

Marine-
Related
English
Reading
and
Writing
for
Postgraduate
Students



全国涉海高校研究生英语“十二五”规划系列教材

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Unit 1

An Overview of Ocean and Oceanography

What do you know about the ocean and oceanography? The two essays in this unit may offer some answers. Text A probes into the deep connection between human brains and the ocean and the urgency of protecting the ocean from a new perspective. Text B gives a brief introduction to oceanography which involves a multidisciplinary study of the ocean. We hope the two essays may help you with a basic understanding of marine science and the close link between human-sphere and ocean-sphere.

Text A

Pre-reading Questions

Before you read the text, take a few minutes to think about the following questions:

1. How do you define ocean?
2. In what ways are oceans important to our daily life?



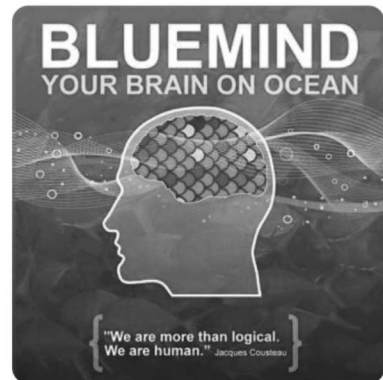
The World Ocean

1. On June 8 every year, ocean enthusiasts celebrate World Oceans Day. Last year over 300 official events in 45 countries recognized how the Earth's largest and most complex ecosystem affects not only the rest of the planet and its inhabitants, but how the seas touch upon the essence of being human and the connectivity of the human-sphere to the ocean-sphere.
2. The ocean is such a **ubiquitous** part of our world that we mostly take it for granted. Part of the disconnection between people and the ocean is explained by distance between people and the shore—even a mile can make us half-a-world away if we never make the effort to



gaze out on the blue horizon.

3. Another part may be our lack of basic understanding of how the ocean affects every human being on the planet. The ocean **buffers** our weather, provides us with foods and many of modern medicines have been discovered from decades of **relentless** marine research. Another part of our disconnection may be that we just don't know how to put into words and describe the emotions of how the ocean affects us.
4. The latter part is a difficult concept to **encapsulate**. While poets, songsmiths and artists have described the ocean in ways ranging from fury and fear to calm and **reflection**, there is little in historical and modern research that has tested the waters of the **neurological** basis of our connection to the ocean. Only very recently has this been explored.
5. The BLUEMIND initiative founded by marine conservation biologist Dr. Wallace J. Nichols with colleagues in art, marketing and technology seeks to define a new field bridging neuroscience and conservation biology—neuroconservation—designed for a “deeper understanding of the connection between the brain and the ocean.” Such an effort is impressive, truly **multidisciplinary** and has fantastic potential to understand what motivates people to care about and act upon environmental issues.
6. “Marketers have long understood that the human brain responds best to simple messages, repeated often, shared through good stories,” explains Nichols, who says he regularly reads the *Harvard Business Review*. But the word “marketing” isn't a favorite among scientists. Nichols is one of growing **contingent** of marine scientists who see the value in interdisciplinary approaches to tackling tough research problems.



