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# UNDERWATER OBSERVATORIES

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Monitoring our oceans is a difficult task. According to NOAA (US National Ocean and Atmospheric Administration) more than 80% of our ocean is unmapped and undiscovered. When we carry out research cruises we only get a snapshot of what is happening at that particular time and in the particular area of the ocean. It is absolutely critical that we carry out these scientific cruises but we also need other ways to capture what is happening in our ocean. Let's take a land example! We will give you a project and the aim of your project is to see how many cars travel on a particular road in a city. Unfortunately you can only access the road at night and on a Saturday. You carry out your survey at those times but do you think it would represent the whole picture? No, because you would have missed rush hour, you would have missed school pickups and possibly there are differences in traffic between winter and summer. It is the same in our oceans, without long term monitoring we are only getting snapshots of what is really happening. Many tools are available now to scientists and underwater observatories can fill in the gaps in our knowledge and allow an area to be constantly monitored. As you can imagine the amount of data collected becomes large and often the scientists need more help to process the data.

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## WHERE ARE THESE OBSERVATORIES?

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Ocean observatories are linked to land by a large cable that is laid on the seafloor. This cable provides power to the instruments and also allows scientific data to be brought ashore. Lack of internal battery power is normally the reason why instruments cannot last a long time offshore and powered observatories get over this problem by providing a constant source of power. Each observatory has the possibility to 'plug in' a large range of instruments to answer many different scientific questions. There are a number around the world and there is one in Spiddal, Galway Bay that is run by SmartBay. It is located 1.5km offshore and a live video feed can be found at <https://smartbay.marine.ie/> there are also some short videos on some of the marine animals that have been recorded at this site <https://www.marine.ie/Home/site-area/areas-activity/education-outreach/smartbay-observatory>

Canada also has a number of underwater observatories which started with two networks called Neptune and Venus and has continued to expand. The observatories monitor earthquakes, gas hydrates, tsunamis, biogeochemistry, the earth's crust, hydrothermal vents, deep sea biology just to name a few! All the details can be found on their webpage at <https://www.oceannetworks.ca/Observatories>. A video introduction to the observatories can be found on the Ocean Networks Canada site at <https://www.youtube.com/watch?v=B15Giq5oLrg>

Why not search online for other ocean observatories and learn about all the types of instruments they use!

## WANT TO GET INVOLVED WITH UNDERWATER OBSERVATORIES?

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As you can imagine when scientists collect large datasets they also need to process the data! A number of scientists are now using Zooniverse as a platform for volunteers to help with processing their data. You can contribute as little or as much as you would like and it has a wide variety of subject areas to choose from. The project page lets you select a topic (e.g. biology, climate, nature) and then you can view the projects that are available. <https://www.zooniverse.org/projects>

Today we are going to look at the Kostas SeaFloor Observatory. The observatory is in a fjord system located in Swedish waters. The scientists at Tjarno Marine Laboratory have 30 years of underwater video footage and are asking for volunteers to help identify what they see in these videos. There are online tutorials and a pick list to choose from. So far they have had help from 1,938 volunteers and the project is 55% complete.

If you would like to have a go click the following link and then click 'Get Started'.

<https://www.zooniverse.org/projects/victorav/the-koster-seafloor-observatory>

If you find this a little difficult then there is a project on identifying seals from onshore cameras in South Georgia. There is a beginner option as well as an expert option for identifying either fur seals or elephant seals.

<https://www.zooniverse.org/projects/cmfoley/seal-watch>

Just remember any contribution you make will help these scientists. The data that are collected are used to broaden our understanding of our ocean and the creatures that live in it so that we can protect it for future generations.

This blog is brought to you by Sheena Fennell, an oceanographer in [Earth and Ocean Sciences at NUI Galway](#).

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