



Fish Evolve Legs for Finding and Tasting Buried Food

Description

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

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A remarkable species of fish residing in the depths of the Atlantic Ocean has developed legs that serve a unique purpose beyond locomotion. These specialized appendages function as sensory organs akin to a tongue, enabling the fish to locate and capture buried prey within the ocean floor.

Known as northern sea robins (*Prionotus carolinus*), these creatures possess three legs on each side of their bodies, emerging from the base of their pectoral fins, originating from structures within the fins known as fin rays.

During a scientific expedition to Woods Hole, Massachusetts, led by [Nicholas Bellono](#) from Harvard University, the team encountered anecdotes highlighting the sea robins' adept hunting abilities, prompting them to transport live specimens back to their research facility.

To their astonishment, the sea robins showcased exceptional skill in detecting and retrieving prey, including ground mussel extract and individual amino acids concealed within capsules, according to Bellono.

Subsequent analysis revealed distinct differences between sea robins that could locate buried prey and those that could not, manifesting in the form of specialized sensory papillae on the digging legs, a feature absent in their non-digging counterparts.

This evolutionary adaptation is controlled by an ancient regulatory gene named *tbx3a*, as identified by team member [David Kingsley](#) at Stanford University. Kingsley emphasizes the sea robin's unique ability to modify existing anatomical structures for new functions, illustrating a fascinating example of evolutionary adaptation.

Vocabulary List:

1. **Anecdote** /'æn.ɪk.dəʊt/ (noun): A short and amusing or interesting story about a real incident or person.
2. **Locomotion** /,ləʊ.kə'məʊ.ʃən/ (noun): The ability to move from one place to another.
3. **Sensory** /'sɛn.sə.ri/ (adjective): Relating to sensation or the physical senses; transmitted or perceived by the senses.
4. **Adaptation** /,æd.æp'teɪ.ʃən/ (noun): The process of change by which an organism or species becomes better suited to its environment.
5. **Retrieve** /rɪ'tri:v/ (verb): To get or bring something back from somewhere.
6. **Regulatory** /'rɛg.jʊ.lə.tɔ:r.i/ (adjective): Concerned with the regulation or control of something.

Comprehension Questions



Multiple Choice

1. What unique function do the legs of the northern sea robin serve?

- Option: Locomotion
- Option: Sensory organs to locate buried prey
- Option: Swimming faster
- Option: Camouflage

2. How many legs does the northern sea robin have on each side of its body?

- Option: Two
- Option: Three
- Option: Four
- Option: Five

3. What did the team led by Nicholas Bellono discover about the northern sea robin?

- Option: They are fast swimmers
- Option: They use their legs to detect and retrieve prey
- Option: They can fly short distances
- Option: They change color based on their environment

4. What regulatory gene controls the northern sea robin's evolutionary adaptation?

- Option: tbx1
- Option: tbx2a
- Option: tbx3a
- Option: tbx4b

5. What feature is present in sea robins that can locate buried prey?

- Option: Brightly colored scales
- Option: Specialized sensory papillae on their legs
- Option: Sharp teeth
- Option: Thicker skin

6. Where did the scientific expedition that discovered the northern sea robin's abilities take place?

- Option: Bermuda
- Option: Woods Hole, Massachusetts
- Option: Galapagos Islands
- Option: Great Barrier Reef



Answer

Multiple Choice: 1. Sensory organs to locate buried prey 2. Three 3. They use their legs to detect and retrieve prey 4. tbx3a 5. Specialized sensory papillae on their legs 6. Woods Hole, Massachusetts

Vocabulary quizzes

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

1. Which term refers to the state of being content or fulfilled?
Option: Impact
Option: Satisfaction
Option: Oversight
Option: Retrieve
2. What is the term for laws created by a governing body?
Option: Sustained
Option: Regulations
Option: Legislation
Option: Inertia
3. Which term describes the act of passing judgment or disapproval?
Option: Correlated
Option: Decapitated
Option: Criticism
Option: Expediting
4. Which term refers to providing encouragement or backing?
Option: Polarizing
Option: Safeguards
Option: Supportive
Option: Regulatory
5. What is a short and amusing or interesting story about a real incident or person?
Option: Intricate
Option: Anecdote
Option: Engagements
Option: Increment



6. Which term relates to the physical senses or perception?

- Option: Impact
- Option: Sensory
- Option: Geoglyphs
- Option: Ritualistic

7. What are the rules or directives made and maintained by an authority?

- Option: Retrieve
- Option: Regulatory
- Option: Contraversial
- Option: Regulations

8. Which term describes the tendency of an object to resist changes in its state of motion?

- Option: Safeguards
- Option: Inertia
- Option: Incendiary
- Option: Adaptation

9. Which term refers to formal agreements to get married?

- Option: Controversial
- Option: Engagements
- Option: Substantial
- Option: Intricate

10. Which term means to cut off the head of someone or something?

- Option: Impact
- Option: Substantial
- Option: Decapitated
- Option: Polarizing

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

11. The new policy had a significant _____ on the company's profits.

12. _____ plays a crucial role in shaping the legal framework of a nation.

13. The company hired a _____ consultant to ensure compliance with industry standards.

14. The company recorded a _____ increase in sales last quarter.



15. The political speech was deemed too _____ and was met with strong opposition.
16. The team's _____ effort throughout the season led them to victory.
17. The _____ design of the building showcased the architect's talent.
18. The IT team managed to _____ the lost data from the corrupted hard drive.
19. The artist's latest exhibit sparked _____ discussions about art and culture.
20. The couple announced their _____ amidst great celebrations.

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

21. The ancient Nazca Lines in Peru are famous for their massive carved into the desert floor.
22. The tribal dance was a ceremony performed to honor their ancestors.
23. According to Newton's First Law of Motion an object at rest tends to stay at rest due to .
24. The politician's speech was highly causing a sharp divide among the audience.
25. The manager suggested the shipping process to meet the deadline.
26. Fire alarms and sprinkler systems are important to protect buildings from fire damage.
27. Employees can receive a salary based on their performance.
28. The committee provides to ensure that the project follows regulations and standards.
29. The pharmaceutical industry is subject to strict guidelines to maintain safety.
30. The policy change had a profound on the environment.

Answer

Multiple Choice: 1. Satisfaction 2. Legislation 3. Criticism 4. Supportive 5. Anecdote 6. Sensory 7. Regulations 8. Inertia 9. Engagements 10. Decapitated

Gap-Fill: 11. impact 12. Legislation 13. Regulatory 14. substantial 15. incendiary 16. sustained 17. intricate 18. retrieve 19. controversial 20. engagement

Matching sentence: 1. Geoglyphs 2. Ritualistic 3. Inertia 4. Polarizing 5. Expediting 6. Safeguards 7. Increment 8. Oversight



9. Regulatory 10. Impact

CATEGORY

1. Sci/Tech - LEVEL5

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