7. This **analogizes** the message for World Oceans Day that I'd like to **highlight**. There are not seven seas or four oceans any more than there are separate, bounded fields of study in science. There is a world ocean, and it **encompasses** all the phenomena that encompass the world. Marine science has always traditionally been a very interdisciplinary venture by its very nature. The watery world is a three dimensional environment at the whims of the laws of physics, as much as the laws of ecology and evolution, that help create the immense diversity of life that we've only **feebly** characterized through over 200 years of **rigorous** exploration.
8. A world ocean is a connected ocean. The **iconic** maps with distinct circulation patterns among ocean basins **belie** the fact that much deeper down the pace of flow lessens, with the shifting of currents, waxing and waning of intensity and direction, and slow **millennial**-scale crawl of deep water masses. These water masses are created in the north Atlantic and off the tip of Antarctica where warm tropical water is **shrouded** by the colder polar waters and chilled by arctic winds, and the surface water freezes leaving behind its salt to water below it. The cold, dense water sinks here and begins its thousand-year journey around the world.
9. The **eminent oceanographer** Dr. Wally Broecker **dubbed** this phenomenon the "Ocean Conveyor Belt." It is a simplification of a complex system that explains the net flow of heat in the ocean. This **paradigm** has dominated oceanography for nearly half a century, but this model may be too simplified. In particular, technological developments in the last decade have allowed scientists to peek into the ocean at higher and higher **resolutions**. Once overlooked processes, such as the ocean's wind patterns and eddy fields, appear to be playing much larger roles in ocean overturning.
10. In a review published in *Science* last year challenging the conveyor belt model, Dr. Susan Lozier of Duke University weighed several distinct pieces of evidence that overturn our concepts of ocean overturning. While there is no doubt in scientists' minds that overturning



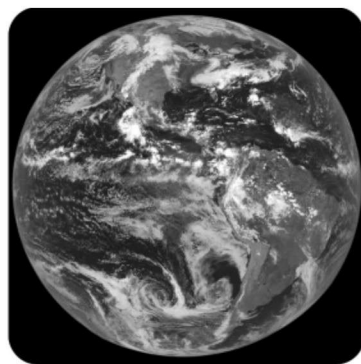
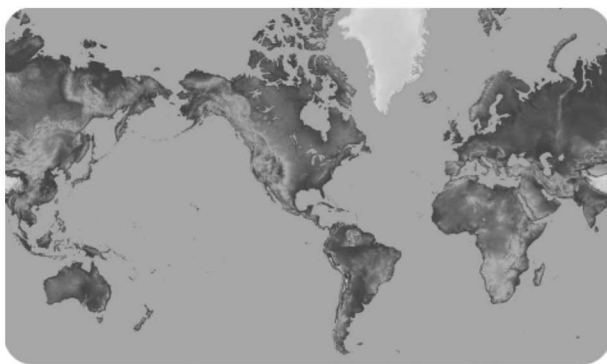
happens—this is a directly measurable property—the oversimplification is a little too simplistic. Most importantly, eddies, which are circulating bodies of water up to 100 km in **diameter**, have been recently observed to redistribute water masses of the conveyor belt.

11. Does this change how the entire ocean is connected? Not in the least, it fine tunes the connection. Instead of deep water moving along the western boundaries of ocean basins, it moves more within the interior as it is driven by eddies from the pole towards the equator.
12. “Though appealing in its simplicity,” writes Lozier, “the ocean conveyor-belt paradigm has lost **luster** over the years, precisely because it has **over-distilled** the complexity of the ocean’s overturning. This complexity has slowly been revealed as the ocean has increasingly been observed at finer scales in space and time and in places previously only **sparsely** sampled.”
13. Revolutions in marine science are fought by better technology and better sampling efforts. The **azoic hypothesis**, supported by Forbes in the 1800s that life couldn’t exist much deeper than 500 meters, was laid in Davy Jones’ locker through the improvement of **dredging**, depth measurement and water collection tools and the massive undertaking of the HMS Challenger expedition.
14. The revolutionary model itself, though, is a bit too simplistic and overstated. Very few are the papers written that instantly change a field of study upon publishing. Paradigms are shifted gradually. As Isaac Newton graciously noted, by “standing on the shoulders of giants,” hypotheses are tested and evidence is gathered, conclusions are drawn and meanings are debated. The ebb and flow of newly **col-lated** evidence sways the theoretical tides in another direction. We are only able to even ask moment-defining questions because of a vast historical legacy of literature that provides a **self-perpetuating** “conveyor belt” of generating new questions.
15. The future of our world ocean is filled with excitement at the possibilities that lie ahead and terror of the **magnitude** of which we have



already affected such a vital system. It is no secret how we are connected to the ocean. Seawater and our own bodily fluids are similarly composed. The person living farthest from coastline still carries their own inner ocean, there is no escaping it. We are drawn to coastal **vistas**, spend our hard-earned money for a weeks-worth slice of the beach and surf, and go to great lengths to bring seafood to the most **landlocked** cities. Perhaps a new frontier, a new revolution in marine science will be to understand how we all share a psychological connection with the sea.

