

Bonaire: 90 million years, plus a few days to think

By Daniel Pauly

Bonaire began as an underwater boil of magma 90 million years ago but emerged 30 million years later, when it started to acquire a terrestrial fauna and flora, with many species soon evolving into endemics.

The island appears not to have been peopled prior to the arrival of Europeans. Of these, the Dutch were the most tenacious, incorporating Bonaire into the few specks of land that constitute the Netherlands Antilles, where diving tourism, and resource extraction (marine salt in Bonaire), or transformation (oil refining in Curaçao), have replaced the slave economy of old.

This year, the Pew Fellows in Marine Conservation had their annual meeting



The tiny island of Bonaire is located 80 km north of Venezuela

in Bonaire. As a member of the Pew Fellows Program's Advisory Committee, I had the privilege of spending a few October days on that isolated island, 80 kilometres north of Venezuela's coast (see map).

After starting with a tribute to the late Robert Johannes (a 1993 Pew Fellow) and keynote lecture by Jeremy Jackson, based on his much-cited article in *Science* (Jackson et al. 2001), the meeting went on with four concurrent workshops:

- 1) "Maneuvering the maze of international treaties and agreements," organized by fellow Advisory Member Cyriaque Sendashonga, of the Secretariat of the Convention on Biological Diversity;
- 2) "Community-based fisheries management," by Kalli de Meyer of The Coral Reef Alliance (www.coral.org);
- 3) "Communication of results," by Nancy Baron of SeaWeb (www.seaweb.org); and
- 4) "Action for the ocean," run by Amanda Vincent of the Fisheries Centre (see this month's issue of

FishBytes), and devoted to identifying potential joint activities by Pew Fellows.

Each of the workshop organizers had brought an interesting group of resource persons. For example, in workshop Number Three, which I attended, Nancy Baron had invited a stellar group of science journalists, including Cornelia Dean, Science Editor at the *New York Times*. It was quite a learning experience to hear the presentations and mock-interviews documenting how our prejudices as scientists, and our inability to see ourselves as others may see us (caveat-ridden and nerdy) often stand in the way of getting a worthy message across.

The plenary reports and discussions, held a day later, showed that the other three workshops had been worthwhile as well. Hence everybody's interest in the subsequent event, meant to address the relation between 'Science' and 'Advocacy.' The speakers featured Ray Hilborn, of the University of Washington's

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School of Aquatic and Fisheries Science, and three Pew Fellows including our own Carl Walters. This *séance*, in which we were warned of the perils of commitment, was, however, a bit of a letdown. Colleagues have been too often dismissed as 'advocates' because they were picking up inconvenient issues, while those in favor of the status quo tended to be presented as dispassionate proponents of the facts. One example of an outstanding and committed scientist given the treatment was Rachel Carson, the author of the book after which the *Sea Around Us* project is named. Thus, I am pleased to say that I did not participate in that specific discussion - it reminded me too closely of those debates where the first to employ the rhetorical ploy of calling the other "emotional"

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wins. This leaves the one so named to scream in rage that he or she is NOT BEING EMOTIONAL!!!

Rather, I joined a group of Pew Fellows who had offered to discuss, with our colleagues from Bonaire, the major issues facing the island's marine park and fisheries:

- The gradual erosion of the live coral cover and (large) fish abundance on the reefs, both key to the success of the SCUBA-diving dependent tourist sector; and
- The current negotiations between Bonaire's local government and the European Union, the result of an EU attempt to acquire access rights for Spanish fishing vessels.

It was a pleasure (but not a surprise) to see Pew Fellow Callum Roberts lay out the case for the creation of a marine reserve as a tool to address the first of these issues, although I must mention that I also made a convincing case for the need to estimate present catches from the reefs (no, the Bonaire Marine Park authorities do not know how much is presently taken out by the commercial and subsistence fisheries from the reefs and marine park surrounding the island, and by recreational fisheries further offshore).

