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# Fish with evolved legs for hunting and tasting buried food

## Description

The northern sea robin uses its legs to find food in the seabed

Anik Grearson

A unique fish living in the Atlantic Ocean, the northern sea robin, has evolved legs that act as a sensory organ to locate prey hidden in the seabed. These fish have three legs on each side of their body that extend from the base of their pectoral fins. These legs were originally part of their fins, known as fin rays.

Researchers from Harvard University, led by Nicholas Bellono, discovered the remarkable hunting abilities of the sea robins during a trip to Massachusetts. The fish were able to uncover food hidden in capsules and sand with their legs. However, upon collecting a different species, the striped sea robin, they found that this species excelled at walking but struggled to locate buried prey.

The unique legs of the sea robin contain sensory papillae, which are similar to taste buds on the human tongue. These legs allow the fish to move independently and quickly, making them proficient at both walking and digging. The evolution of these specialized legs is governed by a regulatory gene called *tbx3a*.

According to Amy Herbert from Stanford University, the sea robin's legs are a fascinating example of adapting old tools to create new body parts. This discovery sheds light on the extraordinary abilities of these ocean-dwelling creatures.

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## Vocabulary List:

1. **Evolution** /iː.vəˈluː.ʃən/ (noun): The gradual development of something especially from a simple to a more complex form.
2. **Sensory** /ˈsɛn.sə.ri/ (adjective): Relating to sensation or to the senses.
3. **Proficient** /prəˈfɪʃ.ənt/ (adjective): Competent or skilled in doing or using something.
4. **Location** /ləʊˈkeɪ.ʃən/ (noun): A particular place or position.
5. **Capsule** /ˈkæp.sju:l/ (noun): A small container or compartment that encloses something.
6. **Regulatory** /ˈrɛg.jʊ.lə.tɔː.ri/ (adjective): Relating to rules or regulations governing conduct or operation.

## Comprehension Questions



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## Multiple Choice

1. What is the unique feature of the northern sea robin that helps it locate prey hidden in the seabed?  
Option: Three legs on each side of its body  
Option: Large eyes  
Option: Strong jaws  
Option: Long tail fins
2. What did researchers from Harvard University discover about the hunting abilities of the sea robins?  
Option: They struggled to locate buried prey  
Option: They excelled at walking on sand  
Option: They could uncover food hidden in capsules and sand with their legs  
Option: They were unable to move independently
3. What is the name of the regulatory gene governing the evolution of the sea robin's specialized legs?  
Option: Amy Herbert  
Option: tbx3a  
Option: Nicholas Bellono  
Option: Anik Grearson
4. Who is credited with the discovery of the sea robin's fascinating adaptation of legs?  
Option: Nicholas Bellono  
Option: Anik Grearson  
Option: Amy Herbert  
Option: Stanford University
5. What are the sensory papillae in the sea robin's legs similar to?  
Option: Gills of other fish  
Option: Human taste buds on the tongue  
Option: Octopus tentacles  
Option: Bird feathers
6. What part of the sea robin were the legs originally a part of?  
Option: Dorsal fins  
Option: Pectoral fins  
Option: Tail fins  
Option: Anal fins



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## Answer

**Multiple Choice:** 1. Three legs on each side of its body 2. They could uncover food hidden in capsules and sand with their legs 3. tbx3a 4. Amy Herbert 5. Human taste buds on the tongue 6. Pectoral fins

## Vocabulary quizzes

### Multiple Choice ( Select the Correct answer for each question. )

1. Which medical condition is characterized by recurrent seizures?  
Option: Inflammatory  
Option: Epilepsy  
Option: Senescence  
Option: Congenital
2. What is a criminal activity that involves a computer and a network?  
Option: Sanctions  
Option: Regulatory  
Option: Cybercrime  
Option: Scrutiny
3. Which technology uses biological data for identification purposes?  
Option: Disrupt  
Option: Biometric  
Option: Encryption  
Option: Safeguards
4. Which area is associated with regulatory compliance and market competition?  
Option: Sensory  
Option: Location  
Option: Business  
Option: Pathway
5. Which term describes something that has been improved or modernized?  
Option: Revamped  
Option: Uproar  
Option: Inquiries  
Option: Criticism



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6. Which word best describes being watchful and alert for potential danger?
- Option: Mitigating
  - Option: Vigilant
  - Option: Privacy
  - Option: Proficient
7. What term refers to the right of an individual to keep their personal information confidential?
- Option: Privacy
  - Option: Inflammatory
  - Option: Safeguards
  - Option: Pathway
8. Which term describes something that is tailored to individual preferences or characteristics?
- Option: Epilepsy
  - Option: Personalized
  - Option: Congenital
  - Option: Senescence
9. Which process involves gradual development and change over time?
- Option: Evolution
  - Option: Revamped
  - Option: Uproar
  - Option: Disrupt
10. What is a specific point or position in physical space?
- Option: Location
  - Option: Capsule
  - Option: Regulatory
  - Option: Biometric

**Gap-Fill ( Fill in the blanks with the correct word from the vocabulary list. )**

11. The \_\_\_\_\_ regarding data security have prompted new legislation.
12. Implementing \_\_\_\_\_ measures can reduce the impact of potential risks.
13. The company faced intense \_\_\_\_\_ following the data breach.
14. The heist became \_\_\_\_\_ due to its scale and audacity.
15. Adhering to \_\_\_\_\_ requirements is crucial for operating legally.



16. The controversial decision caused a major \_\_\_\_\_ among the community.
17. The website was \_\_\_\_\_ to improve user experience.
18. The customer service team handles various \_\_\_\_\_ from users.
19. The artist faced harsh \_\_\_\_\_ for the controversial painting.
20. Data security was enhanced through advanced \_\_\_\_\_ techniques.

**Matching Sentences ( Match each definition to the correct word from the vocabulary list. )**

21. Implementing strong security measures can protect against unauthorized access and data breaches.
22. Exploring various career options can help individuals find the right for their future.
23. The process of aging is often accompanied by physical and cognitive changes known as .
24. Innovative technologies have the potential to traditional industries.
25. A condition that is present at birth is referred to as a anomaly.
26. After continuous practice and training he became highly skilled and in his craft.
27. The news article contained provocative and statements that sparked controversy.
28. The time summarized the main points of the lengthy presentation.
29. Every action has its own set of whether positive or negative.
30. The gradual of technology has transformed the way we live and work.

## Answer

**Multiple Choice:** 1. Epilepsy 2. Cybercrime 3. Biometric 4. Business 5. Revamped 6. Vigilant 7. Privacy 8. Personalized 9. Evolution 10. Location

**Gap-Fill:** 11. Concerns 12. Mitigating 13. Scrutiny 14. Infamous 15. Regulatory 16. Uproar 17. Revamped 18. Inquiries 19. Criticism 20. Encryption

**Matching sentence:** 1. Safeguards 2. Pathway 3. Senescence 4. Disrupt 5. Congenital 6. Proficient 7. Inflammatory 8. Capsule 9. Consequences 10. Evolution



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## CATEGORY

1. Sci/Tech - LEVEL3

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