

# The Miracle in our Marinas

A marina is a marine environment that has been modified to provide opportunities for marine activities and seafront living. The new man-made changes and structures in marinas may affect the quality of the water, but new species still find themselves calling our marinas home.

Complete the word search below on some of the distinctive features of Singapore's marinas. The words may be arranged horizontally, vertically or diagonally, as well as forwards and backwards!

<b>Pontoon</b>	<b>Seawall</b>	<b>Boat</b>
<b>Yacht</b>	<b>Jetty</b>	<b>Dock</b>

B E N V N O O T N O P Q  
 N P Y U Z S E F Y K S X  
 S F R Z I N O R N E E B  
 N U R E T J J Y X Q Q A  
 Z D O C K C T B T P U R  
 V M H Q T S Y N G T A P  
 V D I I B W E I Z J E Y  
 N D A P Z P B A I M O J  
 X K J F A Q P L W H B E  
 F P Q Z L G C J T A O B  
 B X Q M O Y A C H T L H  
 G H N N M U S Y E Z Z L

G H N M U S Y E Z Z L  
 B X O M O N N H  
 F P O G C J J A O B  
 X K J F A Q P L W H B E  
 N D A P Z P B A I M O J  
 V D I I B W E I Z J E Y  
 V M H Q T S Y N G T A P  
 Z D O C K C T B T P U R  
 N U R E T J J Y X Q Q A  
 S F R Z I N O R N E E B  
 N P Y U Z S E F Y K S X  
 B E N V N O O T N O P Q

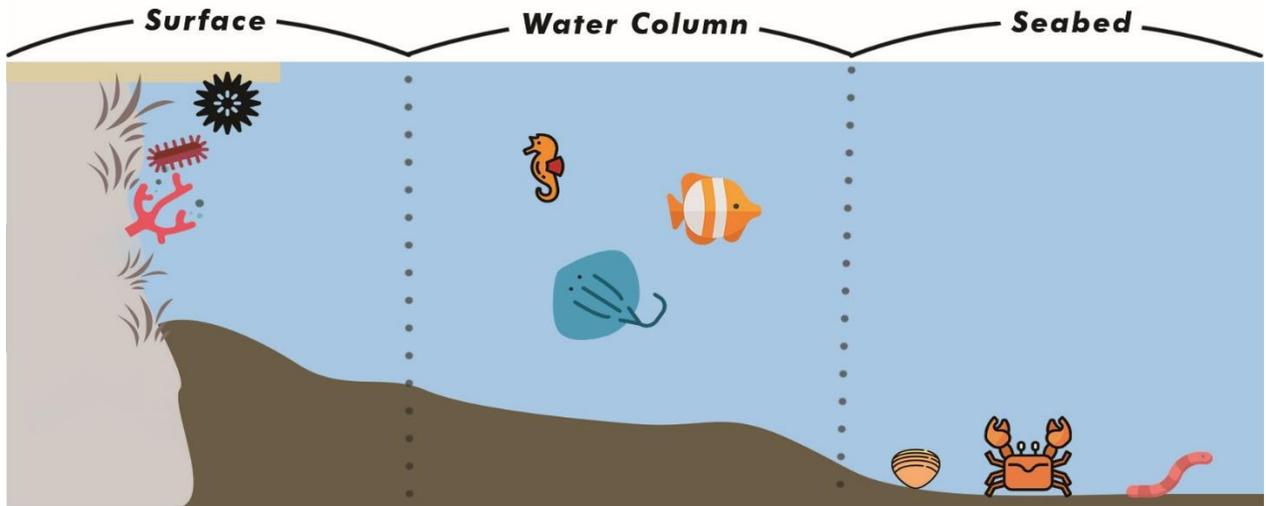
Answer key



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# Zones in a Marina

Fill in the blanks below to find out more about the different zones in a marina!



