

## Fra toppen!

### Vel overstått!

«Vel overstått sommer» gjelder vel for de aller fleste - bortsett fra de av oss som fortsatt har litt igjen av ferien. En sommer som stort sett har gått rolig for seg, og som forhåpentlig har gitt tid og anledning til å koble av og lade batteriene for et nytt semester og et nytt akademisk år.

BIO-info begynner også rolig, med informasjon av ulikt slag som har hopet seg opp over sommeren. Snart braker det løs med nye studentkull, forelesninger, feltkurs m.m. Vi skal holde dere oppdatert.



Sommerlig hilsen Anders

### Ukens bilde



### Naturens ansikt

Fotograf: Arne Koldingsnes

*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](mailto:bio.info@bio.uib.no)*

# Innhold:

Faste lenker:	3
<b>VIKTIG INFORMASJON</b>	<b>3</b>
Tilgang til fellesinstallasjoner ved BIO og ILAB; Kompetanseprogrammet HMS på laboratoriet; Semesterstart; NFR søknader;	3
<b>BIO-arrangement kommende uke</b>	<b>3</b>
<b>NYHETER OG GENERELL INFORMASJON</b>	<b>4</b>
Prøveforelesning Bishnu Prasad; Språkkurs for ansatte ved UiB – høsten 2012; PhD avhandlingen til Heidi Saure fikk mye oppmerksomhet;	4
<b>Høringssaker</b>	<b>6</b>
Policy for innovasjon i offentlig sektor; Forvaltningplan Nordsjøen og Skagerak; Høstingsskog og ålegraseng; Dåapma nasjonalpark;	6
<b>NYE UTLYSNINGER</b>	<b>6</b>
SIUs Eurasia program; Stipend til forskerutveksling med Tyskland; BiodivERSA; Draft NORHED; Latin Amerika programmet; Yggdrasil;	7
<b>KOMMENDE MØTER OG SEMINAR</b>	<b>8</b>
Academy of Europe Annual Conference in Bergen; MCB course on scientific publishing; Seminar om forskningsetikk; Symposium on Biodiversity technologies, Oxford; Infomøte ITN, Oslo; ++	8
<b>LEDIGE STILLINGER</b>	<b>9</b>
<b>NYE ARTIKLER</b>	<b>9</b>
Haberle; Birks; Fiksen;Klanderud; Meager; Fernö; Skjæråsen; Rodewald; Sverdrup; Mayer; Mangel; Kapfer; Grytnes; Rønneseth; Haugland; Wergeland; Heuschele; Banya; Solhøy; Castellani; Thompson; Glenner;	9

# BIO-info

## Nyheter fra Institutt for biologi

Faste lenker:

[BIO-info arkiv](#) [Sakslistor & referater](#) [BIOs interne websider](#) [BIO's eksterne websider](#)  
[Facebook BIO](#) [Facebook STIM](#) [Facebook UiB](#)

## VIKTIG INFORMASJON

Tilgang til fellesinstallasjoner ved BIO og ILAB; Kompetanseprogrammet HMS på laboratoriet; Semesterstart; NFR søknader;

### **Søknad om plass på forskningsinstallasjoner ved BIO og innenfor driftsavtalen UiB/ILAB.**

Høstsemesteret 2012: Søknadene må være de respektive ansvarlige i hende **innen 20 august**. (Søknadsfrist vårsemesteret 24 januar). Søknadskjema med instruksjer kan lastes ned [her](#):

Alle som arbeider med forsøksdyr skal ha godkjent kurs i forsøksdyrlære, dette gjelder også masterstudenter. Planlagte kurs for forskere, teknikere og masterstudenter finner du [her](#):

Søknader til forsøksdyrutvalget, om tillatelse til å utføre forsøk med dyr, bør være innsendt 3 måneder før forsøkstart.

Frank Midtøy  
Ansvarshavende for forsøk med dyr

### **Kompetanseprogrammet HMS på laboratoriet**

HMS-seksjonen arrangerer annethvert år kompetanseprogrammet HMS på laboratoriet. Programmet er satt sammen av ulike dagskurs som er spesielt rettet mot ansatte som jobber på laboratorium.

Overordnet målgruppe er alle ansatte med laboratoriet som arbeidsplass. Nytilsatte oppfordres spesielt til deltakelse. Enkelte dagskurs er også aktuelle for PhD- og masterstudenter.

Programmet tilbys i uke 39-40 og påmeldingsfrist er **fredag 31. august 2012**.

For mer informasjon og påmelding se [HMS-portalen](#):

### **Studentene kommer - semesterstart uke 33!**

Mandag 13. august starter de nye studentene semesteret, og BIO tar i mot 139 nye studenter på lavere grad høsten 2012. Mye av aktiviteten i første uken er på Realfagbygget, men vi vil også se de nye studentene på BIO i løpet av uken.