16. The ocean is the glue that holds our planet together. Nearly three-quarters of our planet is defined by salty water, weaving its way around continents and **circumscribing** islands. The water never leaves us. It moves around the planet, it evaporates and gets dumped over land and joins with rivers, but it always makes its way back home to the ocean. We are just like that water, no matter how we flow, we always end up near the ocean. Understanding the “mind-ocean connection,” as Dr. Nichols calls it, could actually save own lives.



17. Whatever we do now to protect the ocean, to get its message out there, is not working—or, at least, not working quickly enough. Many do not get the ocean. Though they may spend many hours of their lives **entranced** by it, they do not know why. And neither do scientists. To understand how to make conservation messages stick to people, we need to ask new questions about the neurological basis for conservation. We are included as components in the world ocean, just as vital to the ocean as the ocean is to us.



18. “It’s time to drop the old notions of separation between emotion and science,” suggests Nichols. “Emotion is science. [...] It’s likely, maybe even certain, that the greatest unexplored mysteries of the sea are buried not under a blanket of blue, but deep in the human mind.”

(1,394 words)

(Extracted from <http://blogs.scientificamerican.com/guest-blog/2011/06/08/a-world-ocean/>)

New Words

ubiquitous /juˈbikwɪtəs/.
seeming to be in all places 普遍存在的

buffer /ˈbʌfə/.
provide protection against harm 缓冲

relentless /riˈlentlɪs/.
continuing in a severe or extreme way 不停的, 持续的

encapsulate /ɪnˈkæpsjuleɪt/.
express or show the most important facts about something 概括

reflection /rɪˈflekʃən/.
careful thought about something, sometimes over a long period of time 沉思

neurological /ˌnjuərəˈlɒdʒɪkəl/.
relating to nerves 神经学的

multidisciplinary /ˌmʌltɪˈdɪsəˈplɪnəri/.
relating to, or making use of several disciplines at once 多学科的

contingent /kənˈtɪndʒənt/.
a group of people representing an organization or country, or a part of a military force 代表团, (志趣相同的)与会者

analogize /əˈnælədʒaɪz/.
make use of analogy in reasoning, argument, etc. 类推

highlight /ˈhaɪlaɪt/.
attract attention to or emphasize something important 使显著, 使突出; 强调

encompass /ɪnˈkʌmpəs/.
include, especially different types of things 包括; 包围

feebly /ˈfiːbli/.
weakly, and without energy, strength or power 软弱地, 无力地

rigorous /ˈrɪɡərəs/.
rigidly accurate; precise 严密的, 缜密的



iconic/ai'kɒnik/*a.*

belie/bi'lai/*v.*

millennial/mi'leniəl/*a.*

shroud/ʃraʊd/*v.*

eminent/i'eminənt/*a.*

oceanographer/iəʊfiə'nɒgrəfə/*n.*

dub/dʌb/*v.*

paradigm/pærədaim/*n.*

resolution/i'rezə'lʊ:ʃən/*n.*

diameter/dai'æmitə/*n.*

luster/lʌstə/*n.*

over-distil/i'əʊvə dis'til/*v.*

sparsely/spɑ:sli/*ad.*

azoic/ə'zəʊik/*a.*

hypothesis/hai'pəθisis/*n.*

dredge/dredʒ/*v.*

collate/kə'leit/*v.*

very famous or popular, especially being considered to represent particular opinions or a particular time 图标的, 标志的

show something to be false 证明为假, 证明为错
relating to a span of a thousand years 一千年的
hide something by covering or surrounding it 遮盖, 隐藏

