Mexicans use coding to help save whales

Students studying **Data Science and Mathematics Engineering** (IDM) at **Tec de Monterrey's Mexico City campus (CCM)** participated in the ***Coding for the Whales*** project in the **state of Guerrero**, where they collected data and did many other activities in collaboration with the ***Whales of Guerrero*** association.

The IDM students had the opportunity to participate in the **community service project**, which **aims to save whales, for the first time in January 2023,** during the winter program.

Coding for the Whales aims to **monitor whales** using **computer tools through which it will** learn about their **reproductive habits, behavior,** and **migration patterns**.

The international ***Whales of Guerrero*** association also participated in the project in order to **work** with **local communities** in a **socially responsible** way.

This project contributed to **the biological study of the species** and **supported the work** of **biologists** from **the association,** which is dedicated to **saving marine fauna** in the fishing village of **Barra de Potosí and** southwestern Guerrero in **Mexico**.

https://www.instagram.com/p/Cp3RFhwofe4/

Using technology in marine biology

During their stay, the students **visited local communities** and were able to **interact** with **the marine mammals.**

They were also able to **identify problems** and **solve them using the tools at their disposal and the knowledge they had acquired** during their degree program.

Over the course of **4 days**, the students **participated in various activities,** including **turtle camps, workshops** for **local communities, whale spotting,** and **beach cleanups**.

The students recorded whale **sound waves** using **special underwater** microphones, which allowed them **to take recordings, import them into a program,** and **interact with them.**

/> width="900" loading="lazy">

*"**Each whale has a unique sound;** this tells us **if it's male or female,** and the **decibel level** can tell us **where the whales are located,"** shared **IDM** student **Marcelo Ceroni.***

One of the students' **greatest challenges** was **understanding the mathematical and topological tools** that they would use for the project.

Some of the **topological tools** used were **simplicial complexes** and **persistent homology,** both of which help **create a map** from the **recorded** wave **data set.**

Marcelo Ceroni explains that this **map, created** from the **intersections found** in **the sound waves,** helps to **identify the location of the whales,** and thus know the **mammals' trajectory** during the **migration season**.

"I enjoyed exploring how I can contribute to the world using my professional skills." - Marcelo Ceroni.

The **IDM students** reflected on their **experience of applying mathematics** to a field such as **marine fauna**.

*"I enjoyed **exploring** how I can **contribute to the world** using my **professional skills**,"* said Marcelo.

Professor Salvador Garza, manager of the *Coding for the Whales* project, also explained that this type of **community service** helps students **develop problem-solving skills** and have a **greater connection with the social** and **productive sectors**.

"We've got to get involved in order to make a difference," he added.

Coding for the Whales will now be **taught every winter**, **during the season** when **the whales arrive in Guerrero.** It is looking to **expand nationwide** so that **more students** can have the opportunity to **participate in the project.**

/> width="900" loading="lazy">

ALSO READ:

https://conecta.tec.mx/en/news/state-mexico/entrepreneurs/hult-prize-winner-rutopia-encourages-tourism-social-distancing