Tirsdag 14. august kl. 13:00 på Muséplass blir det akademiske året høytidelig åpnet av UiB-ledelsen. Alle ansatte og studenter ved UiB er hjertelig velkomne på seremonien. Du kan lese mer [her](#).

Onsdag 15. august tar vi i mot de nye masterstudentene ved instituttet. 40 studenter har så langt takket ja til studieplass på våre masterprogram.

Vi håper alle tar godt i mot våre nye studenter!

### **Søknader til NFRs hovedfrist 5 september**

Husk å sende søknadsutkastet til [post@bio.uib.no](mailto:post@bio.uib.no) 1 uke i forveien.

Se listen over alle NFRs aktive utlysninger [her](#)

## BIO-arrangement kommende uke

Dato	Handlinger, navn	Tid og sted
14.08	Prøveforelesning Bishnu Prasad Regmi	15:15, Seminarrom K1, Biologen

### NYHETER OG GENERELL INFORMASJON

Prøveforelesning Bishnu Prasad; Språkkurs for ansatte ved UiB – høsten 2012; PhD avhandlingen til Heidi Saure fikk mye oppmerksomhet;

#### **Bishnu Prasad Regmi - PhD Forelesning: "Biomanipulation in lakes and their cascading effects"**

Bishnu Prasad Regmi vil tirsdag 14. august holde forelesning over oppgitt emne for PhD graden.

Tid og sted: Tirsdag 14. august kl. 14:15, Seminarrom K1, Biobyggene

Bedømmelseskomite: Jeppe Kolding, Arne Johannessen, Per J. Jacobsen

Alle interesserte er velkommen

#### **Språkkurs for ansatte ved UiB - høsten 2012**

Personal- og organisasjonsavdelingen tilbyr ulike kurs i språk for ansatte, og har satt opp en foreløpig kursplan for høsten:

**22.-21. august:** Kurs i engelsk for ledere og personalmedarbeidere. (fulltegnet)

**3. september:** Oppstart av kveldskurs i akademisk engelsk for vitenskapelig ansatte, som går over 13 kurskvelder.

**16. oktober:** «I klartekst», kurs i å skrive klart og godt på norsk.

**23. oktober:** «I klartekst», kurs i å skrive klart og godt på norsk.

**25.-26. september:** Engelskkurs for administrativt ansatte ved UiB, todagers kurs.

**27.-28. november:** Workshop i akademisk engelsk for ph.d.-kandidater, todagers kurs.

All kursinformasjon med påmeldingslenker vil bli lagt ut fortløpende på intranett og på Personal- og organisasjonsavdelingens nettsider (i kalenderen). (<http://www.uib.no/poa>)

Det vil også komme tilbud om kurs i nynorsk, men her er ikke datoene fastsatt enda. Kursene er åpne for alle ansatte, så fremt ikke noe annet er spesifisert. Vi håper dere vil viderefremme kursplanen til aktuelle ansatte.

Flere kurs kan planlegges ved behov, og hvis det er avdelinger/fakulteter/institutter som har ønsket om skreddersydde kurs for sine ansatte, kan de gjerne ta kontakt med Ellen M. Grong ved Personal- og organisasjonsavdelingen. Se også nettsiden [www.uib.no/sprak](http://www.uib.no/sprak) for informasjon om andre språkressurser.



#### **Phd avhandlingen til Heidi Iren Saure om sitkagran fikk mye oppmerksomhet**



Heidi Iren Saure disputerer tysdag 12. juni for ph.d.-graden ved Universitetet i Bergen med avhandlingen: "Impact of native and introduced coniferous species on biodiversity in semi-natural coastal vegetation, western Norway". Hennes historie er et eksempel på at konklusjoner fra en avhandling kan få umiddelbare konsekvenser for politisk praksis. Hun skriver:

«Eg har fått ein del merksemd frå media etter at eg sende ut pressemeldinga om at eg har forska på effektar på biodiversitet når sitkagran spreier seg inn i norske kystlyngheier (sjå lenkje med pressemelding/samandrag av arbeidet mitt:

[http://www.uib.no/info/dr\\_grad/2012/Saure\\_Heidi.html](http://www.uib.no/info/dr_grad/2012/Saure_Heidi.html)

Kort sagt, så finn eg ut at sitkagran som har spreidd seg ut i dei truga og verneverdige lyngheiene fører til at færre, og meir skuggetolande, artar veks under trea. Dersom sitkagrana får utvikle naturlege skogar må vi rekne med at det vert vanskelegare å få attende den karakteristiske lyngheivegetasjonen enn dersom den



# BIO-info

## Nyheter fra Institutt for biologi

heimlege furua etablerer seg i lyngheiene. Desse funna er viktige for skjøtsel av lyngheiene og eg føreslår at tiltak bør setjast inn for å fjern sitkagran i særleg verdfulle lynghei-lokalitetar.

