

Fachgebundene Hochschulzugangsberechtigungsprüfung
Schriftliche Teilprüfung: Fremdsprache Englisch
Januar 2018

Before you begin, read the following guidelines carefully:

- Only use the paper provided by university. Please write your name on the top left-hand corner of each sheet of paper, i.e. on both the task sheets and the writing paper. Do not forget to number all sheets of your writing paper.
 - You may use either an English monolingual dictionary or a bilingual dictionary (English – German / German – English). In addition, a German spelling dictionary such as *Duden* can be used.
 - Please write legibly. If you want to correct something, you cross out the wrong part neatly. Try not to over-use ink erasers.
 - For tasks 1.2 and 2: Please answer these questions in complete sentences. Do not quote directly from the text. Do pay careful attention to the word limits as required and add your word count at the end of each task.
 - Please choose only one topic in task 2.
 - Any attempt to deceive will lead to your immediate expulsion from the examination. In that case, your performance will be marked 5.0 (insufficient = fail).
 - Your writing time to take this exam is 4 hours, i.e. 240 minutes.
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Grading:

• **content:**

Task 1.1 <i>Reading comprehension: true or false</i>	10 pts.		
Task 1.2 <i>Reading comprehension: Working with the text</i>	10 pts.		
Task 2. <i>Composition</i>	10 pts.	→	30 pts.

• **English language competence** in task 1.2 *Reading comprehension: Working with the text* and task 2 *Composition*:

accuracy (correct standard English morphology, syntax, vocabulary, and spelling)	20 pts.		
style, complexity, fluency	10 pts.	→	30 pts.

• **task 3 *Translation***

	_____	30 pts.
total maximum:		90 pts.

1. Reading Comprehension

To solve tasks 1.1 and 1.2., read the following text carefully.

Too good to be true? The Ocean Cleanup Project faces feasibility questions

5 *While the 21-year-old founder of the Ocean Cleanup Project has succeeded in raising over \$2m for a device that would extract plastic from the ocean, critics say the high-cost initiative is misdirected. Not everyone is convinced the device can withstand the natural forces of the open ocean.*

Last year, nonprofit foundation The Ocean Cleanup hit a milestone en route to its goal of deploying a large, floating structure to pull plastic from the Great Pacific Garbage Patch. The organization issued a press release announcing it had completed a reconnaissance expedition that would pave the way for a June 2016 test of its prototype. With the help of \$2.2m in
10 crowdfunding, 21-year-old founder Boyan Slat announced his plans to deploy 100 kilometers of passive floating barriers in an effort to clean up 42% of the Great Pacific Garbage Patch's plastic pollution in 10 years.

Despite considerable online enthusiasm for the project, oceanographers and biologists are voicing less-publicized concerns. They question whether the design will work as described
15 and survive the natural forces of the open ocean, how it will affect sea life, and whether this is actually the best way to tackle the problem of ocean plastic – or merely a distraction from the bigger problem of pollution prevention. Many have also expressed concern about the lack of an environmental impact statement prior to such a large push for funding.

“The thing is, what we’re trying to achieve has never been done before,” Slat says. It’s
20 times bigger than anything that’s ever been deployed in the ocean. It’s 50% deeper, and 10 times more remote than the world’s most remote oil rig. So obviously there [are] technical challenges.”

In the summer of 2014, The Ocean Cleanup released a 528-page feasibility study, which Slat and his team used to determine that the project was possible. As described in the study, the
25 passive system relies on wind, waves and currents to push the floating plastic into screens that extend from the floating barriers like a skirt. The idea is that the current can pass beneath the screens, which will prevent bycatch of plants and animals. Since plastic floats, ocean pollution between 35-100 millimeters in size will be captured by the barriers. The v-shape of the array then concentrates the plastic pieces at the center of the structure, where they can be
30 harvested and then sorted and processed in a collection platform. After the plastic is processed, it will be collected by boat every six weeks, with the hope that it can be sold as recycled material. In the feasibility study, The Ocean Cleanup offers four possible designs, but Slat says they’re still working on finalizing a concrete design of the collection platform.

Scientists like physical oceanographer Kim Martini and biological oceanographer Miriam
35 Goldstein still aren’t convinced that the structure can overcome the technical challenges. After the feasibility study was published in 2014, Martini and Goldstein published their own technical review on DeepSeaNews.com. They say their concerns have remained largely unaddressed. Martini says Slat’s response was limited to a statement he made on a discussion

panel. While he said he was “very happy they have read it”, and that they made valid points,
40 Martini doesn’t think Slat has made a sufficient response to his concerns.

Since the feasibility study, The Ocean Cleanup team has focused the most on the engineering and design side, according to Slat. Since 2014, Slat and his team have deployed two scale model tests at water research centres called Deltares and Marin. Based on the scale tests, the team is trying to better understand and model how the structure will react to the wind, waves
45 and currents it will experience in the open ocean, and how plastic will behave. Slat is characteristically optimistic. Though Martini and Goldstein wrote that the feasibility study underestimated the forces of currents and waves, Slat says based on his tests, “the forces are actually a lot lower than we thought they would be”.

