

Discover the sea!

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An Oceanographic Mission

2. During this oceanographic mission we gathered data that will help scientists around the world understand better how the climate changes.

Launched June 20, 2009, the mission's first validated data products in support of improved weather, climate and ocean forecasts are now being distributed to the public within a few hours of observation.

3. SESAME is a 4-year European Union-funded project designed to study the Mediterranean and Black Sea ecosystems and their abilities to provide goods and services with high societal importance, such as tourism, fisheries and ecosystem stability through conservation of biodiversity. The need for consistent information, together with the indispensable linking of natural and socio-economic sciences, on these two ecosystems have mapped out SESAME's research path. Both the Mediterranean and Black Sea have been experiencing intensive development and exploitation due to their strategic geographical position, and are equally susceptible to human pressures and climate change. SESAME has been suitably created to assess the changes that have occurred in these ecosystems over the last 50 years , while simultaneously predict changes in the ability of the two seas to sustain essential ecosystem functions in the next 50 years.

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Ovidius

8. Scientist Interview

name Michelle H.

status student

age 20s

1. What experiences in school science, if any, influenced you to pursue a career in science?

I had a great old junior high school science teacher who allowed me to stay after school and tinker with the science hardware she used as demonstrations in class.

2. Are there any teachers who stand out in your mind as encouraging you to explore a career in science?

See # 1 above. In addition, at least a half dozen more. Here's the detail that really counted:

I was asked by a high school advisor (just before I was about to enroll in a local community college) what I would like to do for a career. I told her that I'd like to be a scientist ... but it was too hard, and I wasn't smart enough. In disgust, she tossed her glasses on the desk and burned a hole through me with a very disapproving stare. She announced that I had no basis to make such an unfounded statement until I had proof. She suggested that I sign up for a few science courses and then proceed to flunk them. That would be proof that my original assertion was true. By coincidence, at about that same time, I was seriously attracted to a lovely little girl who was an honor student well along the track toward a career in science. One day, while we were engaged in innocent conversation, she offered me her chemistry book as a start on my quest. Cornered, I accepted -- what else could I do?

Thus, the happy combination of an old advisor who could see I had a potential invisible to me AND the hormonal drive to succeed and win the favor of my sweetie drove me to excellence. I earned an "A" in the chemistry class. In the second semester of the course I garnered another "A". By then I was hooked. The rest is history.

3. What is the best part of the work you do -- the part that gives you the most satisfaction? Conversely, what is the downside of your work?

Best part: I was a research chemist for the federal government for the first eight years of my professional career. During that time, I was privileged to work with some very sophisticated analytical equipment. My research enabled me to publish almost forty scientific papers and make a (minor) discovery that led to a U.S. patent. In all, it was a very satisfying time for this young chemist.

Still, the life-changing experience of my early education had planted in me an unquenchable desire to be a teacher. When I discovered that a community college was about to be built in my area, I applied for a position. I resigned my post as a well-paid research scientist and became an profoundly re-

Still, the life-changing experience of my early education had planted in me an unquenchable desire to be a teacher. When I discovered that a community college was about to be built in my area, I applied for a position. I resigned my post as a well-paid research scientist and became an profoundly rewarded chemistry professor.

The result has been a thirty year career in the service of young folks who are either attracted to or repelled by science. I've made it a lifetime commitment to convince every student that, more than fun and dazzle, science is a discipline and way of thinking that can empower the learner to greater understanding of the way the world works.

There is simply no substitute for the zing I feel when I can successfully explain a fact or principle to a struggling learner. To witness their success with Information I helped them learn is something that no amount of money can buy.

Downside: Knowing that no matter what I do, it'll never be enough.

4. In what ways is the scientific work you are pursuing similar or dissimilar to the school science experiences you had?

How many boys of seventeen ever end up doing exactly what they desire for a life work. I have been greatly blessed. I had good teachers and I strive to be a good teacher. I got lucky; over the years I've won a dozen awards for being modestly competent. None of those honors would have been possible without the inspiration and confidence of my students.