Same dag som eg disputerte vart det kjent at sitkagran er plassert på Artsdatabanken si "Svarteliste" over framande artar. Mine resultat er tekne med i risikovurderinga av sitkagran (<http://databank.artsdatabanken.no/FremmedArt2012/N63774>). Sjå og [intervju med "På Høyden"](#):

Media interesserer seg for sitkagran fordi dette er eit framandt treslag i europeisk/norsk natur, og det er eit aukande problem at sitkagran spreier seg ut frå dei mange plantingane langs kysten vår (jf. artikkel i BT 12.juni, der eg bidreg med "ekspertkommentar"). Mange stader vert det sett inn ressursar for å fjerne sitkagran, men samstundes er sitkagran i dag høgaktuell som treslag i regjeringa si nye klimamelding; regjeringa føreslår å plante 1-5 millionar dekar med skog for å nå målsettinga om å redusere mengdene av drivstoffgassar i atmosfæren, og sitkagran er sær effektiv til å binde karbon (gjennom fotosyntesen). Dermed har vi ein openbar konflikt mellom ulike miljøsyn..(biodiversitet i lyngheiene vs. ev. reduserte klimagassutslepp).

Eg har gitt uttrykk for at det kan stillast spørsmål knytt til den totale klimaeffekten ved å plante skogar på våre breiddegrader (<http://www.bt.no/nyheter/lokalt/Gran-kan-oke-global-oppvarming-2719985.html>)

Nedanfor er samla ei liste over intervju og liknande i samband med dr.gradsarbeidet og prøvoførelesinga mi.

09.juni 2012: Intervju i lokalavisa Møre (Volda)

12.juni 2012: Avhandlinga mi er sitert i risikovurderinga av sitkagran, i samband med utgjevinga av "Fremmede artar i Norge, med norsk svarteliste" (Artsdatabanken), og kan lesast: <http://databank.artsdatabanken.no/FremmedArt2012/N63774>.

12.juni 2012: "Ekspertintervju" i BT (papiirutgåve) i samband med stort oppslag om fjerning av sitkagran på Fitjarøyane ("Kjempar mot statsstøtta sitkagran").

12.juni 2012 : "Gran kan øke global oppvarming". Nettartikkel i BT: <http://www.bt.no/nyheter/lokalt/Gran-kan-oke-global-oppvarming-2719985.html>

12.juni 2012: "Ubuden gjest tar over". Nettartikkel i På Høyden: <http://nyheter.uib.no/lib/utskrift.php?meldingstype=nyhet&id=51282&medium>"



Sitkagranplantasje



Sitkagran spreidd inn i lynghei i Øygarden

## The State of World Fisheries and Aquaculture 2012 – FAO Publication

### Highlights

World capture fisheries and aquaculture supplied about 154 million tonnes of seafood in 2011 (preliminary) up from 148 million tonnes in 2010 (value of US\$217.5 billion), of which about 131 million tonnes was utilized by human consumption.

Aquaculture accounts for approximately 41% of total production.

# BIO-info

## Nyheter fra Institutt for biologi

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World per capita food fish supply increased from an average of 9.9 kg (live weight equivalent) in the 1960s to 18.8 kg in 2011 (preliminary). World fish food supply continues to increase annually, with an average growth rate of 3.2 % per year in the period 1961–2009, outpacing population increase of 1.7% per year in the world's population.

Download a free copy [here](#):

### Marine Board 3rd Forum Event Message

[More info](#)

### Newsletters

[Norecopas nyhetsbrev nr. 6-2012](#)

[EurOcean Newsletter - 17 July 2012](#)

## Høringssaker

BIO mottar fra tid til annen saker til høring. Vi vil legge ut disse gjennom BIO-INFO. Hvis du ser saker her du ønsker å uttale deg om som vitenskapelig ansatt på BIO, ta kontakt med forskningskoordinator [Anne Fjellbirkeland](#).

Policy for innovasjon i offentlig sektor; Forvaltningplan Nordsjøen og Skagerrak; Høstingskog og ålegraseng; Dåpma nasjonalpark;



### Høring - innovasjon i offentlig sektor

Forskningsrådet ønsker innspill til utkastet til policy for innovasjon i offentlig sektor.

**Høringsfrist 20. august.**

[Les mer](#)

### Helhetlig forvaltningsplan for Nordsjøen og Skagerrak - skriftlige innspill

Vi viser til brev fra Miljøverndepartementet 22.06.12 om arbeidet med forvaltningsplanen for Nordsjøen og Skagerrak. Videre viser vi til [departementets temaside om hav og vannforvaltning](#)

**Frist for innspill: 5.09.12**

### Høring av forslag til forskrift og faggrunnlag for utvalgte naturtyper - høstingskog og ålegraseng

Vi viser til brev med vedlegg fra Direktoratet for naturforvaltning 22.05.12 med forslag om å gi naturtypene høstingskog og ålegraseng status som utvalgt naturtype. For faktagrunnlag og faktaark viser vi til [denne adressen](#)

Eventuelle merknader som sendes direkte til Direktoratet for naturforvaltning innen **fristen 31.08.12**, med kopi hit.

### Høring - Opprettelse av Dåpma nasjonalpark. Revidering av forskrifter for Tekssjøen naturreservat og Finnvollalen - Esplingdalen naturreservat

Vi viser til brev med vedlegg fra Fylkesmannen i Nord-Trøndelag og Fylkesmannen i Sør-Trøndelag 15.06.12 om opprettelse av Dåpma nasjonalpark og revidering av forskrifter for to naturreservat.

Saken sendes til orientering og for eventuell uttalelse **innen 24.09.12**. [Mer info](#)

## NYE UTLYSNINGER

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

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

SIUs Eurasia program; Stipend til forskerutveksling med Tyskland; BiodivERsA; Draft NORHED; Latin Amerika programmet; Yggdrasil;

### Utlysing av midlar innan Eurasia-programmet

SIU har nå lyst ut midlar til avgrensa samarbeid mellom høgere utdanningsinstitusjonar i Noreg og Eurasia-landa Armenia, Aserbajdsjan, Georgia, Kviterusland, Kasakhstan, Kirgisistan, Moldova, Tadsjikistan, Turkmenistan, Ukraina og Usbekistan. Målet er å bidra til fornying og internasjonalisering av høgere utdanning i desse landa, heve nivået på utdanninga der og auke det akademiske samarbeidet med dei.

Ein kan søkje støtte til:

- nettverksbygging/seminar/studiebesøk og *workshops*
- utvikling av fellesgrader, -kurs og -program
- fellesundervisning og -rettleiing
- student- og fakultetsmobilitet
- andre aktivitetar kan også få støtte, som t.d. har som mål meir langsiktig samarbeid

Aktivitetane må vere fullført innan 30. juni 2014, i alt 1 mill. er tilgjengelige. Beløpet ein søker om må ikkje overskride NOK 250 000. Søknadsfrist: **1. oktober 2012 kl. 15.00.** [Mer info](#)

### Stipend for forskerutveksling med Tyskland i 2013

NFR har nå utlyst stipend for at vitenskapelig ansatte/forskergrupper (normalt 2-4 personer) kan søke om støtte til kortvarige opphold i Tyskland som går over ett eller to fortløpende kalenderår. Det er en forutsetning at prosjektet omfatter yngre forskere/ph.d.-kandidater (master-studenter kan også delta) og at alle deltar i reisevirksomheten. Det kan søkes om støtte til dekning av mobilitetskostnader (reise og opphold). Andre utgifter, som lønnsutgifter og kjøp av utstyr, kan ikke dekkes under programmet.

Søknadsfrist: 5. september 2012 Full utlysning på [NFRs nettside](#)

### BiodivERsA planlegger utlysning for 2012-2013

BiodivERsA planlegger en ny utlysning for 2012-2013. Følg med på [nettverkets hjemmeside](#). BiodivERsA planlegger en ny utlysning, «Invasive Species and Biological Invasions with a focus on alien invasive species». Norge, sammen med ti andre land, planlegger å delta. Vi gjør oppmerksom på at Norge ikke kan delta med finansiering av prosjekter som har et hovedfokus på marin forskning. Utlysningen lanseres omkring november 2012, med søknadsfrist i midten av februar 2013. [Mer info](#)

### Draft NORHED Programme Document available for comments

A draft programme document for NORHED has been posted on [Norads homepage](#)

You can submit comments concerning conceptual design and/or clarity of intention of the draft document to <mailto:norhed@norad.no>, with subject line "Comments to NORHED" **before 20 August**.

An information update about NORHED will be posted in August 2012.

### Latin Amerika programmet

Next call from the Latin America Programme of the Research Council of Norway (NFR) will have 28 November 2012 as deadline for projects starting up in 2013.

An extra allotment, earmarked for Brazil related topics, has now been granted, and will be included in the call. Details will be announced after the summer, when the new board has discussed focus and priorities. News [here](#)

### Inviter en ung forsker med Yggdrasilprogrammet ( IS-MOBIL )

Norske institusjoner kan søke om støtte til opphold for ph.d.-kandidater og yngre forskere som er tilknyttet en institusjon for høyere utdanning og/eller forskning i om lag 50

land. **Søknadsfrist:** 28.11.2012 13:00 CET [Les mer](#)

# BIO-info

## Nyheter fra Institutt for biologi

### Flere bør bruke EUs forskningssamarbeid



EUs Joint Research Centre (JRC) gir mange muligheter for forskere. Bredere norsk deltakelse etterlyses.

[Les mer](#)

## KOMMENDE MØTER OG SEMINAR

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

Academy of Europe Annual Conference in Bergen; MCB course on scientific publishing; Seminar om forskningsetikk; Symposium on Biodiversity technologies, Oxford; Infomøte ITN, Oslo; ++

### 24th ANNUAL CONFERENCE 2012 –BERGEN "Northern Seas- The European Dimension"



MAIN PROGRAMME Tuesday 11 - Thursday 13 September

Location: Studentsenteret, Parkveien 1, Bergen

[More info and registration](#)

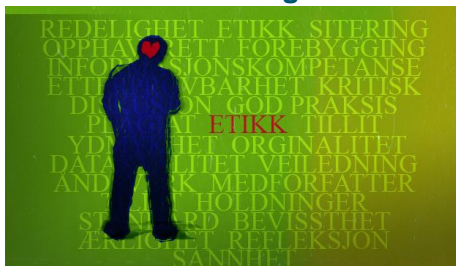
### Course on scientific publishing September 4-6 - reminder

This three-day course will take you from planning and preparing to writing and submitting a paper. You also receive in-depth advice on how to tackle the peer-review process and deal with reviewers and editors. You learn to understand the implicit rules of the peer-review publishing system and receive concrete advice how to overcome the various hurdles of this system with your particular paper

We still have available places on the course. Although it is primarily intended for PhD-students, post docs or other researchers are also welcome to join. If we have more applicants than places, MCB members and PhD-students will have priority. Further information at the [MCB homepage](#):

**Credits: 1 Application deadline: Wednesday August 15th**

### Seminar om forskningsetikk 2012



Redelighetsutvalget ved UiB arrangerer seminar i forskningsetikk på Solstrand

**31. oktober - 1. november 2012.** Seminaret arrangeres 5. år på rad.

Årets tema er «**Etiske normer for publiseringspraksis – under press?**»

*Redelighetsutvalget jobber for å finne gode foredragsholdere, men ønsker at alle interesserte setter av dato nå. Utvalget vil komme tilbake med mer informasjon i august.*

### Målgruppe:

Forskere ved UiB. Seminaret vil også være er åpent for andre som arbeider med og er interessert i problemstillingene som tas opp. Også ved andre universiteter og høyskoler.

**Påmeldingsfrist:** Settes senere. **Program og påmelding vil bli lagt ut [her](#)**



# BIO-info

## Nyheter fra Institutt for biologi

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### Symposium on Biodiversity Technologies

Oxford University, 27-28 September. [More info](#)

### Seminar: Research for Fisheries

The Research Programme on the Oceans and Coastal Areas (HAVKYST) is gathering together six researchers to speak about the significance of their results for the industry and resource management activities. They will be exploring a variety of issues, including the impact of human intervention in the marine ecosystems on ocean resources. [Read more](#)

### EMBL- European Bioinformatics Institute Open Day

Registration for the next EMBL- European Bioinformatics Institute Open Day is now open.

The 'Open Day' is the perfect opportunity for young scientists that are considering a career in bioinformatics to find out more about opportunities at Europe's main centre for bioinformatics. You will learn about cutting-edge research projects, get an overview of one of the world's most important collections of biological databases and tools, and be given time to talk one-to-one with the experts who develop and curate these services.

Registration is FREE, but places are limited to 40 people so please register now to avoid disappointment. [Full programme and registration details.](#)

### Marie Curie Initial Training Networks – Infomøte 27. August

Forskningsrådet inviterer til infomøte om Marie Curie Initial Training Networks i Oslo den 27 august.

**Påmeldingsfrist: 23. august** [Mer info og påmelding:](#)

### 6th international student conference „Aquatic environmental research“

Deadline 20th of August 2012. [More info](#)

### WORLD BIOTECHNOLOGY CONGRESS 2013

June 3rd – 6th, 2013 (Boston, USA)

[More info](#)



World Biotechnology Congress

June 3 - 6, 2013, Boston, USA

## 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](#)

Haberle; Birks; Fiksen; Klanderud; Meager; Fernö; Skjæråsen; Rodewald; Sverdrup; Mayer; Mangel; Kapfer; Grytnes; Rønneseth; Haugland; Wergeland; Heuschele; Banya; Solhøy; Castellani; Thompson; Glenner;

**Haberle V**, Lenhard B (2012) Dissecting genomic regulatory elements in vivo. Nature Biotechnology 30:504-506

Ross LC, Woodin SJ, Hester AJ, Thompson DBA, **Birks HJB** (2012) Biotic homogenization of upland vegetation: patterns and drivers at multiple spatial scales over five decades. Journal of Vegetation Science 23:755-770