Helping words:

mate	pontoons	ecosystem	sunlight
oxygen	forage	molluscs	seawalls
sandy	corals	bottom-dwellers	epibiota

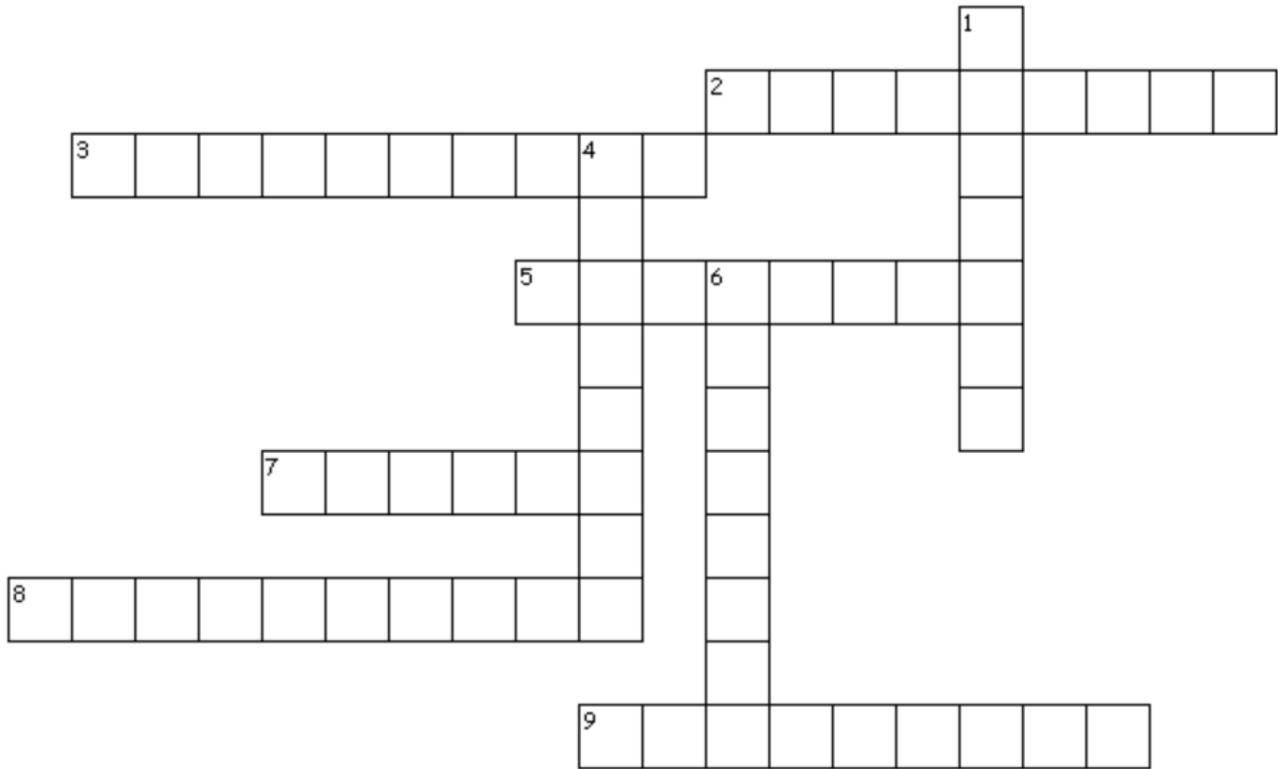
1. On the surface of the marinas, \_\_\_\_\_ compete for space on the \_\_\_\_\_ to get enough \_\_\_\_\_ to produce \_\_\_\_\_ to survive.
2. In the water column of the marinas, an immense diversity of species \_\_\_\_\_ among the \_\_\_\_\_ on the \_\_\_\_\_ or search for their \_\_\_\_\_.
3. On the marina seabed, the \_\_\_\_\_ environment is home to \_\_\_\_\_ such as worms and \_\_\_\_\_ that are important to the marine \_\_\_\_\_.

ecosystem  
3. sandy, bottom-dwellers, molluscs,  
2. forage, epibiota, pontoons, mate  
1. corals, seawalls, sunlight, oxygen

**Answer key**

# Biodiversity in the Marinas

Complete the crossword puzzle to find out more about biodiversity living in the marinas.



