Hewitt et al. 1993; Ruiz et al. 2000, SERC; Carlton, unpublished data; | |
| Coos Bay | Yes | Cohen & Carlton 1995; Carlton 1989; Carlton unpublished data | |
| Yes | Yes | Ruiz et al. 1998 | |
| Yes | | Carlton 1979; Cohen et al. 1998 | |
| ? | Yes | SERC | Taxonomically difficult, but apparently introduced |
| ? | Yes | Wasson et al. 2001 | |
| Coos Bay/OR/Coos River | Yes | Ruiz et al. 2000; Carlton unpublished data | |
| Coos Bay | Yes | Ruiz et al. 2000; Carlton unpublished data; SERC | |
| ? | Yes | Carlton 1979; Cohen & Carlton 1995 | |
| ? | Yes | Carlton 1979; Cohen & Carlton 1995 | |
| Yes | Yes | Hewitt 1993 | |
| Yes | Yes | Carlton 1979; Wonham et al. 2005 | |
| ? | Yes | Carlton 1979; Wonham et al. 2005 | |
| ? | Yes | Carlton 1979; Wonham et al. 2005 | |
| ? | Yes | Carlton 1979; Wonham et al. 2005 | |
| ? | Yes | Carlton 1989; Cohen & Carlton 1995; Wonham et al. 2005 | Identity of this species is unclear. |
| ? | Yes | Cohen & Carlton 1995; | |
| ? | Yes | Wonham et al. 2005 | |
| ? | Yes | Wonham et al. 2005 | |

Appendix D continued, Olympic Coast

| Broad Taxa Group | Phylum | Species | Common Name | In Refuge? | In Adjacent Area | Established? | References | Notes |
|-------------------------|---------------------------|-------------------------------|--------------------|--------------------------|---------------------------|---------------------|-------------------------|--------------|
| Invertebrate | Crustacea (Cirripedia) | <i>Balanus improvisus</i> | Bay Barnacle | La PushWA/La Push Harbor | No? | Unknown | SERC | |
| Invertebrate | Chordata (Urochordata) | <i>Botrylloides violaceus</i> | colonial tunicate | Neah Bay | Willapa Bay | Yes | Cohen et al. 2000; SERC | |
| Invertebrate | Chordata (Urochordata) | <i>Botryllus schlosseri</i> | colonial tunicate | Neah Bay | Willapa Bay | Yes | Cohen et al. 2000; SERC | |
| Invertebrate | Crustacea (Decapoda) | <i>Carcinus maenas</i> | Green Crab | ? | Grays Harbor; Willapa Bay | Unknown | Cohen et al. 2000 | |
| Invertebrate | Chordata (Urochordata) | <i>Diplosoma listerianum</i> | colonial tunicate | Neah Bay | Willapa Bay | Yes | SERC | |

Appendix D continued, Padilla Bay

| Broad Taxa Group | Phylum | Species | Common Name | In Refuge? |
|-------------------------|---------------------------|---------------------------------|-----------------------|------------------------------|
| Invertebrate | Crustacea (Cirripedia) | <i>Balanus improvisus</i> | Bay Barnacle | Bayview Channel |
| Invertebrate | Entoprocta (Kamptozoa) | <i>Barentsia benedeni</i> | kamptozoa | ? |
| Invertebrate | Chordata (Urochordata) | <i>Botrylloides violaceus</i> | colonial tunicate | Anacortes/WA/ Padilla Bay |
| Invertebrate | Chordata (Urochordata) | <i>Botryllus schlosseri</i> | colonial tunicate | Anacortes/WA/ Padilla Bay |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula sp. 1</i> | bryozoan | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula sp. 2</i> | bryozoan | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Bugula stolonifera</i> | bryozoan | ? |
| Invertebrate | Chordata (Urochordata) | <i>Ciona savignyi</i> | solitary tunicate | ? |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Cladonema radiatum</i> | hydroid & medusa | WA/Padilla Bay |
| Invertebrate | Porifera | <i>Cliona sp.</i> | Boring sponge | ? |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Cordylophora caspia</i> | Freshwater Hydroid | ? |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Cryptosula pallasiana</i> | bryozoan | WA/Padilla Bay |
| Invertebrate | Cnidaria (Anthozoa) | <i>Diadumene lineata</i> | Striped Anemone | WA/Padilla Bay |
| Invertebrate | Chordata (Urochordata) | <i>Didemnum sp. A</i> | colonial tunicate | ? |
| Invertebrate | Porifera | <i>Haliclona loosanoffi</i> | sponge | ? |
| Invertebrate | Chordata (Urochordata) | <i>Molgula manhattensis</i> | solitary tunicate | WA/Padilla Bay |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Schizoporella unicornis?</i> | bryozoan | WA/Padilla Bay |
| Invertebrate | Chordata (Urochordata) | <i>Styela clava</i> | solitary tunicate | Anacortes/WA/ Puget Sound |

