

Fra toppen!

Å inspirere neste generasjon

- Undervisningen må få høyere status, sa professor Geoffrey Boulton fra Universitetet i Edinburgh på UiBs Vitenskapskonferanse denne uken. Konferansen var en avslutning på Vitenskapsåret, og hadde anslag til interessante diskusjoner i et skuffende glissent auditorium på Studentsenteret.

Boulton mente vi har gått for langt i å ha forskningen som ledestjerne for aktiviteten ved universitetene, og at vi glemmer hvordan vi skal formidle vitenskap til dem som skal løse de globale utfordringene, nemlig morgendagens forskere. Her har nok Boulton satt fingeren på noe viktig. Også her på instituttet har vi hatt en tendens til å fokusere faglige satsninger og utlysninger på forskningen vi ønsker å få gjort, ikke på undervisningen vi skal gjøre.

Derfor er det viktig å få frem at undervisningen ER viktig, og at våre undervisere og den jobben de gjør blir verdsatt. I kveld er det julefest, og prisen for Årets forelesere vil bli utdelt.

Også måten vi legger opp studieløpet på er viktig i denne sammenheng, og en viktig prosess som vi er i gang med er å revidere masterprogrammene våre. Samtidig blir det spennende å følge det første kullet i det nye bachelorprogrammet inn i et vår- og høstsemester med helt nye undervisningsemner, der de møter biologien på en ny måte.

Forhåpentligvis klarer vi å inspirere nye generasjoner til å undersøke hvordan ting henger sammen.

Vel møtt på julefesten!

Hilsen Anders



Ukens bilde



Acacia tortilis ssp raddiana

Fotograf: **Gidske Andersen**

Akkurat nå mens høststormer her/der hjemme er [ACACIA prosjektet](#) på feltarbeid i den østlige ørken i Egypt. Prosjektet studerer isolerte *Acacia tortilis* populasjoner i Maaza (Geitefolkets) territorium vest av Hurgada.

You are invited to submit photos (electronically!) for "Ukens bilde". Please include a very short description and credit information. Picture can be of researchers / students in action, technology, organisms, field sites ... Please send your pictures to bio.info@bio.uib.no

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BIO-info

Nyheter fra Institutt for biologi

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[Facebook BIO](#) [Facebook STIM](#) [Facebook UiB](#)

VIKTIG INFORMASJON

Retningslinjer for GMO-arbeid

Viktig info om arbeid med GMO (genmodifiserte organismer)

All bruk av GMO må meldes til Helsedirektoratet med kopi til administrasjonssjefen. Hvordan dette skal gjøres er beskrevet i internkontrollretningslinjene for arbeid med GMO som er lagt ut på BIOs [HMS-side](#). Inkludert på siden er Organismeliste og to eksempler på utfylling av meldeskjema.

HVA SKJER?

Disputaser og mastereksamener

Dato	Handlinger, navn	Tid og sted
	Prøveforelesning	
9.12.2011	Disputas - Arguitxu de la Riva-Caballero	Kl. 10:15, Auditorium 3, Realfagbygget
9.12.2011	Avsluttende mastergradseksamen - Steffen Hagestelle Blindheim	Kl 10:15, Lite Auditorium datablokken, HIB
9.12.2011	Avsluttende mastergradseksamen – Sharat Chandra Tumu	Kl 11:15, Seminarrom K1, Biobyggene

NYHETER FRA BIO

Utrolige fuglesvermen, gruppevis epost-lister, new UiB medical centre



Se den utrolige fuglesvermen

Liberty Smith og Sophie Windsor Clive var på kanotur på en elv sørvest i Irland, da tusenvis av stær svermet sammen over dem. - En spektakulær video, sier norsk fugleekspert, **Arild Breistøl**. Les mer fra [VG](#). Se [videoen](#).

New Medical Centre for students and international employees

A new Medical Centre at Vektortorget will offer emergency treatment to UiB's students and international employees who do not have their own family doctor in Bergen. The new Medical Centre will open on 2nd January, 2012 and will also offer a GP service. [Learn more](#). Les mer [på norsk](#).

BIO-info

Nyheter fra Institutt for biologi

Gruppevis epost-lister

Basert på informasjon i personaldatabasen er det nå laget en side på internwebben der gruppedlemmers epost er listet per gruppe. Disse kan merkes, klippes ut og limes inn i til-feltet.

Lenken finnes på siden 'Hvem hva hvor' som 'Epost-lister for ulike grupper' og på siden 'Gruppene medlemmer' som 'Epostlister for gruppene'. Url til siden: http://biologi.uib.no/pages/email_grupper.php



Evaluation of Biology, Medicine and
Health Research in Norway (2011)
Report of the Principal Evaluation Committee



Føler det som en oppreisning

Professor i Fiskehelse **Are Nylund** ved UiB er svært godt fornøyd med evalueringen fra Forskningsrådet. Der ble forskningen til fiskehelsemiljøet ved Biologisk Institutt/UiB rangert som den beste fiskehelseforskningen i Norge. – Dette oppleves også som en oppreisning for oss etter de harde beskyldningene vi ble utsatt for tidligere i år, sier han. Les mer fra kyst.no

Tidligere artikkelen i kyst.no

Evaluering av biologisk, medisinsk og helsefaglig forskning i 2011 Les mer fra Forskningsrådet



Saltsjøer av muligheter

Lise Øvreås sier til På Høyden at i Etiopias saltsjøer finnes det enorme muligheter, men livet i sjøene er truet. Med hjelp fra UiB håper University of Addis Ababa å lære hvordan de kan utnytte og sikre ressursene. Les mer fra På Høyden.



Building a new professional student union

Students enrolled in Fish Health and Aquaculture at BIO have confronted their need for more information by deciding to establish their own student union (linjeforeninga). Eight enthusiastic, engaged young people in years 1-4 of the 5-year programmes have established a Board. In addition they have established two working groups: one interfacing with industry, the other responsible for events. [Read more](#). Contact the group for more information: lfh@bio.uib.no



Summer research cruise highlights petroleum potential

The last part of this summer's CGB research cruise surveyed some of Jan Mayen's unique geology using some of the latest technologies. Some of the samples recovered included rock types that have been found to be petroleum-bearing in other locations. Read more from [Offshore](#), [Stocklink](#) and from [VG](#). This information was also presented on NRK.

BIO employee experiences Teacher's Day – a Vietnamese tradition

Once a year Vietnamese students and pupils honor their teachers by giving gifts, arranging concerts, making them dinner and so on. While on sabbatical in Vietnam this year BIO's Glenn Bristow receives flowers from one of his Vietnamese Master students.



BIO-info

Nyheter fra Institutt for biologi

40 år med norsk-vietnamesisk diplomatisk samarbeid

I forbindelse med 40-årsjubileet for norsk-vietnamesisk samarbeid inviterte den norske ambassaden til et seminar i Hanoi fredag 25. november der forskning og høyere utdanning var ett av to fokusområder. Chargé d'affair Ragnhild Dybdahl (bildet øverst) uttalte at aktiviteten innenfor forskning og høyere utdanning var svært viktig og betydelig mer omfattende enn hun hadde trodd da hun begynte i stillingen for et halvt år siden. Mange BIO-ansatte har deltatt i prosjekter med Vietnam siden begynnelsen av 2000-tallet, og snart har 28 vietnamesiske hovedfags-/masterstudenter og 8 doktorgradskandidater fullført sine grader ved UiB. I tillegg kommer en rekke grader oppnådd i Vietnam. Samarbeidet har også hatt viktig utbytte for havbruksindustrien i Vietnam, ikke minst ved utvikling av den første vietnamesiske fiskehelsevaksinen. Fra BIO var Glenn Bristow og Elisabeth Müller Lysebo representert på jubileumsseminaret. På det nederste bildet er Glenn sammen med rektor Mr Xung, viserektor for utdanning Mr Trung, Mr Dung fra Nha Trang-universitetet og to kolleger fra UiT.



Disputas Arguitxu de la Riva-Caballero: Midd forteller spennende klimahistorier

Arguitxu de la Riva-Caballero disputerer fredag 9. desember for ph.d.-graden med avhandlingen "Oribatid mites in a changing world"

Veiledere: Torstein Solhøy, Hillary H. Birks, Lita G. Jensen
Bedømmelseskomite: Professor Heinrich Schatz, Institut für Ökologie, Leopold Franzens Universität Innsbruck, Austria, Professor Desmond B.A. Thompson, Scottish National Heritage, UK, Associate Professor Anne Karin Hufthammer, University of Bergen
Tid og Sted: kl. 10.15, Auditorium 3, Realfagbygget, Allègaten 41
Alle interesserte er velkommen



Avsluttende mastergradseksamen

Steffen Hagestelle Blindheim: Expression of foreign genes in vitro and in vivo by recombinant Salmonid alphavirus subtype 3

Steffen H. Blindheim holder fredag 9. desember avsluttende presentasjon av sin masteroppgave i Fiskehelse

Veileder: Are Nylund

Sensor: Stein Mortensen, Havforskningsinstituttet, Bisitter: Rune Waagbø, NIFES

Tid og Sted: Fredag 9. desember, kl. 10:15, Lite Auditorium, datablokken, HIB

Alle interesserte er velkommen.

Avsluttende mastergradseksamen

Sharat Chandra Tumu: The protection afforded by the outer lectin layer to procercooids of *Schistocephalus solidus* during passage through the stomach lumen of their vertebrate host (*Gasterosteus aculeatus*).

Sharat Chandra Tumu holder fredag 9. desember avsluttende presentasjon av sin masteroppgave i Biologi, Celle- og utviklingsbiologi

Veileder: Jon Vidar Helvik, Fabian Rentzsch

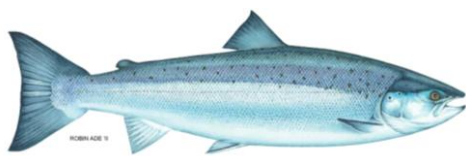
Sensor: Ståle Ellingsen, NIFES Bisitter: Tom Klepaker

Tid og Sted: Fredag 9. desember, kl. 11:15, Seminarrom K1, 1. etasje, Biobyggene

Alle interesserte er velkommen

ANDRE NYHETER

Villaks eller oppdrettslaks? commercialising research results



Villaks eller oppdrettslaks? – Oversendelse av informasjonsplakat

Rømt oppdrettslaks er en trussel mot villaksbestandene. Derfor har både politiske myndigheter, forvaltning og næring en 0-visjon for rømming. Kunnskapssenter for laks og vannmiljø (KLV) har utarbeidet en plakat med økonomisk

støtte fra Fiskeridirektoratet. [Download plakat.](#)



Norwegian R&D data in English

An abridged English version of the 2011 Report on Science and Technology Indicators for Norway has been published, to provide an international audience with the most up-to-date data on Norwegian research and innovation. [Read more](#)

International focus on the northern areas

There is a new white paper on the High North. Knowledge, activity and presence are the key words that will guide Norway's activities in the Arctic and northern areas in the coming decades. [Learn more.](#)

An eye for commercialising research results

In the university city of Bergen, the prevailing view is that world-class products, services or companies may just as easily spring from the brainpower of local researchers as from anywhere else.

With this in mind, [Bergen Teknologioverføring \(BTO\)](#) scans the city's research community in search of clever ideas and research results with potential value. There seems to be no shortage of exciting candidates. [Read more.](#)



Fra På Høyden

Energi på timeplanen

Ledelsen anbefaler å opprette to nye mastergrader ved Det Matematisk-naturvitenskapelige fakultet (MN) i 2012. Dermed kan kjernekraft og CO2-håndtering bli nye studieretninger. [Les mer](#)

Læringscenter for 40 millioner

Med integrert bibliotek skal Realfagbygget forvandles til et fremtidsrettet læringscenter. – Vi vil lage det mest moderne som er å oppdrive, sier fakultetsledelsen. Her er planene! [Les mer](#)

EUs neste forskningsprogram og UiB

Europakommisjonen legger i disse dager siste hånd på det som skal bli forslaget til EUs 8. rammeprogram for forskning, Horizon 2020. Det er tidligere foreslått at Horizon 2020 skal få et budsjett på 80 milliarder euro i perioden 2014-2020. [Les mer](#)

BIO-info

Nyheter fra Institutt for biologi

Innovasjon på topp

Innovasjon står øverst på agendaen i EUs 8. rammeprogram når EU-kommisjonen legger frem sitt offisielle forslag onsdag. – Forskning må i større grad resultere i noe anvendbart, sier direktør Sverre-Åge Dahl ved FA. [Les mer](#)

Styrene må ta ansvar

Midlertidigheten i UH-sektoren skal ned. Statsråd Tora Aasland sier det er styrene sitt ansvar, men de må selv finne ut hvordan de skal klare oppgaven. [Les mer](#)



Scitable

Scitable is a free science library and personal learning tool brought to you by Nature Publishing Group, the world's leading publisher of science.

Scitable currently concentrates on genetics and cell biology, which include the topics of evolution, gene expression, and the rich complexity of cellular processes shared by living organisms. Scitable also offers resources for the budding scientist, with advice about effective science communication and career paths. [Learn more.](#)

Ocean Yearbook Volume 27 – Call for Papers

Articles on issues and prospects, ocean governance, living resources of the ocean, non-living ocean resources, transportation and communications, environment and coastal management, maritime security, military activities, regional developments, training and education and ocean polar issues will be considered. Deadline: March 31, 2012. [More information.](#)

Ocean Yearbook 2012 Student Prize

The Ocean Yearbook has an annual competition for students writing research papers on marine affairs subjects. Deadline: May 15, 2012. [More information](#)

Newsletters

[CICERO](#) [Etikk i praksis / Nordic Journal of Applied Ethics](#)

NYE UTLYSNINGER

Mer info om utlysninger inkl. løpende, dvs. uten frister finner du [her](#)

Husk å sende søknadsutkastet til post@bio.uib.no 1 uke i forveien (gjelder ikke mindre bevilgninger som legater og fonds)

[Horizon 2020 er lansert; Ecology course](#)

Horizon 2020 er lansert

Europeiske forskere skal bruke mer tid i laboratoriene og mindre tid på å fylle ut papirer, sa EUs kommissær for forskning og innovasjon, Maire Geoghegan-Quinn, da hun lanserte Horizon 2020 i dag. [Les mer](#)

Kurs

Mer info om kurs finner du [her](#).

Nursery grounds ecology course May 2012

In 2009 this course was offered at IMR. For 2012 a new edition of the course is planned. This time the course will be held in Portugal ([CIIMAR, Porto](#)) with a similar [content as the previous edition](#), from the 14th- 27th May. The deadline to apply is on January 31st 2012. [Poster](#). For more information contact Rita.Guillot@bio.uib.no

BIO-info

Nyheter fra Institutt for biologi

Marine Biology Courses Elba Island 2012

HYDRA Institut für Meereswissenschaften announces its 2012 Marine Biology course program at their institute's field station on Elba Island / Italy. [Apply for the course.](#)



In addition from mid-August HYSDRA also offers a Curriculum on SCUBA diving as a scientific method in cooperation with the University of Tübingen (Germany). Two Course Combinations, "Basic Field Course" and "Advanced Field Course" are available, including the award of credit points. [Learn more and register.](#) Course [poster.](#)

Amgen Scholars Programme 2012

Through the Amgen Scholars Programme, every summer 75 undergraduates from across Europe have the opportunity to participate in research projects at the University of Cambridge, LMU Munich, and the Karolinska Institute. Participants also have a chance to attend a symposium about biotechnology, and hear from leading scientists in industry and academia. [Learn more](#)
Applications are now being accepted for the 2012 Summer Programme.

Application Deadline: February 1, 2012

KOMMENDE MØTER OG SEMINAR

Mer info om kurs, møter, seminar og arrangement etc finner du [her](#).

[Hjernekart](#), [confocal course](#), [fremtidens fiskerinæring](#), [carbon capture & storage](#)



INN Club Christmas Meeting

We would like to welcome you to this year's Christmas meeting with a lecture and a taste of Norwegian Christmas food.

Wednesday 7 December, 1730 – 1930

Klubben, Olav Kyrresgt. 11, 3rd floor

In this meeting we will listen to James Hosea, with his lecture: Culture shock Norway: What have I let myself in for? After the speech there will be time to enjoy the Norwegian Christmas food, and we also offer a dish for vegetarians. Please register within 5 December, using the form below, or write an email to gunn.fossen@bergen-chamber.no

Hjernekart – vitenskapsteoretisk seminar om kartlegging av mentale funksjoner i hjernen

Sted: Senter for vitenskapsteori, Allégaten 34, Seminarrommet, 3. etasje.

Tid: Tirsdag 13. desember 10:15-16:00

Møtet er åpent for alle interesserte. [Les mer.](#)

Påmelding til judith.larsen@svt.uib.no (mrk: "Hjernekart") innen mandag 12. desember kl. 10:00



8th MIC confocal course

The course is aimed at those of you who want to learn how to use a confocal microscope and will help you get started in the field of confocal imaging either you use the equipment at MIC or at your local institution. Some previous experience in confocal microscopy is clearly an advantage but not required.

MIC has 3 confocal systems: Leica SP5 (AOBS) and Zeiss LSM 510 META.

You will be introduced to one of the systems depending on your preference indicated on the registration form.

When? Week 5: Tues 31.01 - Fri 03.02 2012

Where? Molecular Imaging Center, Inst. of Biomedicine, Jonas Lies vei 91, 5009 Bergen

Course fee? 4.500,- (incl. dinner one evening and one lunch)

The course has limited capacity of 18 participants and registration deadline is 16th of Dec.

[More information and registration.](#)

Fremtidens fiskerinæring – fangsteffektiv, energikøkonomisk og bærekraftig

Tid: Mandag 5. desember 2011, kl. 1500-1800

BIO-info

Nyheter fra Institutt for biologi

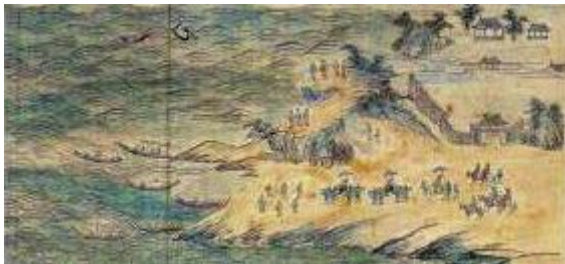
Sted: Grand Selskapslokaler i Bergen. Nedre Ole Bulls Plass
Gratis deltakelse, men påmelding til nybo@sjomat.no

Fiske og fangst fra havet har i uminnelige tider vært bærebjelken og livsgrunnlaget for bosettingen langs norskekysten. Samtidig har knapt noen av øvrige tradisjonelle næringene i Norge gjennomgått tilsvarende teknologiske utvikling, rasjonalisering og omstrukturering som det fiskeriene har gjort de siste 100 år. I den samme perioden er det bygget opp et verdensledende forskningsmiljø og forvaltningsapparat for å sikre en optimal og bærekraftig beskatning av ressursgrunnlaget. Men utviklingen er ikke over, verken når det gjelder fangstteknologi, bestandsovervåking eller forvaltning.

- Hva gjenstår før vi har full oversikt over fiskeressursene?
- Vil fiskeriflåten bli en integrert del av ressursovervåkingsapparatet?
- Hva er hovedtrendene for dagens teknologiutvikling innen overvåking og fangst?
- Hva er fiskerinæringens CO2 avtrykk i dag og i fremtiden?
- Hvor står norsk havforskning og fiskeriforvaltning i det internasjonale bildet?
- Hvordan skal fiskefartøyene se ut om 20 år, og hvordan kommer vi dit?

Miljøgiftkonferansen 2012 –18. januar 2012

Hovedtema på konferansen er: Hva skal til for å stanse utslipp av helse- og miljøskadelige kjemikalier innen 2020? Hva trengs av forskning, virkemidler og organisering?
Konferansen finner sted onsdag 18.januar 2012 i Klima- og forurensningsdirektoratets lokaler på Helsefyrtårnet og er gratis. [Mer informasjon](#) om programmet og påmelding.



Effects of climate change on the world's oceans

This is just to remind you that we have only 3 weeks left prior to the early registration and abstract submission deadline (December 15) for the [Second International Symposium on "Effects of climate change on the world's oceans"](#) to be held as one of the official events related to Expo-2012 in Yeosu Korea.

The main Symposium will be convened from May 15 (Tuesday) to May 19 (Saturday). There are also a variety of interesting concurrent workshops both the day before (May 14, Monday) and day after (May 20, Sunday) after the main symposium. Information on the [scientific program](#) and [schedule](#).

4th Carbon Capture & Storage Summit

Demonstrating a Low-Carbon Future through Commercially Viable CCS
ACI is delighted to announce the release of the agenda for the 4th Carbon Capture & Storage Summit taking place on 16-17 May 2012 in Düsseldorf, Germany. [Learn more](#).



NEW TECHNOLOGIES FOR A BLUE FUTURE

The 3rd [Marine Board Forum](#) is designed to examine emerging or future "Blue Technologies". In this case, blue technologies are those technologies which will either be used in, or drawn from, the seas and oceans and which should

have the potential to make a step-changing contribution to science and society.

The Forum will take place in the centre of Brussels, at the [Royal Flemish Academy of Belgium for Sciences and the Arts](#) (Hertogsstraat 1, 1000 Brussels), on Wednesday 18 April 2012.

Registration is open. As places are limited, registration will be confirmed on 'first come first served' basis.

Open call for flash presentations (5-10 minutes on future "Blue Technologies") deadline: 16 January 2012.

LEDIGE STILLINGER

Mer info finner du [her](#). Stillinger utlyst på BIO finner du nederst til høyre på instituttets [nettside](#).

NYE ARTIKLER

***A full listing of BIO's ISI publications can be found on BIO's internal web pages. [Click here](#)

Grotmol; Kryvi; Krossøy; Totland; Wang; Birks HJB; Birks HH; Telford;

Sagstad A, **Grotmol S**, **Kryvi H**, **Krossøy C**, **Totland G.K**, Malde K, **Wang S**, Hansen T, Wargelius A (2011) Identification of *vimentin*- and *elastin*-like transcripts specifically expressed in developing notochord of Atlantic salmon (*Salmo salar* L.). Cell and Tissue Research, 346:191-202.

Abstract: The notochord functions as the midline structural element of all vertebrate embryos, and allows movement and growth at early developmental stages. Moreover, during embryonic development, notochord cells produce secreted factors that provide positional and fate information to a broad variety of cells within adjacent tissues, for instance those of the vertebrae, central nervous system and somites. Due to the large size of the embryo, the salmon notochord is useful to study as a model for exploring notochord development. To investigate factors that might be involved in notochord development, a normalized cDNA library was constructed from a mix of notochords from ~500 to ~800 day⁰. From the 1968 Sanger-sequenced transcripts, 22 genes were identified to be predominantly expressed in the notochord compared to other organs of salmon. Twelve of these genes were found to show expressional regulation around mineralization of the notochord sheath; 11 genes were up-regulated and one gene was down-regulated. Two genes were found to be specifically expressed in the notochord; these genes showed similarity to *vimentin* (acc. no GT297094) and *elastin* (acc. no GT297478). In-situ results showed that the *vimentin*-like transcript was expressed in both chordocytes and chordoblasts, whereas the *elastin*-like transcript was uniquely expressed in the chordoblasts lining the notochordal sheath. In salmon aquaculture, vertebral deformities are a common problem, and some malformations have been linked to the notochord. The expression of identified transcripts provides further insight into processes taking place in the developing notochord, prior to and during the early mineralization period.

Giesecke, T. Bennett, K. D. **Birks, HJB**, Bjune, A. E. Bozilova, E. Feurdean, A. Finsinger, W. Froyd, C. Pokorny, P. Rosch, M. Seppa, H. Tonkov, S. Valsecchi, V. Wolters, S. (2011) The pace of Holocene vegetation change - testing for synchronous developments. Quaternary Science Reviews 30:2805-2814

Abstract: Mid to high latitude forest ecosystems have undergone several major compositional changes during the Holocene. The temporal and spatial patterns of these vegetation changes hold potential information to their causes and triggers. Here we test the hypothesis that the timing of vegetation change was synchronous on a sub-continental scale, which implies a common trigger or a step-like change in climate parameters. Pollen diagrams from selected European regions were statistically divided into assemblage zones and the temporal pattern of the zone boundaries analysed. The results show that the temporal pattern of vegetation change was significantly different from random. Times of change cluster around 8.2, 4.8, 3.7, and 1.2 ka, while times of higher than average stability were found around 2.1 and 5.1 ka. Compositional changes linked to the expansion of *Corylus avellana* and *Alnus glutinosa* centre around 10.6 and 9.5 ka, respectively. A climatic trigger initiating these changes may have occurred 0.5 to 1 ka earlier, respectively. The synchronous expansion of *C. avellana* and *A. glutinosa* exemplify that dispersal is not necessarily followed by population expansion. The partly synchronous, partly random expansion of *A. glutinosa* in adjacent European regions exemplifies that sudden synchronous population expansions are not species specific traits but vary regionally.

Holmes N, Langdon PG, Caseldine C, Brooks SJ, **Birks HJB** (2011) Merging chironomid training sets: implications for palaeoclimate reconstructions. *Quaternary Science Reviews* 30:2793-2804

Abstract: Icelandic and Norwegian chironomid calibration or training sets were merged to investigate whether a larger combined training set would be useful to apply to subfossil chironomid data from Iceland for periods such as the early Holocene, the Holocene Thermal Maximum and the Little Ice Age, when temperatures can be expected to be outside the current temperature range of the Icelandic training set. Following taxonomic harmonisation, the Icelandic and Norwegian data sets were compared before being merged to form a combined Norwegian-Icelandic training set. Analyses showed that it was biologically and statistically valid to merge the two data sets. The resulting combined inference model for mean July air temperature had improved performance statistics ($r(\text{jack})(2) = 0.87$; $\text{RMSEP}(\text{jack}) = 1.13$) when compared to the best performing Icelandic model ($r(\text{jack})(2) = 0.61$; $\text{RMSEP}(\text{jack}) = 0.83$), due to the longer environmental gradient covered (Icelandic 6-11 degrees C; combined 3.5-16 degrees C), and to the increased number of samples (Icelandic = 53 lakes; combined = 207 lakes) and taxa (Icelandic = 47 taxa; combined = 133 taxa) present within the combined training set. The inference models were applied to an early Holocene chironomid sequence from Vatnamyri, north Iceland, and a 450-year recent record from Myfluguvatn, north-west Iceland, to compare the reconstructions produced. The various inference models produced similar trends and patterns of temperature reconstruction, but the inference model based on the combined training set produced a larger range of reconstructed temperatures than the Icelandic model. It was found that different inference models produced more variation in the reconstruction than when different training sets were used. A comparison of the Myfluguvatn reconstructions with meteorological observations showed that the combined Norwegian-Icelandic inference model produced more reliable results than the Icelandic or Norwegian inference models alone.

Mortensen, M. F. **Birks, HH**, Christensen, C, Holm, J, Noe-Nygaard, N, Odgaard, B.V, Olsen, J, Rasmussen, K. L. (2011) Lateglacial vegetation development in Denmark - New evidence based on macrofossils and pollen from Slotseng, a small-scale site in southern Jutland. *Quaternary Science Reviews* 30:2534-2550

Abstract: This paper presents the first unambiguous terrestrial palaeoecological record for the late glacial "Bolling warming" in Denmark. Pollen and macrofossil stratigraphies from pre-Bolling to 10,800 cal yr BP are presented from a small kettle hole in Southwest Denmark, during which the lake basin developed from an immature stage after the deglaciation to complete infilling in the early Holocene. Results show that the recently deglaciated landscape bore a discontinuous vegetation of pioneer plants. After the Bolling warming, an open *Dryas octopetala*-*Betula nana* community developed with *Helianthemum oelandicum*. Subarctic species were dominant and local successions were probably delayed by relatively unstable and infertile soils. There is no indication of a climate cooling during the period corresponding to the Older Dryas, but the occurrence of several drought tolerant and steppe species indicates that the period was relatively dry. In the Allerod period the *Dryas-B. nano* vegetation was initially replaced by an open *Salix* and grass dominated vegetation and some 400 years later, the first tree birches were documented presumably occupying moist and sheltered soils while drier land remained open. In the Younger Dryas period trees disappeared and the vegetation became open again and dominated by subarctic species. Following climate warming at the Younger Dryas-Holocene transition a shrub community of *Empetrum* and *Juniperus* developed. After approximately 200 years it was replaced by birch forest. Overall, the late-glacial vegetation cover had a more open and patchy character than inferred from previous pollen studies as assessment of the vegetation succession based on macrofossil evidence is essential. The inferred general vegetation development corresponds well with results of other studies in the region. Canonical ordinations (RDA) indicate that vegetation changes at the landscape scale during the Lateglacial period were driven by changes in climate, soils and competition for light.

Perner K, Moros M, Lloyd JM, Kuijpers A, **Telford RJ**, Harff J (2011) Centennial scale benthic foraminiferal record of late Holocene oceanographic variability in Disko Bugt, West Greenland. *Quaternary Science Reviews* 30:2815-2826

Abstract: A new centennial scale benthic foraminiferal record of late Holocene climate variability and oceanographic changes off West Greenland (Disko Bugt) highlights substantial subsurface water mass changes (e.g. temperature and salinity) of the West Greenland Current (WGC) over the past 3.6 ka BP. Benthic foraminifera reveal a long-term late Holocene cooling trend, which may be attributed to increased advection of cold, low-salinity water masses derived from the East Greenland Current (EGC). Cooling becomes most pronounced from c. 1.7 ka BP onwards. At this point the calcareous Atlantic benthic foraminiferal fauna decrease significantly and is replaced by an agglutinated Arctic fauna. Superimposed on this cooling trend, centennial scale variability in the WGC reveals a marked cold phase at c. 2.5 ka BP, which may correspond to the 2.7 ka BP cooling-event recorded in marine and terrestrial archives elsewhere in the North Atlantic region. A warm phase recognized at c. 1.8 ka BP is likely to correspond to the 'Roman Warm Period' and represents the warmest bottom water conditions. During the time period of the 'Medieval Climate Anomaly' we observe only a slight warming of the WGC. A progressively more dominant cold water contribution from the EGC on the WGC is documented by the prominent rise in abundance of agglutinated Arctic water species from 0.9 ka BP onwards. This cooling event culminates at c. 0.3 ka BP and represents the coldest episode of the 'Little Ice Age'. Gradually increased influence of cold, low-salinity water masses derived from the EGC may be linked to enhanced advection of Polar and Arctic water by the EGC. These changes are possibly associated with a reported shift in the large-scale North Atlantic Oscillation atmospheric circulation pattern towards a more frequent negative North Atlantic Oscillation mode during the late Holocene.