

## What is the Throughflow project?

The Throughflow project is looking at the fossil reefs of Indonesia to understand how the world's most diverse marine habitats have been shaped by past changes to the environment.

Coral reefs are one of the most diverse ecosystems on the planet, and the coral reefs of southeast Asia are the most diverse of all. Reefs provide a home to tens of thousands of species of fishes, crustaceans, molluscs, bryozoans, sponges and larger animals such as sharks and turtles. Scientific evidence shows a sudden increase in coral diversity in the southeast Asian region around 25 million years ago near the beginning of a geological period known as the Miocene. By studying fossil material from the area, scientists can investigate how changes in the environment resulted in the evolution of the high diversity of species alive today.

Throughflow is a project of the European Union, and is co-ordinated by Natural History Museum palaeontologist Ken Johnson. It is one of the largest projects of its kind, with collaboration from seven European organisations as well as partners from Indonesia within various disciplines such as geology, geochemistry and biodiversity studies. At the Museum there are two Marie Curie Fellows on the project, Nadia Santodomingo working on the diversity of corals and Emanuela Di Martino working on the diversity of bryozoans.

### Field work

The Throughflow team completed two field expeditions to east Kalimantan, a province in Indonesian Borneo, from November to December 2010 and June to July 2011. The fossil reefs they discovered were often accessible along road cuts, construction sites, rivers and coral mines. In total, the team collected around eight tonnes of fossils and sediments, which were shipped back to Europe. Among them are spectacularly preserved specimens and together they form a unique data set to study the ancient biodiversity of coral reefs. In some fossil corals the original component of the skeletons (a mineral called aragonite) has been preserved. This amazing preservation will allow scientists to reconstruct environmental conditions such as seawater temperatures and seasonality of rainfall during the Miocene.

### Did you know...

The Throughflow project is named after the only tropical ocean gateway that connects the Pacific and the Indian Oceans, the Indonesian Throughflow

## V Factor and Throughflow

### A unique collaboration from January 2012 to 2013

V Factor is an exciting new volunteer initiative based at the Museum, which targets long-term collections-based projects across our specialist science departments. The current project focus is the Throughflow project in Palaeontology, within the invertebrates section. While the work volunteers do can be easily understood and undertaken, the value of the work and your time is priceless.

V Factor aims to bring citizen science alive through giving you the opportunity to work alongside our experts and immerse yourself in real research and curation. At the same time it provides a sound framework for our scientists to undertake exciting new projects and develop new ways of using our collections through engaging you as volunteers.

We're on nature's side. We support the environment by printing on paper that is made from 100 per cent post-consumer waste, using vegetable inks by a carbon-neutral printing company. DS3521

#### What will volunteers do?

The Throughflow project has collected huge amounts of coral material from Indonesia, and only half have so far been sorted. Working under the supervision of Lyndsey Douglas the Indo-Pacific Corals project officer we need your help with the rest.

As part of the V Factor team, you will work together to clean, store and label these fossil corals correctly, so they may be identified and prepared for further study. With the help of V Factor we are creating a relevant research collection for the Throughflow project and future studies.

**If you would like to read more about the science of the Throughflow project, visit [www.ipaeg.org](http://www.ipaeg.org) or talk to one of our V Factor volunteer leaders outside the Specimen Preparation Area today.**

We believe involving volunteers in our work is a hugely valuable and enormously rewarding experience for all those taking part, and we are truly committed to providing a unique, worthwhile and fun volunteer experience for you.