| In Adjacent Area | Established in refuge | References | Notes |
|--|-----------------------|---|--------------------------------------|
| No? | Unknown | SERC | |
| Yes, WA/Puget Sound | Yes | Cohen et al. 1998 | |
| Puget Sound | Yes | Cohen et al. 1998; Cohen et al. 2000; Lambert 2003 | |
| Puget Sound | Yes | Cohen et al. 1998; Cohen et al. 2000; Lambert 2003 | |
| Puget Sound | Yes | Cohen et al. 1998 | Resembles <i>B. turrita</i> . |
| Puget Sound | Yes | Cohen et al. 1998 | Resembles <i>B. fulva</i> |
| Puget Sound | Yes | Cohen et al. 1998 | |
| Puget Sound | Yes | Fairey et al. 2002; SERC | CHECK |
| ? | Yes | Cohen et al. 1998 | |
| Puget Sound | | Carlton 1979; Cohen et al. 1998 | |
| Edison/WA/Samish River; Seattle/WA/Elliott Bay | Yes | Ruiz et al. 2000; Carlton unpublished data | |
| Puget Sound | Yes | Cohen et al. 1998; SERC | |
| Puget Sound | Yes | Carlton 1979; Cohen et al. 1998 | |
| Puget Sound | Yes | Woods Hole Marine Science Center 2005 | |
| Puget Sound | Yes | Carlton 1979; Cohen et al. 1998; Wonham et al. 2005 | |
| Puget Sound | Yes | Cohen et al. 1998; Wonham et al. 2005; SERC | |
| Puget Sound | Yes | Cohen et al. 1998; Wonham et al. 2005; SERC | Identity of this species is unclear. |
| Puget Sound | Yes | Cohen et al. 1998; Wonham et al. 2005 | |

Appendix D continued, Kachemak Bay

| Broad Taxa | | | Common | | In Adjacent | | | |
|--------------|---------------------------|---------------------------------|----------------------|-----------------|-------------------------|-------------|---|--|
| Group | Phylum | Species | Name | In Refuge? | Area | Established | References | Notes |
| Invertebrate | Chordata (Urochordata) | <i>Botrylloides violaceus</i> | colonial tunicate | Kachemak Bay | Prince William Sound | Yes | Ruiz et al., unpublished data; SERC | |
| Invertebrate | Porifera | <i>Cliona sp.</i> | Boring sponge | ? | Prince William Sound | Yes | Hines & Ruiz 2000 | |
| Invertebrate | Cnidaria (Hydrozoa) | <i>Garveia franciscana</i> | hydroid | Kachemak Bay | | Unknown | Hines & Ruiz 2001 | This record seems puzzling for this warm- water species. |
| Invertebrate | Ectoprocta (Bryozoa) | <i>Schizoporella unicornis?</i> | bryozoan | ? | Prince William Sound | Yes | Hines & Ruiz 2000 | Identity of this species is unclear. |

EXOTICS IN ELKHORN SLOUGH ESTUARINE HABITATS

*A list of documented non-native species compiled by Kerstin Wasson
Elkhorn Slough National Estuarine Research Reserve*