Another force the array might have to contend with is biofouling. Biofouling happens when
50 marine life affixes itself to the structure, weighing it down and affecting its performance. Nonetheless, Slat does not see this as a concern. “We’re testing different environmentally friendly coatings to prevent biofouling,” he says. “It’s something that is an active part of our research, but it’s not on our top 10 list of concerns.”

While the feasibility study devotes pages to the impacts on phytoplankton and zooplankton
55 and other sea life, it fails to consider species that actually live in the gyre region, according to critics.

The Ocean Cleanup is continuing to test and refine the concept. After the crowdfunding campaign in 2014, Slat hired 35 more employees “to really get some speed and tackle these challenges”. The team has done a series of six expeditions since 2013 to measure the depth
60 and size of ocean plastics within the gyre.

The next step he plans to take with his team is to deploy a prototype in the North Sea this summer. A 100-meter segment – or about 1/1000th of the planned array – will be set up about 20 kilometers off shore.

Then, early next year, the team plans to deploy a pilot off the coast of the Japanese island
65 Tsushima, in the Korea Strait. Slat says he chose the location because of the large quantities of accumulated plastic due to ocean currents.

But even after these technical studies, there will still be lot of uncertainties. The rope mooring systems cannot be properly tested off Tsushima, for example, because the depth doesn’t match that of the open ocean. And Slat admits that deploying something out in the middle of
70 the ocean will be expensive to fix if something goes wrong.

When it comes down to it, it could be that the biggest problem with the project is focusing on the gyre itself.

Words: 984

1.1 Reading comprehension: true or false

Are the following statements true or false? Tick the right box.

(10 pts.)

- | | | true | false |
|----|---|--------------------------|--------------------------|
| 1 | The Ocean Cleanup installed its innovative barrier system last year. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Despite much public enthusiasm, some scientists question the feasibility and also demand solutions of how to avoid garbage in the first place. | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Water currents will flush plastic material into the centre of the structure, where it can be collected. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | The construction of the collection platform comes in four different designs. | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Though there was some general reaction by Slat to doubts published by physical and biological oceanographers, their assessment remained unanswered in detail. | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | The Ocean Cleanup team insists that water forces are not as powerful as expected. | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Biofouling means that the structure itself may corrode, thus adding actively to environmental problems. | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | The Ocean Cleanup team researched possible reactions of underwater animals whose habitat the structure will be floating in. | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 | 35 employees tested the structure of the barrier during six expeditions. | <input type="checkbox"/> | <input type="checkbox"/> |
| 10 | The biggest problem of the endeavour might be damage of the structure itself by some unforeseeable mishap. | <input type="checkbox"/> | <input type="checkbox"/> |

1.2 Reading comprehension: Working with the text

Respond to the following questions in complete English sentences, using approximately 40 words in each answer. Keep to the information given in the text, but do not quote directly.

- 1.2.1 What has been the motivation for the 21-year-old Boyan Slat to construct 100kms of floating barriers? (3 pts. on content)
- 1.2.2 Which obstacles could prevent the success of his project? (4 pts. on content)
- 1.2.3 What are the measures that Ocean Cleanup has taken to reach the best results? (3 pts. on content)

2. Composition

Write 350 to 400 words on one of the following topics.

2.1 Discuss:

As a real environmentalist, you better develop and encourage projects to the effect of pollution prevention, rather than collecting garbage.

2.2 \$2.2m, i.e. c. €1.856.492, were collected in crowdfunding for this alternative environmental project. Would you make a donation yourself, or invite friends to participate? In any case, what would be your motives?

2.3 Provide arguments whether or not it is necessary that scientists like physical and biological oceanographers challenge hobby researchers like Boyan Slat independently.

3. Translation

Translate the following part of the article *'It's important to at least try': Can this 23-year-old clear the oceans of plastic waste?* into German.

According to conservative estimates, humans dump eight million tons of waste plastic into the earth's water system every year – the equivalent of five full shopping bags per foot of the world's coastline. Once it's in there, some will end up back on our shores, turning pristine beaches into hazardous tips after just one high tide. Some of it sinks straight to the seabed, but the majority stays afloat, hostage to the currents, and gets slowly dragged into one of five major ocean gyres (vast, swirling vortexes of water and wind found in the north and south of the Pacific and Atlantic, and one in the Indian Ocean) around the world. Large items – a jerry can, say, or a fishing net – can remain intact for decades, bobbing around, occasionally trapping animals, before eventually suffering the same fate as all plastic: succumbing to the conditions and crumbling into tiny pieces. These microplastics are chemical pollutants, but they're also bite-sized. Fish, seabirds and other marine life mistake them for food, swallow them, and repeat that until it kills them. It's thought that of the 1.5 million albatrosses on Midway Atoll in the Pacific, almost all have plastic in their digestive systems, killing a third of their chicks. Far away in Melbourne Beach, Florida, in 2011 scientists picked up a green turtle with gastrointestinal complaints. When coerced, the turtle defecated 74 foreign objects – including four types of latex balloons and a bit of carpet.

words: 240
The Telegraph, August 2, 2017