The point is that, one fish at a time, even small fisheries can do

great damage to coral reefs. Indeed, the feral goats and donkeys have done just that on land, through centuries of uncontrolled grazing, gradually turning Bonaire's flat countryside into a likeness of an inner-city vacant lot. Similarly, sport-fishing for billfish and marlin can deplete nearby fishing as surely as a commercial long line fishery, though it usually takes longer to get there.

However, nothing of this sort can do the damage that EU fleets roaming in the Bonaire Exclusive Fishing Zone would. The prospect of this happening may have been diminished a bit by Pew Fellow Rodrigo Bustamante's account of foreign fleet activities in the waters around the Galápagos Islands (another national park, by the way). My account of the effects of foreign fleets off West Africa may have also helped there, especially as it came with a



The late Bob Johannes, with Daniel Pauly, at last year's Pew Fellows Annual Meeting in Nova Scotia, and to whom this year's meeting in Bonaire was dedicated. Photo by Amanda Vincent

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The *Sea Around Us* website may be found at saup.fisheries.ubc.ca and contains up-to-date information on the project.

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scary Powerpoint presentation featuring Villy Christensen's maps of declining fish biomass off West Africa (see Pauly 2002), and the key points of EU-West African agreements (extracted from Kaczynski and Fluharty 2001).

The people of Bonaire do not want EU fleets in their waters, and the information provided should help support their position in the next round of Bonaire-EU negotiations – which brings us back to the issue of the wall between

science and advocacy. Clearly, scientists should not jump over it - there are lots of strong, nasty characters on the other side, and one of them, say Goliath, may decide to cut off our credibility and who knows what else. But nothing should prevent us from passing a few pebbles over to the occasional David. That much I learnt in Bonaire.

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Sea Around Us dances with Minister of Fisheries

By Dirk Zeller and Villy Christensen

During the first two-year phase of the *Sea Around Us* project (1999-2000), we focused extensively on the North Atlantic. While the project has since expanded its regional focus, our previous collaborative involvements in the North Atlantic region (Guénette et al. 2001; Zeller et al. 2001) continue to have interesting 'after-shocks'. Thus Villy Christensen and Dirk Zeller received an invitation from the 'Fiskirannsóknarstovan' (Fisheries Laboratory) of the Faroe Island government to participate in a fully sponsored workshop on ecosystem modelling of Faroese waters, held in the Faroese capital Tórshavn in September, 2002. A wide range of people were invited, including representatives from ICES/ GLOBEC, Trondhjem Biological Station (Norway), Nansen Environmental and Remote Centre (Norway), University of Rostock (Germany), Station Zoologique de Villefranche-sur-

Mer (France), and Department of Fisheries and Oceans (DFO, Canada). The purpose of the workshop was to bring together expertise on ecosystems, modelling, and on the Faroe marine environment. It was also an opportunity to present and discuss Faroese ecosystems, identify gaps in knowledge of importance for modelling the Faroese ecosystems and to formulate projects to fill these gaps.

The Faroes, located in the northeastern Atlantic between Scotland and Iceland, consist of a group of 18 islands inhabited by approximately 46,000 people and covering about 1,400 km². However, the Faroe Islands have responsibility for the marine resources in an EEZ of over 270,000 km². Fishing represents the major commercial activity, accounting for over 95% of exports and over 44% of GDP. Furthermore, both commercial and subsistence fisheries play a

significant role in Faroese culture and society. The government utilizes a spatial- and effort-based system of management for their demersal fisheries, and explicitly incorporates ecosystem considerations in their policies. Given the importance of fishing to the Faroe economy and culture, considerable interest has been expressed in the evaluation of these management measures at the ecosystem level, and hence this event.

The workshop consisted of two days of presentations, followed by one day of working subgroup sessions and forum discussion. On the first day, local scientists presented general overviews of Faroese waters and their ecosystems, and the available data sets. These presentations covered topics ranging from physical oceanography, planktonic and benthic studies, through

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Commercial and subsistence fisheries play a significant role in Faroese culture and society