famous, respected or important 杰出的, 卓越的, 著名的

the person who specializes in the scientific study of the oceans and seas and the organisms that live in them 海洋学家

give something or someone an unofficial or funny name 给……起绰号

a model of something, or a very clear and typical example of something 范例, 示例

the state of being resolute; firmness or determination 决心

(the length of) a straight line that reaches from one point on the edge of a round shape or object, through its centre, to a point on the opposite edge 直径

the brightness that a shiny surface has; a very special, attractive quality that people admire 光彩, 光泽; 荣耀

extract the essential elements of; abstract too much 过度概括

thinly scattered or distributed 稀少地, 不足地
lifeless 无生命迹象的

a tentative explanation for an observation, phenomenon, or scientific problem that can be tested by further investigation 假设, 假说

remove unwanted things from the bottom of a river, lake, etc. using a sucking or other device 挖掘, 打捞, 采集

bring together different pieces of written information so that the similarities and differences can be seen 收集整理; 校对



self-perpetuating *a.*

magnitude /¹mægnɪtʃu:d/*n.*

vista /¹vɪstə/*n.*

landlocked /¹lændləkt/*a.*

circumscribe /¹sə:kəmskraɪb/*v.*

entrance /en¹trəns/*v.*

(a system or process) able to continue for a long time because it creates the things that it needs to continue 能使自身永久存在的

the large size or importance of something 巨大；重要性

a view, especially a splendid view from a high position 长条形景色, 远景

surrounded by the land of other countries and having no sea coast 内陆的

limit something 确定……范围, 限定

fill with delight or wonder 使狂喜, 使着迷

Phrases and Expressions

touch upon/on

mention a subject quickly when speaking or writing about another subject 简单涉及

gaze out over/on

look out on something, from inside a building or from a particular spot 遥望, 凝望

at the whims of

with a sudden wish or idea 突然有了……念头, 一时兴致

peek into

look, especially for a short time trying to avoid being seen 快速地看一眼

weave one's way

move along by twisting and turning to avoid obstructions, etc. (曲折) 行进

Terminology

waxing and waning

月圆月亏

ebb and flow

潮涨潮落

eddy field

漩涡场

ocean overturning

海洋倾覆

ocean conveyor belt

深层大循环

depth measurement

深度测量

landlocked city

内陆城市

Proper Names

Dr. Wallace J. Nichols

华莱士·J·尼科尔斯博士

Dr. Wally Broecker

沃利·布勒克博士



Science

Dr. Susan Lozier

Duke University

Isaac Newton

《科学》杂志

苏珊·洛兹博士

杜克大学

艾萨克·牛顿



Notes

World Oceans Day It had been unofficially celebrated every 8 June since its original proposal in 1992 by Canada at the Earth Summit in Rio de Janeiro, Brazil, and was officially recognized by the United Nations in 2008. Since then it has been coordinated internationally by The Ocean Project and the World Ocean Network with greater success and global participation each year.

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Exercises

Reading Comprehension

Answer the following questions according to the text.

1. What is the text mainly about?
2. Why do we human beings often take the ocean for granted?
3. What is the objective of BLUEMIND initiative?
4. According to the author, should the ocean as well as the scientific study be separated and divided? Why?
5. Did Dr. Wally Broecker and Dr. Susan Lozier share the same opinions on ocean circulation? Give your supporting reasons.
6. How should we understand the connection between people and the ocean? What should we do to protect the sea?

Structure Analysis

Fill in the blanks with the information from the text.

Part 1: Putting forward the issue: Recently, a research explored the relationship



between the neuroscience and the ocean. (Paras. 1-4)

Events: _____, (Para. 1)

Reasons for the disconnection between people and the ocean. (Paras. 2-3):

Reason 1: _____.

Reason 2: _____.

Reason 3: _____.

Problem about the ocean research. (Para. 4):

Reason 3 explains _____
_____.