| INVERTEBRATES | FISH |
|--|--|
| <p>PORIFERA <i>*Cliona ?celata/lobata</i> <i>*Halichondria bowerbanki</i> <i>Haliclona loosanoffi</i> <i>*Hymeniacion sinapium</i></p> <p>ANNELIDA: POLYCHAETA <i>Ficopomatus enigmaticus</i> <i>Heteromastus filiformis</i> <i>Polydora ligni</i> <i>Pseudopolydora paucibranchiata</i> <i>Streblospio benedicti</i></p> <p>ARTHROPODA: CRUSTACEA CIRRIPEDIA <i>Balanus improvisus</i> COPEPODA <i>Mytilicola orientalis</i> MALACOSTRACA ISOPODA <i>Iais californica</i> <i>Limnoria quadripunctata</i> <i>Sphaeroma quoyanum</i> TANAIDA <i>Sinelobus</i> sp. AMPHIPODA <i>Ampithoe valida</i> <i>Caprella mutica</i> <i>Grandidierella japonica</i> <i>Jassa marmorata</i> <i>Melita nitida</i> <i>Monocorophium acherusicum</i> <i>Monocorophium insidiosum</i> <i>Monocorophium uenoi</i> <i>Parapleustes derzhavini</i> DECAPODA <i>Carcinus maenas</i> <i>Palaemon macrodactylus</i></p> <p>PLATYHELMINTHES <i>Cercaria batillariae</i></p> | <p>CNIDARIA <i>Cordylophora caspia</i> <i>Diadumene franciscana</i> <i>Diadumene leucolena</i> <i>Diadumene lineata</i> <i>Ectopleura crocea</i> <i>Sarsia tubulosa</i></p> <p>BRYOZOA <i>Amathia vidovici</i> <i>Bowerbankia gracilis</i> <i>*Bugula neritina</i> <i>Bugula stolonifera</i> <i>Conopeum tenuissimum</i> <i>*Cryptosula pallasiana</i> <i>*Schizoporella unicornis</i> <i>Watersipora subtorquata</i></p> <p>KAMPTOZOA <i>Barentsia benedeni</i></p> <p>MOLLUSCA BIVALVIA <i>Gemma gemma</i> <i>Lyrodus pedicellatus</i> <i>Musculista senhousia</i> <i>Mya arenaria</i> <i>*Mytilus galloprovincialis</i> <i>Nuttallia obscurata</i> <i>Venerupis philippinarum</i> GASTROPODA <i>Batillaria attramentaria</i> <i>Myosotella myosotis</i> <i>Okenia plana</i> <i>Philine ?auriformis</i> <i>Tenellia adspersa</i> <i>Urosalpinx cinerea</i></p> <p>CHORDATA: UROCHORDATA <i>Botrylloides violaceus</i> <i>*Molgula manhattensis</i> <i>Styela clava</i></p> |
| | <p><i>Yellowfin Goby <i>Acanthogobius flavimanus</i></i> <i>American Shad <i>Alosa sapioissima</i></i> <i>Striped Bass <i>Morone saxatilis</i></i></p> |
| | ALGAE |
| | <p><i>Caulacanthus ustulatus</i> <i>Sargassum muticum</i></p> |
| | PLANTS |
| | <p><i>Ammophila arenaria</i> <i>Arundo donax</i> <i>Atriplex semibaccata</i> <i>Cakile edentula</i> <i>Cakile maritima</i> <i>Carpobrotus chilense</i> <i>Carpobrotus edulis</i> <i>Chenopodium macrospermum</i> <i>Conium maculatum</i> <i>Cotula coronopifolia</i> <i>Mesembryanthemum nodiflorum</i> <i>Spergularia bocconii</i> <i>Tetragonia tetragoniodes</i></p> |

Data Sources: the 58 non-native invertebrate species are documented in a recent paper by K. Wasson, K. Fenn, and J. Pearse (Biological Invasions). Those marked with an asterisk (*) are also found in rocky intertidal habitats in central California; no additional non-native invertebrates were found in extensive surveys. The three non-native fish species were reported by G. Cailliet (Moss Landing Marine Laboratories); the two algae have been noted by K. Wasson (ESNERR) and K. Heiman (Stanford University). The plant list was supplied by A. Woolfolk (ESNERR).