## **Across**

2. Worms are very \_\_\_\_\_ to environmental changes, so scientists use them as an indicator to tell if the water is healthy.
3. This fish prefers eating seagrass and seaweed and has a mouth that resembles a land animal. They also move around in schools.
5. The sea anemone has deadly stingers which can \_\_\_\_\_ marine organisms for food.
7. Sponges help to \_\_\_\_\_ plankton in the water and improve water clarity.
8. Frogfishes and toadfishes do this to blend into their surroundings and wait for unsuspecting prey to come along.

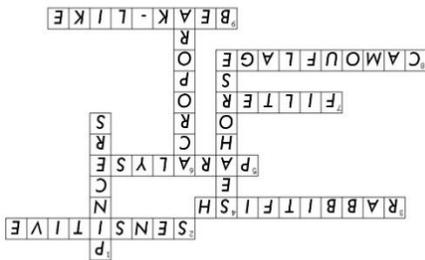
9. A frequent visitor to our marinas, the Hawksbill Turtle has a \_\_\_\_\_ mouth and claws on its front flippers.

**Down**

- 1. Swimming crabs have long sharp \_\_\_\_\_ that they use to snap at prey and predators.
- 4. The male of this animal carries its babies in a pouch like a pregnant mother.
- 6. This hard coral is commonly found in faster-flowing water at the outer reaches of marinas where it is less murky.

**Helping words:**

<b>seahorse</b>	<b>sensitive</b>	<b>pincers</b>
<b><i>Acropora</i></b>	<b>paralyse</b>	<b>camouflage</b>
<b>beak-like</b>	<b>filter</b>	<b>rabbitfish</b>



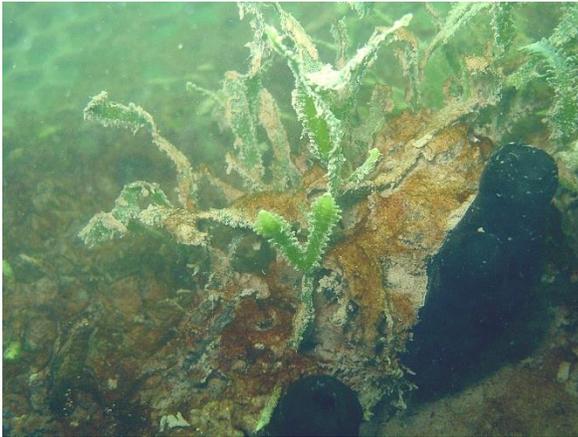
**Answer key**



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# See the Seaweed

Green seaweed can be found in many different forms, ranging from crisp calcium-incorporated types to those with serrated edges, and even ones resembling grapes.



**Serrated Green Seaweed**  
*(Caulerpa serrulata)*



**Oval Sea Grapes Seaweed**  
*(Caulerpa racemosa)*



**Coin Green Seaweed**  
*(Halimeda sp.)*

Red seaweed can be found in shallow, bright areas such as pontoons and the upper zone of seawalls, while capturing as much sunlight as possible.



***Halymenia* sp.**

Photo: NUS Reef Ecology Lab



***Halymenia* sp.**

Photo: NUS Reef Ecology Lab

Species of red seaweed, like green ones, are also able to photosynthesise. Why do you think they are able to do so, even though they are red?

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Why do you think red seaweed grows on brighter areas?

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Not only can seaweed provide oxygen, but they also serve as a shelter and habitat for other marine organisms. Can you name some organisms that might use the seaweed in our marinas as a shelter or habitat?

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1. Red seaweed still contains chlorophyll under the red pigments. The chlorophyll allows them to trap light in order to photosynthesize.  
2. Growing on brighter areas allows the red seaweed to obtain more sunlight for photosynthesis, as they do not have as much chlorophyll as green seaweed.  
3. Small fishes, shrimps, and other small crustaceans.

**Answer key**



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