Decoding the oceans (w/ Video)

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Marine genomics has the power to reveal the many undiscovered secrets of the oceans. The Oceans are filled with a diversity of life forms. This means that getting a complete picture of marine biodiversity is challenging. Now, researchers are exploring new ways of identifying organisms—particularly invasive species—in sea water, as well as monitoring how marine life changes and exploring how we could benefit from this knowledge.

Among those involved are marine scientists, who routinely board research vessels to collect plankton samples, for example, along the Swedish West coast. Historically they would return with the samples and look at individual organisms under the microscope, trying to identify every single organism on their search for invasive species. This is a very difficult task when organisms are in their early life stage and difficult to distinguish. "Invasive species have caused a lot of problems in the last twenty years and they will cause more problems in the future", says Matthias Obst, marine scientist from the University of Gothenburg, Sweden. "So we need to find methods to understand the dynamics of invasive species. And here genomic methods are very powerful."

Today, microscopes stay on the shelf, as Matthias Obst now starts to look at the genetic make-up of his samples through mass-sequencing. This method makes the identification of underwater wildlife not only easier and more accurate, but also much more efficient. Scientists have been decoding the oceans for a number of years, gaining a significant amount of knowledge that could be very useful beyond the scientific community.

Specifically, researchers are interested in making this data available to industry and to environment agencies so that society can benefit from the rich gene diversity of marine life. This has been made possible by the EU funded research project Marine Genomics for Users (MG4U), designed to raise the profile of marine genomic technologies and make them available for potential applications in fields as varied as in medical research, nutrition and cosmetic products.

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