TRNERR Wetland NIS

| Appendix E. Wetland and marine NIS found in Elkhorn Slough and TRNERR and its surrounding bays | | | | |
|--|--|-----------------------|-----------------------------|------------------------|
| Species | | | Primary Habitat Association | |
| | | | Marine / Estuarine | Terrestrial / Riparian |
| PLANTS | | | | |
| | <i>Arundo donax</i> | Giant reed | | x |
| | <i>Brassica nigra</i> | Black mustard | x | x |
| | <i>Brassica tournefortii</i> | Sahara mustard | | x |
| | <i>Bromus madritensis</i> ssp. <i>rubens</i> | Foxtail | | x |
| | <i>Carpobrotus edulis</i> | Hottentot fig | | x |
| | <i>Chrysanthemum coronarium</i> | Crown daisy | | x |
| | <i>Lepidium latifolium</i> | Perennial pepperweed | | x |
| | <i>Malephora crocea</i> | Iceplant | | x |
| | <i>Mesembryanthemum crystallinum</i> | Crystalline iceplant | | x |
| | <i>Mesembryanthemum nodiflorum</i> | Slender-leaf iceplant | | x |
| | <i>Myoporum laetum</i> | Myoporum | | x |
| | <i>Polypogon monspeliensis</i> | Rabbitfoot | | x |
| | <i>Ricinus communis</i> | Castor bean | | x |
| | <i>Rumex crispus</i> | Curly dock | | x |
| | <i>Schinus terebinthifolius</i> | Brazilian pepper | | x |
| | <i>Tamarix</i> spp. | Salt cedar | | x |
| BRYOZOAN | | | | |
| | <i>Victorella pavida</i> | Added by this study | x | |
| OLIGOCHAETES | | | | |
| | <i>Tubificoides brownea</i> | | x | |
| POLYCHAETES | | | | |
| | <i>Pseudopolydora paucibranchiata</i> | | x | |
| | <i>Streblospio benedicti</i> | | x | |
| AMPHIPODS | | | | |
| | <i>Grandidierella japonica</i> | | x | |
| | <i>Jassa mamorata</i> (=falcata) | | x | |
| ISOPODS | | | | |
| | <i>Armadillidium vulgare</i> | Pillbug | | x |
| | <i>Oniscus asellus</i> | Woodlouse | | x |
| BARNACLES | | | | |
| | <i>Balanus amphitrite</i> | Striped barnacle | x | |
| | <i>Balanus improvisus</i> | Added by this study | x | |
| SHRIMP | | | | |
| | <i>Palaemon macrodactylus</i> | Oriental grass shrimp | x | |
| INSECTS | | | | |
| | <i>Forficula auricularia</i> | Earwig | | x |
| | <i>Linepithema humile</i> | Argentine ant | | x |
| GASTROPODS | | | | |
| | <i>Helix aperta</i> | Green snail | | x |
| | <i>Theba pisana</i> | White garden snail | | x |
| BIVALVES | | | | |
| | <i>Crassostrea gigas</i> | Pacific oyster | x | |
| | <i>Musculista senhousia</i> | Japanese mussel | x | |
| | <i>Mytilus galloprovincialis</i> | Blue mussel | x | |
| FISH | | | | |
| | <i>Acanthogobius flavimanus</i> | Yellowfin goby | x | |
| | <i>Gambusia affinis</i> | Mosquitofish | | x |
| AMPHIBIAN | | | | |
| | <i>Xenopus laevis</i> | African clawed frog | | x |

SD(TR) Marine NIS

| Species | Notes | | | |
|--|---------------------|--|--|--|
| PLANTS | | | | |
| <i>Avicennia marina</i> | | | | |
| <i>Tamarix spp.</i> | | | | |
| ALGAE | | | | |
| <i>Caulerpa taxifolia</i> | | | | |
| <i>Lomentaria hakodatensis</i> | | | | |
| <i>Sargassum muticum</i> | | | | |
| CILIATES | | | | |
| <i>Lobochona prorates</i> | | | | |
| ANENOMES | | | | |
| <i>Bunodeopsis sp.</i> | | | | |
| <i>Diadumene franciscana</i> | | | | |
| <i>Diadumene lineata</i> | | | | |
| HYDROZOAN | | | | |
| <i>Tubularia (AKA Ectopleura) crocea</i> | | | | |
| BRYOZOAN | | | | |
| <i>Bowerbankia gracilis ?</i> | | | | |
| <i>Bugula "neritina"</i> | | | | |
| <i>Cryptosula pallasiana</i> | | | | |
| <i>Victorella pavida</i> | Added by this study | | | |
| <i>Watersipora "subtorquata"</i> | | | | |
| <i>Watersipora arcuata</i> | | | | |
| <i>Zoobotryon verticillatum</i> | | | | |
| OLIGOCHAETES | | | | |
| <i>Tubificoides brownea</i> | | | | |
| POLYCHAETES | | | | |
| <i>Amblyosyllis speciosa</i> | | | | |
| <i>Demonax sp.</i> | | | | |
| <i>Hydroides dirampa</i> | | | | |
| <i>Hydroides elegans</i> | | | | |
| <i>Lycatopsis pontica</i> | | | | |
| <i>Myrianida pachycera</i> | | | | |
| <i>Neanthes acuminata (= caudata)</i> | | | | |
| <i>Nicolea sp. A</i> | | | | |
| <i>Pseudopolydora paucibranchiata</i> | | | | |
| <i>Streblospio benedicti</i> | | | | |
| COPEPODS | | | | |
| <i>Pseudodiaptomus marinus</i> | | | | |
| AMPHIPODS | | | | |
| <i>Aoroides secunda</i> | | | | |
| <i>Corophium acherusicum</i> | | | | |
| <i>Corophium heteroceratum</i> | | | | |
| <i>Corophium insidiosum</i> | | | | |
| <i>Corophium uenoi</i> | | | | |
| <i>Elasmopus rapax</i> | | | | |
| <i>Erichthonius brasiliensis</i> | | | | |
| <i>Grandidierella japonica</i> | | | | |
| <i>Jassa marmorata (= falcata)</i> | | | | |
| <i>Leucothoe alata</i> | | | | |
| <i>Liljeborgia sp.</i> | | | | |
| <i>Stenothoe valida</i> | | | | |
| TANAIDS | | | | |
| <i>Sinelobus? stanfordi</i> | | | | |
| OSTRACOD | | | | |

