

ÉCOLES NORMALES SUPÉRIEURES
ÉCOLE NATIONALE DES PONTS ET CHAUSSEES

CONCOURS D'ADMISSION SESSION 2014

FILIÈRE BCPST

COMPOSITION DE LANGUE VIVANTE ÉTRANGÈRE

Épreuve commune aux ENS de Cachan, Lyon, Paris et de l'ENPC

Durée : 2 heures

L'usage de toute calculatrice est interdit.

L'usage de dictionnaire est interdit.

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Parmi les sujets proposés, le candidat doit traiter celui correspondant à la langue vivante étrangère qu'il a choisie lors de son inscription.

Toute copie, rédigée dans une langue qui ne correspondrait pas au choix apparaissant dans le dossier d'inscription définitif du candidat, sera considérée comme nulle.

Sujets proposés :

- Allemand
- Anglais
- Espagnol

ANGLAIS

I- VERSION (12 points)

The world's seas house algae, bacteria and plants that generate about half the oxygen in the atmosphere. They also provide seafood, an industry worth \$218 billion a year. Their well-being, some fear, is under threat from the increasing amount of carbon dioxide in the atmosphere. This concern is separate from anything caused by the role of CO₂ as a climate-changing greenhouse gas. It is a result of the fact that CO₂, when dissolved in water, creates an acid.

The issue needs to be taken seriously, though worryingly little is known about it. Many marine species have shells or skeletons that dissolve in acid. The more acidic the sea, the harder they have to work to keep their shells and skeletons intact. On the other hand, oceanic plants which use CO₂ for photosynthesis might rather like a world where more of that gas is dissolved in the water they live in.

Oceanic acidity levels appear now to be rising ten times as fast as they did at the end of the Paleocene.

Two studies have recently been published, one of which in Monterey, California, looks at the science, while the Monaco report attempts to identify fisheries that will be particularly affected by these changes. Data suggest that reef-forming corals are much sensitive to acidity so that the rate of erosion of reefs could outpace reef building by the middle of the century. However, acidification may also help some bacteria fix nitrogen and turn it into protein. Since a lack of accessible nitrogen keeps large areas of the ocean relatively sterile, this could raise the oceans' overall productivity.

Which species will suffer and which will benefit remains to be seen.

Adapted from *the Economist*, Nov 23rd 2013

II- QUESTIONS (8 points, 100 mots minimum par question)

1. What are the primary scientific and economic concerns about changes to the ocean chemistry evoked in this text?
2. According to you, what can be done to improve the overall health of the oceans?