5. What contemporary scientific issue are you most concerned about?

We live in an increasingly complex and scientific world. I am troubled by the fact that the general public knows so little about the process and facts of science. Worse yet, among all too many there seems to be an aversion to anything that strains the brain. Willful ignorance can be fatal to a society.

6. What would you say to a student who wanted to shape her or his future with a career in science?

I would regale them with inspirational tales of how interesting and useful science can be. Before that, I would engage the student into a dialog about his/her background, goals, and inner drive to succeed. The details underlying all three are critical to success in science.

7. If you were to define science, how would you complete this sentence?: "Science is --"

Science is a systematic, disciplined, and always open-minded method of discovering things about the natural world.

8. What is the coolest thing about science?

Being able to discover the undiscovered.

The "coolest" thing about being a teacher is being able to explain the discoveries to an eager learner.

9. We, the one we were on sea, we are glad for the mission we did. It was interesting, but also quite hard. And for the important things and scientists, whom we thank for the work that you did. Without them, who search and discover the hidden answers of the the oceans, the sea would be incomprehensible, and we won't be able to help them in order to preserve the ecosystem. These days without the discoveries of our fellow scientists, we wouldn't have known that some volcanoes and islands that were covered by

10. In 50 years, the seashore will be great, and the global warming would stop, water will be more clear with no pollution and more clean beaches without garbage. Any optimistic human would think that. But this thig depends on what we do, not what we hope. If we continue like this, the water will be more polluted, and rare species of fish will disappear. Also, if global warming will get worse, the water would be much deeper since the seashore will be gnawed. So in the end, we won't have a seashore anymore, and the sea level will rise in 50 years with at least 3 metres.



5. Measuring salinity in the Mediterranean Sea

Salinity is the total of all the salts dissolved in the water, measured in parts per thousand (ppt). If a sample of water were divided evenly into 1,000 cups, one of those cups would be 1 ppt. The Chester River near Chestertown has a salinity of about 3 ppt. That means of the 1,000 cups, 3 would be filled with salt, and the remainder would be water and other chemicals. Ocean salinity is approximately 35 ppt; thus in the Bay the salinity usually ranges from 0 to 35 ppt.

Salinity can be measured a number of ways. We measure it 2 ways:

1. LaMotte Test Kit - This test measures the chloride ion concentration in a sample. This chlorinity reading is then converted to salinity, and the reading that the direct reading titrator gives is salinity in parts per thousand (ppt). A water sample is titrated (adding a chemical 1 drop at a time) with a chemical which combines with the chlorine in salt. The more salt there is, the more chemical that must be added. When all of the chlorine has been combined, a color change occurs.

2. Hydrometer - The instrument measures the specific gravity of water; this increases as the salt concentration increases, allowing the salinity to be determined from a specific gravity reading and temperature. This is only done on the Centreville Middle School sites to periodically check the salinity test kit readings.

6. Talk about the plankton

3. SESAME is a 4-year European Union-funded project designed to study the Mediterranean and Black Sea ecosystems and their abilities to provide goods and services with high societal importance, such as tourism, fisheries and ecosystem stability through conservation of biodiversity. The need for consistent information, together with the indispensable linking of natural and socio-economic sciences, on these two ecosystems have mapped out SESAME's research path. Both the Mediterranean and Black Sea have been experiencing intensive development and exploitation due to their strategic geographical position, and are equally susceptible to human pressures and climate change. SESAME has been suitably created to assess the changes that have occurred in these ecosystems over the last 50 years, while simultaneously predict changes in the ability of the two seas to sustain essential ecosystem functions in the next 50 years.

Identifying zooplankton can be quite challenging and a daunting task as traditional keys have usually been designed for users with a high level of expertise. This online guide allows users to either identify their specimen to major group and species level via an image-based key, or via a diagnostic key.

7. Photo of the day:



Our journey was filled with magical attractions. We were enlightened to see small sea critters such as these.

© photo by Yiannis Issaris



Ovidius

11.Free subject

Choice: Algae, possibly solving world hunger?

More and more, our planet is faced with crises due to the number of people increasing in an alarming way. We have problems- a lot of the Earth's inhabitants have no access to potable water, a lot of them are too poor to afford living(think of the people on the street) or die because of hunger. Yes, it's sad- almost 1 decade after the beginning of the 21st century, some unfortunate people, and there is a lot of them, still die because they don't have enough food.

