

Behavioural Ecologist

Seabirds may not be able to talk, but their behaviour has told Bill Montevecchi a great deal about changes occurring in the ocean off the coast of Newfoundland and Labrador. Dr. Montevecchi is a behavioural ecologist at Memorial University. He's been studying the behavior of seabirds such as northern gannets and common murrelets for decades. The conservation-oriented research he conducts mainly on Funk Island, a small unpopulated island east of Fogo Island, is giving Atlantic seabirds a voice that shouldn't be ignored. Their message is that the Atlantic Ocean is changing, and those changes are affecting the organisms that call it home.



Behavioural ecologists study the relationships that animals have with both living and non-living things in their ecosystems. This drives them to ask questions such as "How does the behaviour of a predator reflect that of its prey?" and "How is a species changing its breeding behaviour in response to changes in its environment?" Behavioural ecologists often come from various backgrounds, as the field is highly interdisciplinary. Montevecchi is associated with the departments of psychology, biology, and ocean sciences at Memorial University. The Montevecchi lab focusses on researching how the environment influences the behavior and ecology of animals. Much of the team's work involves determining what an animal's behaviour reveals about changes in prey availability and other varying conditions in its ecosystem. No scientists work in isolation, and Montevecchi's team is no exception. Collaborating with other scientists in Canada and around the world is vital to their research.

Dr. Montevecchi's own research focusses on the behavioural ecology of birds, both in marine and terrestrial ecosystems. Three decades of studying the feeding behaviours of seabirds has revealed that these behaviours can be strong indicators of both prey availability and environmental conditions. His studies of northern gannets show that the birds typically feed their chicks more fat-rich mackerel than any other species. During one year, however, Montevecchi and his colleagues noticed that the parents fed their offspring very few mackerel. This coincided with a poor mackerel fishery that year. The next year, a failed squid fishing season coincided with the chicks receiving very few squid, another favourite food. Through these observations, it became clear that seabird behaviour was a strong indicator of fish populations in marine ecosystems. These findings soon served as a springboard for global research into the seabird-fisheries connection.

This connection may be just a small piece of an even larger puzzle. Montevecchi's research has also shown that seabird feeding behaviour is influenced by changes in ocean temperature. This is supported by the fact that the fish species offered to northern gannet chicks reflect changes in fish populations in response to shifting surface water temperatures. Further supporting this relationship was a hot water event in 2012 associated with unprecedented levels of colony abandonment, in which parents left their chicks to fend for themselves. Another event two years later in which water temperature was 3 °C warmer than average was also associated with a greater degree of colony abandonment. As well, chicks starved as their preferred food, the mackerel, retreated to colder water. These findings support the idea that seabird behaviour may be a good indicator of warming waters due to climate change.

Other Careers Related to Biological Conservation

Wildlife Biologist To manage and conserve wildlife, these biologists study the effects of natural factors, such as predation, disease, and nutrition, on a population, as well as the effects of activities such as habitat destruction. Duties include carrying out population surveys, managing protected ecosystems and threatened species, and running provincial and federal wildlife programs. Wildlife biologists may work for conservation groups, government departments, environmental consulting companies, universities, and wildlife preserves or zoos.

Forest Science Biologist Managing forest resources is valuable to both wildlife and humans, and it requires forest science biologists to have extensive knowledge of trees and their habitats. The biologists frequently need to balance many perspectives to manage these precious renewable resources. These perspectives include harvesting practices, fire management requirements, conservation goals, and plans for recreational use. A forest science biologist typically has a post-secondary degree related to forestry.

Conservation Officer Conservation officers are responsible for enforcing regulations that have been set by provincial and federal governments to protect natural resources such as wildlife, forests, and oceans. They may also be involved in public education, promoting awareness of environmental regulations and related issues. Conservation officers need strong interpersonal skills, as they often deal with people who are not complying with regulations. A technical diploma is usually required to work as a conservation officer.

Environmental Lawyer Environmental lawyers both advise and advocate with regards to natural resource and environmental protection policies. They may advise clients such as businesses and industrial companies on their legal obligations with regards to environmental laws. As advocates, they may work to prosecute or defend clients with regards to environmental infractions. Environmental lawyers may be employed by all levels of government, environmental consulting companies, large corporations, or private law firms.

1.) Imagine that you are a student working as part of Bill Montevecchi's lab. Develop a research question that you would like to pursue. Your question should reflect the lab's focus on how the environment affects the behaviour and ecology of animals.

2.) Choose two animals that have a predatory prey relationship in Newfoundland

_____ and _____

3.) What is one change in the ecosystem might affect the organisms' predator-prey relationship above? How?

4.) Use google to research one of the careers on the previous page, or another career related to biological conservation that interests you.

Are there any jobs being advertised in Newfoundland? Yes No (Circle one)

If there are none being advertised in Newfoundland find one listed somewhere else.

What are some of the required tasks of the individual who gets the job?

What is the yearly salary? _____

What education is required to apply for the job?