**Questions** Is there evidence for biotic homogenization of upland vegetation? Do the magnitude and nature of floristic and compositional change vary between vegetation types? What can be inferred about the drivers responsible for the observed changes? **Location** Upland heath, mire and grassland communities of the northwest Highlands of Scotland, UK. **Methods** We re-survey plots first described in a phytosociological study of 1956-1958 to assess the changes in plant species composition over the last 50 yr in five major upland vegetation types. Using a combination of multivariate analysis, dissimilarity measures, diversity metrics and published data on species attributes; we quantify, characterize and link potential drivers of environmental change with the observed changes in species composition. **Results** Grassland and heath vegetation declined in species richness and variation in community composition, while mires showed little change. Previously distinct vegetation types became more similar in composition, characterized by the increased dominance of generalist upland graminoids and reduced dwarf-shrub, forb and lichen cover, although novel assemblages were not apparent. Species with an oceanic distribution increased at the expense of those with an arctic-montane distribution. Temperature, precipitation and acidity were found to be potentially important in explaining changes in species composition: species that had undergone the greatest increases had a preference for warmer, drier and more acidic conditions. **Conclusions** The vegetation of the northwest Scottish Highlands has undergone marked biotic homogenization over the last 50 yr, manifested through a loss of various aspects of diversity at the local, community and landscape scales. The magnitude of change varies between vegetation types, although the nature of change shows many similar characteristics. Analyses of species attributes suggest these changes are driven by climate warming and acidification, although over-grazing may also be important. This study highlights the importance of the link between the loss of plant diversity and homogenization at multiple scales, and demonstrates that boreal heath communities are particularly at risk from these processes.

Pecseli HL, Trulsen J, **Fiksen O** (2012) Predator-prey encounter and capture rates for plankton in turbulent environments. *Progress in Oceanography* 101:14-32

Turbulence plays an important role for predator-prey interactions in aquatic environments. In one sense turbulence benefits the predator by increasing its encounter rate with prey, but on the other hand it can benefit the prey by making them more difficult to catch. In the present study of this problem, a turbulent flow field is obtained by direct numerical solution of the Navier-Stokes equation. The analysis includes the effects of the turbulence on the encounter rate between passively moving predators and prey, and at the same time also models the capture probability depending on the relative turbulent motions of predator and prey. Analytical results for scaling laws for planktonic encounter and capture rates in turbulent environments are obtained in terms of the basic parameters for the problem, and the results are compared with related findings reported in the literature. For large values of the specific energy dissipation rates  $E$  the turbulence reduces the capture probability significantly, in part also because the effective capture range reduces for increasing turbulence intensity. The results presented here predict the parameters for an optimum turbulence level for the predator capture rate. For enhanced turbulence levels sudden bursts in the space-time varying velocity field contribute to a noise level that can reduce the probability for capturing prey. We consider cases where the capture range of an organism is comparable to or smaller than the effective Kolmogorov length scale, as well as the opposite limit of larger capture ranges in the inertial range of the turbulence. The reference model assumes spherical interception volumes, but it is demonstrated that the results remain basically valid also for the case where these volumes are hemispherical or conical: the consequences of having a shape of the interception surface deviating from a sphere can be accounted for by an empirical scaling factor, which depends solely on the opening angle of the cone.

Mullah CJA, Totland O, **Klanderud K** (2012) Recovery of Plant Species Richness and Composition in an Abandoned Forest Settlement Area in Kenya. *Restoration Ecology* 20:462-474

Cultivation of annual crops in the initial stage of reforestation has been commonly practiced in the tropics. In recent decades, however, cultivation of such areas has been discontinued, resulting in widespread abandoned settlements. In this article we used a former forest village settlement in Kenya, which had been cleared, cultivated and then abandoned, to study how natural vegetation recovers after such disturbances. Species richness, abundance, and composition of tree seedlings, saplings,

adult trees, shrubs, and herbs were recorded in different zones, from a heavily degraded zone in the center of the settlement, through less disturbed transition zones (TZs), and in the surrounding secondary forest (SF). Species richness and abundance of tree seedlings, saplings, and adult trees increased gradually from the heavily degraded zone to the SF, whereas shrub and herb richness were the same for TZs and SF and abundance was lowest in the SF. Total species richness was highest in the SF. Some pioneer tree species were highly associated with the TZs, whereas sub-canopy tree species were associated with the SF. A group of tree species were not particularly associated with any of the four zones. Thus, these species might have good potential as restoration species. The results of our study contribute to the knowledge of natural regeneration in general, and of individual species characterizing the different stages of recovery of abandoned settlements in particular. Such information is urgently needed in designing ecologically sound management strategies for restoring abandoned forest settlements in tropical areas.

**Meager, Justin J. Ferno, Anders Skjaeraasen, Jon Egil Jarvi, Torbjorn Rodewald, Petra Sverdrup, Gisle Winberg, Svante Mayer, Ian.** (2012) Multidimensionality of behavioural phenotypes in Atlantic cod, *Gadus morhua*. *Physiology & Behavior* 106:462-470