SD(TR) Marine NIS

| | | | | | |
|------------|---|--|--|--|--|
| | <i>Aspidoconcha limnoriae</i> | | | | |
| | <i>Redekea californica</i> | | | | |
| ISOPODS | | | | | |
| | <i>Iais californica</i> | | | | |
| | <i>Limnoria tripunctata</i> | | | | |
| | <i>Limnoria quadripunctata</i> | | | | |
| | <i>Paranthura japonica</i> | | | | |
| | <i>Spaeroma quoyanum</i> | | | | |
| | <i>Sphaeroma walkeri</i> | | | | |
| BARNACLES | | | | | |
| | <i>Balanus amphitrite</i> | | | | |
| | <i>Balanus improvisus</i> | Added by this study | | | |
| | <i>Balanus reticulatus</i> | Added by this study | | | |
| SHRIMP | | | | | |
| | <i>Palaemon macrodactylus</i> | | | | |
| GASTROPODS | | | | | |
| | <i>Acloidella takanosimensis</i> | may not be established | | | |
| | <i>Babakina festiva</i> | | | | |
| | <i>Catrina rickettsi</i> | | | | |
| | <i>Philine auriformis</i> | | | | |
| BIVALVES | | | | | |
| | <i>Crassostrea gigas</i> | | | | |
| | <i>Lyrodus pedicellatus</i> | | | | |
| | <i>Mercenaria mercenaria</i> | may not be established | | | |
| | <i>Musculista senhousia</i> | | | | |
| | <i>Mytilus galloprovincialis</i> | | | | |
| | <i>Teredo navalis</i> | | | | |
| | <i>Theora fragilis (= lubrica)</i> | | | | |
| TUNICATES | | | | | |
| | <i>Ascidia sp.</i> | | | | |
| | <i>Ascidia zara</i> | | | | |
| | <i>Bostrichobranchus pilularis</i> | | | | |
| | <i>Botrylloides perspicuum</i> | Added by this study; ID needs verification | | | |
| | <i>Botrylloides violaceus</i> | | | | |
| | <i>Botryllus firmus</i> | | | | |
| | <i>Botryllus schlosseri</i> | | | | |
| | <i>Botryllus sp. A</i> | | | | |
| | <i>Ciona intestinalis</i> | | | | |
| | <i>Ciona savigny</i> | | | | |
| | <i>Diplosoma listerianum</i> | Added by this study; ID needs verification | | | |
| | <i>Microcosmus squamiger</i> | | | | |
| | <i>Mogula sp. A</i> | Added by this study; ID needs verification | | | |
| | <i>Polyandrocarpa zorritensis</i> | | | | |
| | <i>Styela canopus</i> | | | | |
| | <i>Styela clava</i> | | | | |
| | <i>Styela plicata</i> | | | | |
| | <i>Symplegma brakenhelmi</i> | | | | |
| | <i>Symplegma reptans</i> | | | | |
| FISH | | | | | |
| | <i>Acanthogobius flavimanus (yellowfin goby)</i> | | | | |
| | <i>Poecilia latipinna (sailfin molly)</i> | | | | |
| | <i>Tridentiger trigonocephalus (chameleon goby)</i> | | | | |

