CEES takes on numerous research objectives with an ecological and evolutionary synthesis using old and new data from the field and the lab. The research is organised around three intertwined Themes. Theme 1: The role of population structuring in adaptive evolution. In 2011 CEES focused on the effects of habitat fragmentation on early stages of genetic diversification and the ecology of microbial communities. Theme 2: The potential for adaptation. Research in 2011 dealt with human induced evolution, e.g. effects of size-selective hunting and fishing. Theme 3: The evolution of reproductive isolation. CEES' efforts addressed genetic aspects of reproductive isolation. Within each research Theme, there is integration of ecological and evolutionary thinking. In order to avoid of the pitfalls associated with integrative work, such as conceptual and semantic confusion, and to promote communication across the various research fields (that each have their own limiting assumptions), the Themes are addressed through four multidisciplinary Colloquia, each of three-year duration. Each Colloquium constitutes an excellent setting for highly qualified staff and visiting scientists, with experience from a wide range of biological and methodological systems, to collaborate and thus contribute to the overall objectives of the centre. The topics of the Colloquia are as follows: Colloquium 1: Selection and evolvability: Concepts, measurements and statistics. Colloquium 2: Bridging the gap between genomics and evolutionary biology. Colloquium 3: The ecology and evolution of infectious diseases with an environmental reservoir. Colloquium 4: Integration of ecology and evolution: A synthesis.

The Colloquium 2 activities are organised through multiple fora, such as seminars, reading groups/journal clubs, and informal activities, in addition to ongoing research projects. In 2011 we arranged a number of “Late Lunch Talks” focused on genomics where scientists (often younger researchers) presented their work or specific issues of interest. A particular theme was bioinformatics: how are we going to meet the strong needs here at CEES in the future? For the CEES Friday seminars there were a number of Colloquium 2 talks by leading scientists covering a broad range of topics aimed at bridging the gap between genomics and evolutionary biology. The speakers include Jeff Hutchings (Dalhousie Univ., Canada), Yves van de Peer (Univ. of Liege, Belgium), Daniel Ruzzante (Dalhousie Univ., Canada), Frank Johannes (Univ. of Groningen, Netherlands), Massimo Pigliucci (New York Univ., USA), Michael Purugganan (New York Univ., USA), Kim Sneppen (Univ. of Copenhagen, Danmark), Bas Kooijman (Vrije Univ., Netherlands) and Jon Slate (Univ. of Sheffield, UK). Two different reading groups/journal clubs; “The Philosophy of Science” and “Epigenetics and transgenerational inheritance” were also arranged.

The informal activities have included “Concept Hat” and a one-day discussion around Colloquium 2 themes at the “Young Researchers’ Day” (“De unges dag” in Norwegian). The idea behind Concept Hat is to expose the knowledge of CEES senior scientists to Colloquium 2 related terms and concepts at an open forum for all scientists.
at CEES. It is organised as a panel of CEES core members drawing “unknown” terms literally from a hat, and without any preparation they must provide a conceptual understanding of the term to the audience. These events have been a success. We have also performed a survey among the young scientists about their interest for using genomics in their future research. The survey clearly showed a large interest.

There are several ongoing projects within the Colloquium 2 framework associated with activities related to the continuation of the Atlantic cod genome project. Currently, a new version of the cod genome is being produced which will enable more detailed and complete analyses of the evolutionary effects on genes associated with local adaptation, fishery pressure and aquaculture-related traits. Another fish-related project is “Tracking signatures of adaptive diversification during postglacial colonisation: the build-up of genomic isolation in threespine stickleback”. Here freshwater, brackish and marine populations of stickleback are studied with respect to the adaptive differences in the genomes of these populations. Other Colloquium 2 projects include “Evolutionary comparative genomics and homoploid hybrid speciation in Passer sparrows”, “Evolutionary response of two African Rodent species (Hystrix sp.) to climate changes”, “Experimental evolution in yeast” and “Genotype-phenotype modeling – a systems biology approach”, “Microbial communities and ecology” and “Population genomics of sympatric cyanobacteria”.

A new project within the Colloquium 2 framework, “The genetics of epigenetics” has been initiated in 2011. In this project the evolutionary impact of epigenetic inheritance by modeling the effects of epigenetic traits in a transgenerational setting is addressed. Postdoc Thomas Owens Svenningsen is employed on this project.

The expected outcome of Colloquium 2 is an increase of internal collaborations within CEES and an enhanced awareness and use of genomics for addressing ecological and evolutionary questions. This should contribute to the transformation of the discipline-oriented tradition into more dynamic and cross-disciplinary research, and facilitate the philosophy of CEES in merging ecological and evolutionary thinking.

Summarised by Kjetill S. Jakobsen and Sissel Jentoft.

Further reading:
