

## Academy's mollusk collection plays key role in Gulf oil impact study

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Unknown to most non-scientists, the nation's oldest mollusk collection resides four floors above one of Philadelphia's busiest tourist areas and is now being pressed into action to determine the impact of the nation's worst oil spill.

Scientists recently borrowed a sampling of oyster shells from the Academy of Natural Sciences' malacology collection, the third largest in the world with some 12 million specimens, for their study of the impact of the Deepwater Horizon oil spill on marine life in the Gulf of Mexico. California Academy of Sciences Curator Dr. Peter Roopnarine, along with Laurie Anderson of Louisiana State University and David Goodwin of Denison University, want to find out how marine life in sensitive marshlands along the Gulf coast will be affected over time.

The study centers on how quickly it takes the hydrocarbons and heavy metals in crude oil to affect marine food webs, something scientists know very little about. In order to track the changes in the specimens that will be studied, many previous samples collected from similar locations and from different time periods are required. Roopnarine said only the Academy of Natural Sciences has suitable specimens from every decade of the 20th century.

"We often think of our collections as storehouses of past knowledge," Roopnarine said. "The collections, however, are tremendously important assets for scientific research on the present."

By using the Academy's oyster shells as a baseline, Roopnarine and his colleagues will be able to determine the quantities of hydrocarbons and heavy metals that were already present in the Gulf [mollusks](#) before oil drilling began and then track how much has accumulated as a result of the recent oil spill. The scientists also will look at tellinid clams and periwinkles. Each of the three species uses a different pathway to feed.

If their findings reveal that the shells are adopting hydrocarbons at the same speed, it means they are all drawing these compounds from the [water column](#). If, however, they are being incorporated at different rates, it would mean the animals are receiving contaminants from their food sources. Mollusks are being studied because, as "primary consumers," shellfish are likely to be the first to show traces of hydrocarbons and [heavy metals](#) that could later be passed on to creatures that feed on shellfish. Given the carcinogenic nature of hydrocarbons, the concern lies with the physiological damage to [marine life](#) once the materials have spread through the food chain.

"There is little use saying 'the BP spill will pollute the Gulf' unless you can demonstrate how polluted the Gulf was to begin with and how long it's been since it wasn't polluted at all," said Paul Callomon, the Academy of Natural Sciences' malacology collection manager. "While much of the oil spill's impact is unknown, Dr. Roopnarine's research using the Academy's collection will create a foundation to answer some of these questions."

On a related note, Academy Malacology Curator Dr. Gary Rosenberg documented more than 1,700 species of mollusks from the [Gulf of Mexico](#) for a book published last year on the fauna and flora of that region. Rosenberg said "about 10 percent of the species of mollusks in the Gulf are endemics, known from nowhere else on earth. Such species are the ones at greatest risk from the oil spill."

Provided by The Academy of Natural Sciences

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