Appendix F. NIS work at US West Coast National Estuarine Research Reserves and National Marine Sanctuaries

| Timeline | Lead local researcher(s) | Project type | Project title/description | NIS studied | Links |
|----------------------------|-------------------------------------|----------------------------------|---|---|--|
| Elkhorn Slough NERR | | | | | |
| Ongoing | Kerstin Wasson, ESNERR RC | Regional Monitoring & Management | Early detection program (discover new invasions of least wanted species and intervene) | Aquatic nuisance species | |
| Ongoing | Kerstin Wasson, ESNERR RC | Broadscale Monitoring | Crab monitoring (detects non-native green crab, new invasions) | <i>Carcinus maenas</i> | |
| Ongoing | Kerstin Wasson, ESNERR RC | Broadscale Monitoring | Recruitment monitoring (new pilot examining settlement of natives/non-natives). | marine invertebrates | |
| Present | Kerstin Wasson, ESNERR RC | Research & Monitoring | Ecotone monitoring, transplant, and restoration experiments (effect of native vs. invasive upland plants on adjacent marsh community) | | |
| Present | Kerstin Wasson, ESNERR RC | Research | Characterization of invertebrate invaders of ESNERR (##, transport mechanisms, notorious characters) | | |
| Present | Kerstin Wasson, ESNERR RC | Research | Examination of habitat bias in invertebrate invasions (hard substrates more invaded than soft; estuaries more invaded than open coast) | Marine invertebrates of the fouling community | |
| Present | Rikke Kvist Preisler, UC Santa Cruz | Research | Green crab behavior and impacts | <i>Carcinus maenas</i> | |
| Present | Kimberly Heiman, RGF (Stanford) | Research | Community effects of invasive reef-building worm | <i>Ficopomatus enigmatus</i> | www.elkhornslough.org/research/grf_kimberly.htm |
| Past | Jeb Byers, former RGF | Research | A mechanistic understanding of species invasion: Toward a predictive science of introduced species' effects on estuarine ecosystems (Invasive snail outcompetes native) | <i>Batillaria attramentaria</i> | www.elkhornslough.org/research/grf_jeb.html |
| Past | Kerstin Wasson, ESNERR RC | Workshop | National invasion monitoring workshop and summary | | |
| Kachemak Bay NERR | | | | | |
| Ongoing | W. Scott Pegau KBNERR RC | Monitoring (regional) | Community detection of non-indigenous crabs. School groups are to be trained in how to trap and identify crabs to monitor for non-indigenous species. | <i>Carcinus maenas</i> , others | |
| Past (2000) | Tuck Hines, Greg Ruiz, SERC | Research | Marine invasive species and biodiversity of South Central Alaska | Fouling community | http://www.pwsrcac.org/NIS/pws.html#marine |

Monterey Bay NMS

| | | | | | |
|---------|--|-------------------------------|---|-----------------------------------|---|
| Present | Steve Lonhart, Sanctuary Integrated Monitoring Network Coordinator | Local Monitoring & Management | Monitoring and management of <i>Undaria</i> to determine whether manual removal effectively reduces the harbor population; mapping to measure rate of spread and identify areas susceptible to future invasion. | <i>Undaria pinnatifida</i> (alga) | http://www.mbnms-simon.org/sections/rockyShores/project_info.php?pid=100184&sec=rs |
| Present | Lonhart, collaborating with Moss Landing Marine Lab | Regional Monitoring | Survey for NIS along the open coast | | |
| Past | | Compilation | NIS list for Monterey Bay NMS | | http://www.mbnms.nos.noaa.gov/sitechar/spex.html |

Olympic Coast NMS

| | | | | | |
|---------|---|--------------------------------------|---|---|--|
| Ongoing | Mary Sue Brancato, Resource Protection Specialist | Broadscale Monitoring | Crab monitoring (monthly monitoring in the lower intertidal zone to detect new invasions of non-native crabs) | To detect <i>Carcinus maenas</i> , others | |
| Present | Mary Sue Brancato, Resource Protection Specialist | Local Monitoring/ Baseline Survey | Rapid assessment of intertidal organisms at coastal sites throughout sanctuary | | |

