


**NUDIBRANCH CARE**  
**SOP# = Echi4**



**PURPOSE:** To describe methods of care for nudibranchs.



**POLICY:** To provide optimum care for all animals.



**RESPONSIBILITY:** Collector and user of the animals. If these are not the same person, the user takes over responsibility of the animals as soon as the animals have arrived on station.



**IDENTIFICATION:**



<b>Common Name</b>	<b>Scientific Name</b>	<b>Identifying Characteristics</b>
<b>Noble sea slug</b>	Peltodoris nobilis	<ul style="list-style-type: none"><li>-Can be 25cm long.</li><li>-Clear pale yellow to bright orange-yellow in color.</li><li>- Paler yellow tubercles always show through dark patches.</li></ul> 



<p><b>Monterey sea lemon</b></p>	<p><i>Doris montereyensis</i></p>	<ul style="list-style-type: none"> <li>- Commonly found on floats and in the intertidal.</li> <li>- Dingy yellow in colour, though varies in shade.</li> <li>- Change colour with their food source (esp. <i>Halichondria</i>).</li> <li>- Patches of black may be found on the tubercles and body.</li> <li>- At very least, a few tubercles are tipped with black.</li> <li>- It can reach 15cm in length.</li> </ul> 
<p><b>White nudibranch</b></p>	<p><i>Doris odhneri</i></p>	<ul style="list-style-type: none"> <li>- Can be up to 20cm long.</li> <li>- Completely white; look like an albino version of <i>Peltodoris nobilis</i> or <i>Doris montereyensis</i></li> </ul> 



<p><b>White-spotted sea goddess</b></p>	<p><i>Doriopsilla albopunctata</i></p>	<ul style="list-style-type: none"> <li>- Can be up to 6 cm.</li> <li>- Distinguished by the white spots only on the tips of the small tubercles.</li> </ul> 
<p><b>Heath's dorid</b></p>	<p><i>Geitodoris heathi</i></p>	<ul style="list-style-type: none"> <li>- Colour is yellow, yellow-brown or white.</li> <li>- Identifiable by a sprinkling of minute black or brown specks over the dorsal surface and the white branchial plume.</li> <li>- In some animals, the black specks are concentrated into a dark blotch just anterior to the gills.</li> <li>- Can be up to 4 cm in length.</li> </ul> 

<p><b>Leopard dorid</b></p>	<p><i>Diaulula sandiegensis</i></p>	<ul style="list-style-type: none"> <li>- Distinct colour variations between individuals are colour morphs.</li> <li>- Usually pale gray with several conspicuous rings or blotches of blackish brown.</li> <li>- Dorsal surface is covered in minute tubercles giving them a velvety look.</li> <li>- Gills can be completely retracted.</li> <li>- Can reach a length of 12 cm.</li> </ul> 
<p><b>Yellow-rimmed nudibranch</b></p>	<p><i>Cadlina luteomarginata</i></p>	<ul style="list-style-type: none"> <li>- Are relatively broad and flat.</li> <li>- Do not often exceed 8cm in length.</li> <li>- Body is white and is entirely edged in a band of lemon yellow.</li> <li>- Tubercles of the dorsal surface are also tipped in yellow.</li> <li>- Easily mistaken with <i>Acanthodoris hudsoni</i></li> </ul> 



<p><b>Nanaimo nudibranch</b></p>	<p>Acanthodoris nanaimoensis</p>	<ul style="list-style-type: none"> <li>- Recognized by the varying amount of maroon colour that tips the gills and rhinophores.</li> <li>- Can be up to 4cm in length.</li> </ul> 
<p><b>Red sponge nudibranch</b></p>	<p>Rostanga pulchra</p>	<ul style="list-style-type: none"> <li>- Associated with, spawn on and eat red encrusting sponge, particularly <i>Ophlitaspongia pennata</i>.</li> <li>- Are bright orange-red in colour (as is the sponge)</li> <li>- Small; grow to a maximum of 3cm in length.</li> </ul> 



<p><b>Clown nudibranch</b></p>	<p><i>Triopha catalinae</i></p>	<ul style="list-style-type: none"> <li>- Are very brilliantly colored; all processes are tipped with orange.</li> <li>- Orange spots are also scattered over the white or yellow-white body.</li> <li>- Head region is broadened into a 'veil' that is fringed by branched tentacles.</li> <li>- Can reach a length of 15cm.</li> </ul> 
<p><b>Orange-peel nudibranch</b></p>	<p><i>Tochuina tetraquetra</i></p>	<ul style="list-style-type: none"> <li>- Are bright yellow in colour with tubercules that are lightly tipped with white.</li> <li>- Body is margined with a lacy veil of white.</li> <li>- Can attain quite large sizes, up to 50 cm.</li> <li>- Are subtidal</li> </ul> 

<p><b>Giant nudibranch</b></p>	<p>Dendronotus iris</p>	<ul style="list-style-type: none"> <li>- Beautifully showy and large nudibranchs</li> <li>- Can attain a size of 30 cm.</li> <li>- Colour is highly variable, but it is usually white, grey, orange or red.</li> <li>- Has large, lateral rhinophores and a white line along the edge of the foot.</li> <li>- Head is 'veiled' with processes.</li> <li>- Cerata are branched, long and pointed.</li> <li>- Are subtidal.</li> </ul> 
<p><b>Hooded nudibranch</b></p>	<p>Melibe leonina</p>	<ul style="list-style-type: none"> <li>- Often associated with kelp and eelgrass.</li> <li>- Attach to seaweed with their foot and use their hoods much like a Venus Flytrap plant to catch zooplankton.</li> <li>- Are a translucent tan colour with large, flattened cerata.</li> <li>- Exude a sweet smell when disturbed.</li> <li>- Can reach 17 cm in size.</li> </ul> 

<p><b>Striped nudibranch</b></p>	<p><i>Armina californica</i></p>	<ul style="list-style-type: none"> <li>- Are about 7cm long</li> <li>- Strikingly marked with alternating, longitudinal, white and brown stripes, which converge anteriorly.</li> <li>- Have no gills or dorsal processes, but have a series of flap-like gills on either side of the body.</li> <li>- Rhinophores point forward instead of rising straight up as they do on other nudibranchs.</li> <li>- Usually found on sand or mud sediment.</li> </ul> 
<p><b>Frosted nudibranch</b></p>	<p><i>Dirona albolineata</i></p>	<ul style="list-style-type: none"> <li>- Off-white in colour</li> <li>- Up to 18cm long.</li> <li>- Have large, flattened, showy cerata that are edged with white.</li> <li>- Whole body is also edged with white giving them a highlighted effect.</li> </ul> 



<p><b>Opalescent nudibranch</b></p>	<p><i>Hermisenda crassicornis</i></p>	<ul style="list-style-type: none"> <li>- A ubiquitous eolid found in eelgrass beds, rocky intertidal shores and on floats.</li> <li>- Have a translucent, nearly white body.</li> <li>- Brown cerata have an orange band close to the tip and are capped with white at the tip.</li> <li>- An orange band may run down the length of the dorsal side, bordered by opaque white or electric blue lines.</li> <li>- Maximum length of 5cm.</li> <li>- Generally associated with hydroids like <i>Obelia</i>.</li> </ul> 
<p><b>Shag-rug nudibranch</b></p>	<p><i>Aeolidia papillosa</i></p>	<ul style="list-style-type: none"> <li>- Can be up to 10cm.</li> <li>- Are found in a variety of habitats.</li> <li>- Have a whitish, translucent body with some gray or brown spots and a large triangular white patch devoid of cerata in front of the rhinophores.</li> <li>- Cerata are grayish brown, sometimes with white tips, but can be almost colourless.</li> <li>- The numerous cerata make this nudibranch look like a shaggy mouse.</li> </ul> 

