### Some General Controlling Factors of Aquatic and Terrestrial Environments on Animal Structure

<table>
<thead>
<tr>
<th>Aquatic Environments</th>
<th>Terrestrial Environments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skeletal support less important</td>
<td>Strong rigid support necessary to counteract gravity</td>
</tr>
<tr>
<td>Less muscle effort required for locomotion</td>
<td>Considerable muscle effort needed for locomotion</td>
</tr>
<tr>
<td>Much more constant temperature</td>
<td>Must be able to withstand seasonal temperature extremes</td>
</tr>
<tr>
<td>Lower oxygen levels in water; respiratory surface often exposed</td>
<td>Much higher oxygen levels in air; respiratory surfaces must be protected from desiccation</td>
</tr>
<tr>
<td>Nutrients easily accessible from water</td>
<td>Nutrients must be sought out</td>
</tr>
<tr>
<td>Salt and water balance easily maintained</td>
<td>Salts must be sought out; water must be conserved</td>
</tr>
<tr>
<td>Metabolic wastes easily diffuse out of body</td>
<td>Metabolic wastes must be eliminated with a minimal loss of water</td>
</tr>
<tr>
<td>Reproduction does not require direct contact</td>
<td>Reproduction requires direct transfer of sperm to female</td>
</tr>
<tr>
<td>Water &amp; nutrients more readily available for eggs &amp; developmental stages</td>
<td>Water &amp; nutrients must be stored and provided for eggs and developmental stages</td>
</tr>
<tr>
<td>Minimal effort for dispersal of offspring</td>
<td>Active dispersal is required</td>
</tr>
</tbody>
</table>

### Some General Differences Between the Two Kinds of Aquatic Environments on Animal Structure

<table>
<thead>
<tr>
<th>Marine Environments</th>
<th>Freshwater Environments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less variation in temperature</td>
<td>More variation in temperature; Seasonal extremes</td>
</tr>
<tr>
<td>Extreme depth; mostly without light</td>
<td>Shallower; light at most depths</td>
</tr>
<tr>
<td>Isotonic Environment for most inhabitants</td>
<td>Hypotonic environment for all inhabitants</td>
</tr>
<tr>
<td>Ecosystems differentiated mainly by light availability</td>
<td>Ecosystems differentiated mainly by speed of water flow (lentic ↔ lotic)</td>
</tr>
</tbody>
</table>