Padilla Bay NERR

| | | | | | |
|---------|---|-------------------------|---|---|--|
| Ongoing | Sharon Riggs, | Broadscale Monitoring | Monitoring for invasive crabs in seagrass and rip-rap habitats (detects new invasions of nearshore non-native crabs, provides information on native crab community) | To detect <i>Carcinus maenas</i> , others | |
| Ongoing | | Management & Monitoring | <i>Spartina</i> eradication | <i>Spartina alterniflora</i> | |
| Current | Jamey Selleck, Western Washington U | Research | Spawning and recruitment events of the invasive, purple varnish clam | <i>Nuttallia obscurata</i> | |
| Past | C. Eric Hellquist, former GRF, U Washington | Research | Predicting the invasion potential and consequences of the non-indigenous cordgrass, <i>Spartina anglica</i> , within Padilla Bay, Washington | <i>Spartina anglica</i> | |
| Past | Dan Hahn, former GRF, U Washington | Research | Competition between, and biodiversity associated with, an introduced seagrass, <i>Zostera japonica</i> , and its native congener, | <i>Zostera japonica</i> | |

| | | | | | |
|------|---|----------|---|----------------------------------|--|
| Past | Marjorie Wonham, former GRF, U Washington | Research | <i>Zostera marina</i> Why are estuarine communities more invaded? An experimental test with the invasive mussel, <i>Mytilus galloprovincialis</i> | <i>Mytilus galloprovincialis</i> | |
| Past | Chris Harley, U Washington | Research | Positive effects of a dominant invader on introduced and native mudflat species | <i>Batillaria attramentaria</i> | |

South Slough NERR

| | | | | | |
|---------|------------------------------|----------|--|--|--|
| Present | Lisa Turnbull, GRF, U Oregon | Research | The effects of the invasive grasses <i>Phalaris arundinacea</i> and <i>Zostera japonica</i> on ecosystem processes in the South Slough Reserve | <i>Phalaris arundinacea</i> , <i>Zostera japonica</i> | |
| Present | Kerri Kidder GRF, U Oregon | Research | A biological vector for invasive species: Drifting path, species associations, and recruitment of <i>Nereocystis luetkeana</i> | | |

Tijuana River NERR

| | | | | | |
|---------|--|----------------------|--|---|--|
| Ongoing | Drew Talley, SFB NERR | Management, Research | Invasive plant program: Tamarisk research and removal | <i>Tamarix spp</i> | |
| Ongoing | Christine Whitcraft, Scripps Institution of Oceanography | Research | Effects of tamarisk on salt marsh soils and infauna | <i>Tamarisk spp.</i> | |
| Ongoing | Jeff Crooks, TR NERR | Management, Research | Studies examining how research can facilitate management decisions | Plant invaders | |
| Ongoing | Jeff Crooks, TR NERR | Research | Invasion of terrestrial snails into salt marshes | <i>Theba pisana</i> , <i>Helix aperta</i> | |
| Ongoing | Jeff Crooks, TR NERR | Research | Distribution of <i>Crassostrea gigas</i> in San Diego County | <i>Crassostrea gigas</i> | |
| Present | Sean Menke, GRF, UC San Diego | Research | Role of abiotic factors in determining invasion success of Argentine ants, <i>Linepithema humile</i> | <i>Linepithema humile</i> | |
| Past | Edward Woch, GRF, S an Diego State University | Research | Dispersion patterns and associations of invasive exotic plants within the Tijuana River Watershed | <i>Tamarix spp.</i> | |
| Past | John Callaway, University of San Francisco | Research | Effects of freshwater inflows on invasive grasses in the high marsh | <i>Polypogon monspeliensis</i> | |
| Past | Meghan Fellows, San Diego State University | Research | Interactions between exotic sicklegrass and endangered native plants | <i>Parapholis incurva</i> | |