Much of the inter-individual variation observed in animal behaviour is now attributed to the existence of behavioural phenotypes or animal personalities. Such phenotypes may be fundamental to fisheries and aquaculture, yet there have been few detailed studies of this phenomenon in exploited marine animals. We investigated the behavioural and neuroendocrine responses of Atlantic cod (*Gadus morhua* L), to situations reflecting critical ecological challenges: predator attacks and territorial challenges. Both hatchery-reared and wild fish were tested and behavioural profiles were compared with baseline conditions. We then used an objective, multivariate approach, rather than assigning individuals along one-dimensional behavioural axes, to examine whether distinct behavioural phenotypes were present. Our results indicate that two distinct behavioural phenotypes were evident in fish from each background. In hatchery-reared fish, phenotypes displayed divergent locomotor activity, sheltering, brain monoamine concentrations and responses to competitive challenges. In wild fish, phenotypes were distinguished primarily by locomotor activity, sheltering and responsiveness to predator stimuli. Hatcheries presumably represent a more stressful social environment, and social behaviour and neuroendocrine responses were important in discerning behavioural phenotypes in hatchery fish, whereas antipredator responses were important in discerning phenotypes in wild fish that have previously encountered predators. In both fish types, behavioural and physiological traits that classified individuals into phenotypes were not the same as those that were correlated across situations. These results highlight the multidimensionality of animal personalities, and that the processes that regulate one suite of behavioural traits may be very different to the processes that regulate other behaviours.

Lorenzen K, Beveridge MCM, **Mangel M** (2012) Cultured fish: integrative biology and management of domestication and interactions with wild fish. *Biological Reviews* 87:639-660

Fish aquaculture for commodity production, fisheries enhancement and conservation is expanding rapidly, with many cultured species undergoing inadvertent or controlled domestication. Cultured fish are frequently released, accidentally and deliberately, into natural environments where they may survive well and impact on wild fish populations through ecological, genetic, and technical interactions. Impacts of fish released accidentally or for fisheries enhancement tend to be negative for the wild populations involved, particularly where wild populations are small, and/or highly adapted to local conditions, and/or declining. Captive breeding and supplementation can play a positive role in restoring threatened populations, but the biology of threatened populations and the potential of culture approaches for conserving them remain poorly understood. Approaches to the management of domestication and cultured-wild fish interactions are often ad hoc, fragmented and poorly informed by current science. We develop an integrative biological framework for understanding and managing domestication and cultured-wild fish interactions. The framework sets out how management practices in culture and for cultured fish in natural environments affect domestication processes, interactions between cultured and wild fish, and outcomes in terms of commodity production, fisheries yield, and conservation. We also develop a typology of management systems (specific combinations of management practices in culture and in natural environments) that are likely to provide positive outcomes for particular management objectives and situations. We close by setting out avenues for

further research that will simultaneously improve fish domestication and management of cultured-wild fish interactions and provide key insights into fundamental biology.

**Kapfer J, Virtanen R, Grytnes JA** (2012) Changes in arctic vegetation on Jan Mayen Island over 19 and 80 years. *Journal of Vegetation Science* 23:771-781

Questions Can recent vegetation changes on an isolated, grazer-free island be explained by recent climate change? Are observed changes consistent when focusing on two different time scales? Location Jan Mayen, an arctic volcanic island in the North Atlantic Ocean. Methods We re-surveyed two botanical studies conducted 19 and 80 yr earlier to explore changes in species frequency, cover and co-occurrence with other species. The observed changes were statistically evaluated using restricted permutation tests and were compared for the two time scales considered using Pearson correlation tests. Results Total number of species did not significantly change over the two time periods considered. One species (*Botrychium lunaria*) was found new to the island. The dwarf-shrub *Salix herbacea* and several graminoids increased in frequency or cover, or both, whereas species linked to snowbeds (e.g. *Saxifraga* spp., *Oxyria digyna*, *Cerastium cerastoides*) decreased. Changes over 19 yr were significantly correlated with 80-yr changes considering species frequency, but not when comparing changes in cover and species co-occurrences. Observed changes were more pronounced in the 80-yr comparison. Conclusions Our findings from the virtually grazer-free island of Jan Mayen are in line with other studies on short- and long-term vegetation changes in the Arctic and confirm that indirect effects of climate change (e.g. longer growing season, altered soil moisture conditions, increased nutrient availability) may be the main driver of the observed changes in arctic vegetation composition. However, whereas our study found the main trend to be similar over both time scales considered, discrepancies in the trends of some species suggest that long-term changes are only partly predictable from short-term studies.

Fraser TWK, **Ronneseth A, Haugland GT**, Fjellidal PG, Mayer I, **Wergeland HI** (2012) The effect of triploidy and vaccination on neutrophils and B-cells in the peripheral blood and head kidney of 0+ and 1+ Atlantic salmon (*Salmo solar L.*) post-smolts. *Fish & Shellfish Immunology* 33:60-66