Some tried solutions- for example, replace small farms with bigger ones, that are more performant. It seemed a good idea, more food produced meant that more people could afford it. But this also meant that small farm owners could risk poverty now, so the future didn't look so bright anymore. There is the saying "money don't grow on trees". If we don't hurry to do something, it will soon and sadly change to "food doesn't grow on trees".

However, food can grow in the sea. And not only fish, but algae. In a lot of countries, especially the Asian ones, algae (or seaweed) is already an important part of a person's alimentation. In Japan it is used to produce nori, which is similar to the Korean gim. The people in Ireland also use it very much, from simple salads to jelly and beer(as a fining agent). It is also known as an aliment in New Zealand, Hawaii, Greenland, and not only. So, if we have the possibility to create farms of algae that could produce even a little bit more food for those who really need it, why not do it?

The truth is, this theory has a limited application. Apparently but unbelievable, due to the green revolution the land based food production is increasing faster than the needs of the human population. But this is on whole- I'm sure some countries would not regret investing money into algae farms.

Apart from being a possible future source, algae have more "green" uses- as fertilizers, as ingredients for bio-fuel, for natural pigments, and, most interesting, as pollution reducers. Yes, it's true- sewage can be treated with algae, and this way can be used a lot less chemical substances than in the present. And also, some powerplants use Algae Bioreactors to reduce the CO2 emissions.

Seaweed may have a lot of other uses, which are yet to be discovered, but we can be sure even so that this branch of the Plant group will have its job in humankind's plans for a better and better world.

12.NEWS FLASH!

Scientific

One of our marine biology experts, dr. Random, claims to have discovered a change in the migration of some species of fish. He says this abnormal comportment of the sea creatures may be caused by the global warming which begins to affect some of the most fragile ecosystems.

The dolphin, man's best friend

As a result of a movement of the ship caused by an engine problem, one of the members of the crew accidentally fell overboard. Luckily, though unable to swim, she was soon saved by a school of dolphins, and she only regrets being so shocked to have the idea of taking a photo of her saviors.

Event

The captain is preparing to present an arcade game he made, entitled "Saving the sea". The exact release date is still unknown, but the ones who tested the game by now said it's "super special awesome".

Maybe?

Since the SESAME project had such a great success, the higher-ups started collaborating with Australian authorities for an Australian version of the project. Who knows what could happen next? We can just wait and see.

13.Menu of the day

Because the team of researchers on our ship think that our discoveries should be shared by the whole world, the food served at the mess also turned out to be kind of...international. To be precise, every day traditional food from a different country is served to celebrate "gastronomic unity between nations" (also, it's fun). Two days ago, there was the Romanian day, with the traditional "sarmale" in grape vine leaves and "mamaliga". Yesterday there was the American day, with chips and hamburgers. And today...well, you'll see:

Japanese day

First dish

Ramen-it's a noodle soup with toppings oscillating between simple things as pork to more unusual aliments like dried seaweed. It's weird, but apparently it did worth it to try it out.

Second dish

Sushi- unlike most Occidentals think, this is NOT raw fish(that's called sashimi). In fact it's vinegar rice topped with other ingredients which can include fish dishes, and the most fun part is trying to eat it if you're not used to chopsticks.

Third dish(dessert)

Mochi(rice cakes) and dango(dumplings made of rice flour). Delicious!

Drinks Tea. Some asked for sake, the traditional Japanese alcohol, but it seems it wasn't allowed...

Next day's menu- Spain

14.Weather forecast for the day:

Wet weather was expected Thursday over the Mediterranean Sea from a slow-moving storm system

15.Bibliography:

- <http://www.preventionweb.net/english/professional/news/v.php?id=7629>
- www.google.com
- www.wikipedia.com

Name and address of the class: 9AD 1, "Ovidius" Highschool Constanta, Romania, 2, Basarabi street, 900710

Age—15-16 years old

Number of students: 12

Coordinating teacher: Carmen Bucovala