Part 2: Details about the research of the BLUEMIND initiative. (Paras. 5-14)

Purpose: _____, (Para. 5)

Method: _____, (Paras. 6-7)

Model: A world ocean is _____ ocean. (Paras. 8-14)

Former Model: _____ by Dr. Wally Broecker.

Dr. Lozier's Model: _____
_____.

Significance of the new model: _____.

Limitation of the revolutionary model: _____.

Part 3: The future of our world ocean. (Paras. 15-18)

A new frontier, a new revolution in marine science will be to understand _____
_____. We need to ask new questions about _____
_____.

Vocabulary Study

A. Fill in the blanks with the words given below. Each word can be used only once.

Change the word form where necessary.

reflection	shroud	contingent	landlocked	overturn	relentless
circulation	initiative	hypothesis	encompass	ecosystem	analogize

1. According to the _____ of some economists, increased wages may give rise to the high cost of living.
2. The arrival time of the Scottish _____ at the meeting is still unclear due to the stormy weather.



3. This city is going to launch a(n) _____ of Youth 2012 to raise people's awareness of environmental protection.
4. Knowledge of how fast the deep ocean _____ during the last glacial period is important for understanding how Earth's climate could enter such an extremely cold state.
5. Upon _____, I realize that it's quiet music that requires close communication between the musicians onstage and the audience.
6. If there is new crack in the earth, this _____ country could become a beach resort within a few hundred thousand years.
7. Ocean _____ not only transports the heat around the planet but also oxygen from the air into the ocean making marine life possible.
8. A(n) _____ is a biological environment consisting of all the organisms living in a particular area, as well as all the nonliving.
9. This young man became famous overnight. However, nobody knew much about him. His family background _____ in mystery.
10. Culture _____ not only art and literature, but also lifestyles, value systems, traditions and beliefs.

B. The words in *italics* are vocabulary items from the text. Read each question or statement and choose the correct answer.

1. In both rich and poor countries there was a growing disillusionment with the idea that the *relentless* pursuit of growing was the principal economic objective of society.
 - A. cold and cruel
 - B. steady and persistent
 - C. unyielding in severity or strictness
2. Racial harmony should *encompass* three main factors: mutual respect, social harmony and good public security.
 - A. include entirely
 - B. bring about; cause to happen
 - C. enclose within a circle; surround
3. The FAA said it believes that more *rigorous* qualifications and standards will lead to improved performance.



- A. full of rigor; harsh
 - B. rigidly accurate; precise
 - C. characterized by or acting with rigor
4. The *magnitude* 5.6 earthquake that hit Saturday night at 10:53 p. m. was centered near Prague, Okla.
- A. greatness of rank or position
 - B. greatness in size or extent
 - C. greatness in significance or influence
5. Climate change challenges us all to find a new development *paradigm* that balances long-term economic prosperity with social progress and ecological sustainability.
- A. one that serves as a pattern or model
 - B. a set or list of all the inflectional forms of a word or of one of its grammatical categories
 - C. a set of concepts, values, and practices that constitutes a way of viewing reality for the community that shares them, especially in an intellectual discipline
6. It would be pointless to engage in *hypothesis* before we have the facts through repeated experiments.
- A. the antecedent of a conditional statement
 - B. something taken to be true for the purpose of argument or investigation; an assumption
 - C. a tentative explanation for an observation, phenomenon, or scientific problem that can be tested by further investigation
7. If you *collate* the latter with the earlier edition of the book, you will find many parts have been rewritten.
- A. admit (a cleric) to a benefice
 - B. assemble in proper numerical or logical sequence
 - C. examine and compare carefully in order to note points of disagreement
8. Back in 1989 Parliament unanimously supported a *resolution* to eliminate child poverty by 2000.
- A. the act or an instance of resolving
 - B. the condition or quality of being resolute; firmness or determination
 - C. a formal expression of opinion by a meeting, especially one agreed by a vote

