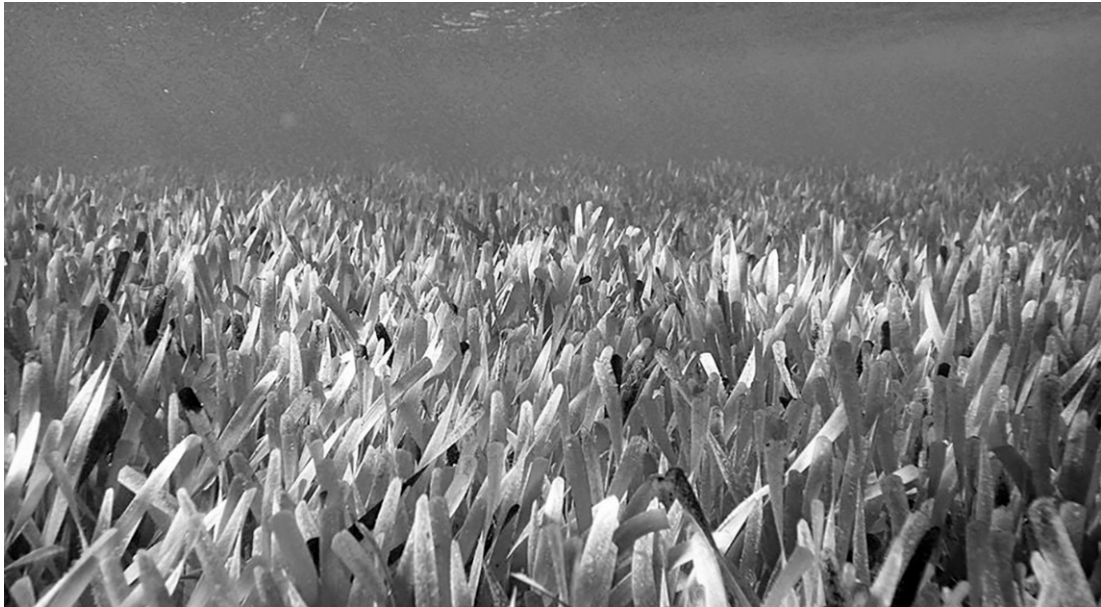


### Australian Sea Plant

by Margaret Osborne



- 1 Scientists have discovered the world's largest plant – a seagrass in Australia that grew more than 70 square miles by repeatedly cloning itself. The plant, called Poseidon's ribbon weed or *Posidonia australis*, is about 4,500 years old, according to a study published in *Proceedings of the Royal Society B*.
- 2 "It's the largest known example of a clone in any environment on Earth," co-author Elizabeth Sinclair from the University of Western Australia tells *New Scientist's* Alice Klein. It is "arguably the world's largest living organism," writes Kate Golembiewski for the *New York Times*.
- 3 As part of a survey, researchers collected samples from ten seagrass meadows across Western Australia's Shark Bay, about 500 miles north of Perth, and studied 18,000 genetic markers to test how many different plants grew in the area.
- 4 [...]
- 5 "Polyploid plants often reside in places with extreme environmental conditions, are often sterile, but can continue to grow if left undisturbed, and this giant seagrass has done just that," Sinclair says. "Even without successful flowering and seed production, it appears to be really resilient, experiencing a wide range of temperatures and saltiness plus extreme

high light conditions, which together would typically be highly stressful for most plants.”

- 6 In 2010 and 2011, a heatwave hit Western Australia, damaging Shark Bay’s seagrass meadows. Though the ribbon weed was impacted, it has already begun to recover, the study shows. “This is somewhat surprising, as this seagrass does not appear to reproduce sexually – which would normally be the best way to adapt to changing conditions,” write the researchers in *The Conversation*. The scientists suspect that the seagrass is extremely well-adapted to its local environment, on the edge of its species’ range. In places like these, species that reproduce by cloning themselves rapidly and repeatedly may adapt better and more quickly than species that reproduce sexually, which can be a slower process.
- 7 Seagrasses help purify water, are carbon sinks and host a large number of other species, which is why they are important to protect, Marlene Jahnke, a biologist at the University of Gothenburg in Sweden who was not involved in the research, tells *The Times*.

*smithsonianmag.com, 2022*

## Tekst 9 Australian Sea Plant

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- 1p 26 'Australian Sea Plant' (title)  
How is this plant introduced in paragraphs 1 and 2?  
A by explaining how research into it was organised  
B by making clear that there are doubts about its origin  
C by stating what its most remarkable feature is  
D by stressing that it has been found only recently
- 1p 27 De zinnen van alinea 4 staan hieronder, maar niet in de juiste volgorde.  
→ Wat is de juiste volgorde?  
*Noteer de letters van de zinnen in de juiste volgorde in de uitwerkbijlage.*
- [a]** In addition to its gigantic size, the plant's genetics are also unusual; most seagrasses inherit half of each parent's genome, but the seagrass in Shark Bay carries the entire genome of each parent, a condition known as polyploidy.
- [b]** Sinclair explains why they took these samples: "We have been studying cool water seagrasses in southern Australia for a while, to understand how much genetic diversity is in them and how connected the meadows are."
- [c]** There was more connection than anyone had anticipated. "The results blew us away: it was all one plant," the authors write in *The Conversation*, "so one single plant has expanded over a stretch of 112 miles."
- 1p 28 What explanations for the size of the plant are mentioned in paragraph 5?  
A It can adapt to a range of circumstances and was left undisturbed when growing.  
B It managed to reproduce at a fast rate and there were no competitors nearby.  
C It seems to have extraordinary chromosomes and has profited from the mild climate.  
D It thrives because of its exceptionally bright location and because the sea water is of high quality.
- 1p 29 What is the function of paragraph 6?  
A to explain why the plant grows faster when it is warm  
B to question if the plant will survive climate change  
C to stress the importance of the plant for other creatures  
D to support the claim that the plant is quite tough
- 1p 30 What is the main point made about seagrasses in paragraph 7?  
A They can be harvested and processed for consumption.  
B They deserve to be examined more thoroughly.  
C They have features that make them worth preserving.

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### Bronvermelding

Een opsomming van de in dit examen gebruikte bronnen, zoals teksten en afbeeldingen, is te vinden in het bij dit examen behorende correctievoorschrift.