Appendix OC-A. Survey and Taxonomy Participants

| Participant | Expertise | Dates of Field Participation |
|------------------------|---|---|
| Jessica Anchor | Field Expeditor | 8/6/02-8/8/02 |
| Liam Antrim | Generalist | 8/7/02 |
| Bill Austin | Sponges | Laboratory identifications |
| Helen Berry | Generalist | 8/20/01-8/23/01 |
| Brian Bingham | Generalist | 8/6/02-8/11/02 |
| Barbara Blackie | Field Expeditor | 8/20/01-8/21/01 |
| Ed Bowlby | Generalist | 8/18/01-8/20/01 |
| Mary Sue Brancato | Generalist, Project Manager | 8/18/01-8/23/01, 6/27/02, 8/6/02-8/12/02 |
| Katie Brenkman | Field Expeditor | 8/21/01-8/23/01, 8/6/02-8/12/02 |
| Betty Bookheim | Algae, Generalist | 8/18/01-8/19/01, 8/6/02-8/8/02 |
| John Chapman | Crustaceans | 8/18/01-8/23/01, 7/23/02, 8/7/02-8/10/02; Laboratory identifications |
| Jeff Cordell | Copepods | Laboratory identifications |
| Allen Fukuyama | Molluscs, Generalist | 8/18/01-8/20/01, 8/6/02-8/12/02 |
| Jeff Goddard | Bryozoans, Nudibranchs, Hydroids, Generalist | 8/18/01-8/23/01, 8/6/02-8/12/02 |
| Leslie Harris | Polychaetes | 8/18/01-8/23/01, 8/6/02-8/12/02; Laboratory identifications |
| Kristin Hemmelgarn | Field Expeditor, Generalist | 8/6/02-8/12/02 |
| Gordon Hender | Echinoderms | Laboratory identifications |
| Yayoi Hirano | Stauromedusae | Laboratory identifications |
| Valerie Hironaka | Generalist | 8/10/02 |
| Greg Jensen | Decapods, Shrimps | Laboratory identifications |
| Howard Jones | Generalist | 8/21/02 |
| David Kirner | Field Expeditor | 8/18/01-8/23/01, 6/27/02 |
| Alan Kohn | Gastropods, Generalist | Laboratory identifications |
| Gretchen Lambert | Ascidians | Laboratory identifications |
| Alberto Lindner | Hydroids | Laboratory identifications |
| John Ljubenkov | Flatworms, Nemerteans, Anemones, Bivalves, Misc. | Laboratory identifications |
| Mary McGann | Foraminiforas | Laboratory identifications |
| Kathy Ann Miller | Algae | 8/18/01-8/23/01; Laboratory identifications |
| Claudia Mills | Hydromedusae, Ctenophores | 8/18/01-8/20/01, 6/27/02 |
| Ben Miner | Generalist | 8/6/02-8/10/02 |
| Jon Norenburg | Nemerteans | Laboratory identifications |
| Bruno Pernet | Polychaetes, Generalist | 8/6/02-8/10/02 |
| Paul Scott | Molluscs, Gastropods | 8/18/01-8/23/01 |
| David Secord | Anemones, Generalist | 8/18/01-8/23/01 |
| Amy Sewell | Field Expeditor | 8/18/01-8/19/01 |
| Craig Staube | Pericarid Amphipods | Laboratory identifications |
| Jason Whitaker | Field Expeditor | 8/18/01-8/23/01 |
| Melissa Wilson | Algae | 8/6/02-8/12/02 |
| Judith Winston | Bryozoans | Laboratory identifications |
| Marjorie Wonham | Generalist | 8/18/01-8/20/01 |
| Sandy Wylee-Eschuveria | Seagrasses | Laboratory identifications |

Appendix B. Nearshore Survey Sites Sampled 27 June 2002 (North to South)

| Site Code | Site Name | Latitude | Longitude |
|------------------|---|-----------------|------------------|
| NBMN | Neah Bay - Marina Entrance Nearshore | 48.36961667 | -124.61495 |
| NBWN | Neah Bay West Nearshore | 48.3749 | -124.6193333 |
| WBN | Warmhouse Beach Nearshore | 48.39136667 | -124.665 |
| TIN | Tatoosh Island Nearshore | 48.39396667 | -124.7327 |
| WPN | Waatch Point Nearshore | 48.3353 | -124.6865167 |
| MBHN | Makah Bay - Hobuck South Nearshore | 48.32873333 | -124.6698167 |
| MBSNN | Makah Bay - Sooes North Nearshore | 48.30728333 | -124.6728833 |
| MBSSN | Makah Bay - Sooes South Nearshore | 48.30031667 | -124.6744 |
| PHSN | Portage Head South Nearshore | 48.2805 | -124.6904333 |
| CAN | Cape Alava Nearshore | 48.17713333 | -124.7446833 |
| SPSN | Sand Point South Nearshore | 48.11041667 | -124.7090833 |
| JRN | Jagged Rock Nearshore | 47.99235 | -124.6917333 |
| PAN | Point of Arches Nearshore | 48.25261667 | -124.70505 |
| HRNN | Hand Rock North Nearshore | 48.05541667 | -124.7 |
| CJN | Cape Johnson Nearshore | 47.97028333 | -124.6833333 |
| LPN | La Push Nearshore | 47.8956 | -124.6454 |