Questions to John Dean and Clive Keenan

Michael Haddon (University of Sydney) commented that John Dean had placed the emphasis on the genetics of fish, but other factors could be important, for example, time scales. If a species is short-lived, this could have a significant impact on genetic results.

John Dean agreed — all genetic analyses must be done with the life history of the species in mind. Also, that is why he emphasized that it is very important that the genetic analyses should be done by a geneticist who knows the limitations and assumptions of the technology; the fishery biologist knows the questions and the application of the information.

Andrew Sanger (from the Chair) asked whether managers and industry accept the data described. Also whether the data were obtained independently of a pre-knowledge of the source (area) of the fish.

Clive Keenan responded that the data had been obtained independently. It has taken a long time for the data to be accepted. The "island" model has been extant since 1943, while an alternative model which has been independently developed four times has been slow to receive acceptance, because it was mathematically 'intractable' and difficult to simplify.

Carl Walters was strongly of the view that molecular methods are misleading and a waste of research resources. Such methods reveal mainly neutral variation that has developed on a time scale of a few thousand years (molecular clock concept) in conjunction with geological changes. But ecologically significant structure (timing, migration patterns, growth, etc.) can develop on much smaller space/time scales, and fisheries policy is radically impacting this structure; we are eroding local structure by biological overfishing, and hence losing productive potential, in many fisheries.

A key issue is how to measure, and whether to respond by management to, this local structure.

John Dean did not disagree about the evolutionary principles. However, there are resources in which the information on the "stock", as he had tried to use the term in a management sense, is relevant and useful. He did not agree that it is a waste of resources, especially if it is possible to remove a contentious issue from the table (one or two stocks for Atlantic swordfish) or if the data enable the population dynamics model to make better assumptions on which landings data to include in their VPA (Virtual Population Analysis), or if the hatchery production output can be placed in the most appropriate sites. He was convinced that there is a great need for knowledge of the genetics of performance of cultured species. We could well be selecting brood stock and stocking fish with the "wrong" information for the long-term survival of the species.