<p><b>White-and-orange-tipped nudibranch</b></p>	<p><i>Janolus fuscus</i></p>	<ul style="list-style-type: none"> <li>- Are translucent.</li> <li>- Nearly white body.</li> <li>- Have a reddish mid-dorsal band and a reddish blotch between the rhinophores on the head.</li> <li>- Cerata are white tipped followed by a colourless ring followed by a ring of orange.</li> <li>- Can reach a length of 6cm.</li> </ul> 
<p><b>Leather nudibranch</b></p>	<p><i>Onchidoris bilamellata</i></p>	<ul style="list-style-type: none"> <li>- Can be up to 3cm in length.</li> <li>- Have 16 bushy gills around the anus.</li> <li>- Brown coloring of its upper surface is concentrated in a few bands.</li> <li>- Colorless club-shaped tubercles cover the dorsal side.</li> <li>- Are generally found associated with barnacle rocks in the intertidal.</li> </ul> 

## CAPTURE:

<b>Location</b>	All the above nudibranchs can be found intertidally and subtidally except <i>Tochuina tetraquetra</i> and <i>Dendronotus iris</i> , which are only found subtidally. Sites are found on: -The Deer Group Islands -Diana Island -English Bay (Scott's Bay) <b>Note: Collect at low tide.</b>
<b>Methods</b>	- The best method to collect nudibranchs is by hand at low tide or by scuba diving. - The animals are very delicate so care must be taken not to damage them during collection and transport

## ANIMAL CARE:

<b>Holding Requirements</b>	- Held in sea tables with continually slow flowing, cold seawater. - Lidded tanks are necessary. - The nudibranchs should be provided with habitat based on its natural environment (i.e. rocky, shell, sand, mud, kelp, eelgrass, etc.)
<b>Feeding</b>	<i>Aeolida papillosa</i> feeds almost exclusively on anemones, particularly plumose anemones. <i>Peltodoris nobilis</i> , <i>Doris montereyensis</i> , <i>Doris odhneri</i> , and <i>Geitodoris heathi</i> feed almost entirely on sponges, especially <i>Halichondria</i> . <i>Armina californica</i> feeds on sea pens and feeding polyps of the sea pansy <i>Cadlina luteomarginata</i> and <i>Doriopsilla albopunctata</i> feed on sponges <i>Dendronotus iris</i> feeds on tube dwelling burrowing anemone <i>Pachycerianthus fimbriatus</i> . <i>Diaulula sandiegensis</i> feeds on both <i>Halichondria</i> and <i>Haliclona</i> sponges. <i>Hermisenda crassicornis</i> feeds on hydroids, ascidians, other molluscs, eggs of various kinds and pieces of fish. <i>Melibe leonine</i> feeds on zooplankton <i>Janolus fuscus</i> and <i>Triopha catalinae</i> feeds on bryozoans. <i>Onchidoris bilamellata</i> feeds on barnacles, sponges and bryozoans. <i>Acanthodoris nanaimoensis</i> most likely feeds on solitary and colonial ascidians as well as bryozoans. <i>Rostanga pulchra</i> feeds primarily on <i>Ophlitaspongia pennata</i> . <i>Dirona albolineata</i> feeds on bryozoans, tunicates, sponges and possibly on opisthobranch gastropods.

<b>Tank Cleaning</b>	<ul style="list-style-type: none"> <li>- Once every other week the nudibranchs should be removed from the tank and placed into a holding bucket.</li> <li>- The tanks should be drained and the sides and bottom should be scrubbed down and rinsed out with warm freshwater.</li> <li>- The tanks should then be rinsed with seawater and allowed to refill.</li> <li>- Place the nudibranchs back in the tank once refilling has begun.</li> </ul> <p><b>Note: Nets or smooth gloves should be used when moving animals to avoid damaging them</b></p>
<b>Daily Activities</b>	<ul style="list-style-type: none"> <li>-Ensure water is flowing into the tank at a reasonable rate.</li> <li>-Ensure the standpipe is in place and not blocked.</li> <li>-Check for and remove dead animals.</li> <li>-Check for and remove any uneaten prey organisms.</li> <li>-Check for and remove foreign organisms.</li> </ul>
<b>Animal Return</b>	<ul style="list-style-type: none"> <li>-Animals should be returned to the site of their collection</li> </ul>

K. Bartlett March/08