Sterile triploid fish are being used in aquaculture to prevent early unwanted sexual maturation and the genetic interaction between wild and cultured fish; however, triploid fish are typically considered to be more susceptible to disease than diploid counterparts. Proportions of leucocytes from the head kidney and peripheral blood were identified using monoclonal antibodies and flow cytometry in triploid and diploid, vaccinated and unvaccinated, out-of-season (0+) and 1+ Atlantic salmon (*Salmo salar L.*) three weeks post seawater transfer. Triploid 1+ fish were significantly ( $P < 0.05$ ) heavier than diploid fish at the time of sampling, whereas triploid 0+ had a significantly lower condition factor than diploids. Ploidy had a significant effect on the proportion of B-cells in the blood of both 0+ and 1+ fish, and the head kidney of 1+ fish, with triploids having lower proportions of B-cells to diploids in both smolt groups. In addition, a significant ploidy x vaccination interaction effect was observed in the response of neutrophils in the blood (vaccinated diploids had a higher mean proportion than diploid unvaccinated) and B-cells in the head kidney (in vaccinated fish, triploids had a lower mean proportion than diploids) in 0+ smolts. Vaccination was found to significantly increase the proportion of B-cells in the head kidney of 1+ smolts in both ploidy. Size (fish weight) was positively correlated with neutrophil proportions in 1+ fish. Our findings are discussed in relation to the physiological differences related to ploidy. The results suggest that ploidy as well as smelting regime influences the immune system of Atlantic salmon post-smolts.

**Ronnestad I, Conceicao LEC** (2012) Artemia protein is processed very fast in *Solea senegalensis* larvae: A dynamic simulation model. *Aquaculture* 350:154-161

Further improvement of growth performance in fish larviculture is closely linked to better understanding of the dietary amino acid (AA) requirements, and therefore of the processes involved in AA metabolism. In recent years, major advances in the understanding of fish larvae amino acid metabolism have been accomplished, in particular through the use of tracer studies. Modelling is a holistic approach to integrate knowledge on growth and metabolism and identify gaps in current understanding. A dynamic mechanistic model that simulates AA metabolism of fish larvae was developed. It aims to improve the understanding of larval digestion and absorption of dietary AA, and



the postprandial AA metabolism and growth. The model also assists in the interpretation of results obtained from tracer studies. The model is driven by amino acid intake, with the absorbed dietary AA being used for energy production or for biosynthetic processes. The model is implemented for Senegalese sole (*Solea senegalensis*) larvae fed *Artemia*, and was parameterized using literature data. The model allows to integrate the results obtained after feeding a single meal with tracer AA, and following these tracer AA in the free AA and protein pools of larval gut and larval body at different time points after the meal. Model simulations suggest that there is a sharp dynamic change in the FAA pool after a meal while the protein pool is little affected. This suggests that the AA composition of the food has a major contribution to the FAA pool composition. This implies that sole larvae is highly sensitive to dietary AA imbalances, having high AA unavoidable losses unless the dietary AA profile is well balanced. The model also suggests that rates of protein synthesis and AA catabolism rapidly increases after the meal, with the peak for this postprandial metabolism occurring only 1 h after the meal, and the rates returning to "basal" values 2 h after the meal. This suggests a rapid processing of the *Artemia* protein by the larvae, and supports the need for feeding sole larvae at a high frequency in order to fully use its growth potential. Mechanistic modelling is useful and an important complement in evaluation of metabolism kinetics in nutrient flux studies. Moreover, due to its mechanistic nature, the present model can be used with different AA tracers, and also for other fish species.

**Heuschele J**, Salminen T, Candolin U (2012) Habitat change influences mate search behaviour in three-spined sticklebacks. *Animal Behaviour* 83:1505-1510

Mate choice is one of the main mechanisms of sexual selection, with profound implications for individual fitness. Changes in environmental conditions can cause individuals to alter their mate search behaviour, with consequences for mate choice. Human-induced eutrophication of water bodies is a global problem that alters habitat structure and visibility in aquatic ecosystems. We investigated whether changes in habitat complexity and male cue modality, visual or olfactory, influence mate search behaviour of female three-spined sticklebacks, *Gasterosteus aculeatus*. We allowed gravid females to search for mates in experimental pools that contained two nesting males and one social female, under low and high structural complexity (created from green Plexiglas sheets), with access to either visual or olfactory cues of the individuals. We found increased habitat complexity reduced the number of visits to nesting males, while a switch from visual to olfactory cues reduced the time spent searching for males, the number of visits to nesting males, the time spent evaluating males, and the relative time spent associating with males rather than females. Thus, females decreased mate searching and mate evaluation in the absence of visual stimulation. This reduced the rate of mate encounters and probably also the opportunity for choice. Our results show that changes in habitat structure and visibility can alter female mate searching, with potential consequences for the opportunity for sexual selection.

**Baniya CB**, Solhoy T, Gauslaa Y, Palmer MW (2012) Richness and Composition of Vascular Plants and Cryptogams along a High Elevational Gradient on Buddha Mountain, Central Tibet. *Folia Geobotanica* 47:135-151

We explored patterns of plant species richness and composition along an elevational gradient (4,985-5,685 m a.s.l.) on Buddha Mountain, 100 km northwest of Lhasa, Tibet. We recorded the presence of plants and lichens in 1-m(2) quadrats separated by 25-m elevational intervals (174 quadrats in 29 elevational bands) along a vertical transect with a SE aspect. We recorded 143 total species, including 107 angiosperms, 2 gymnosperms, 27 lichens, and 7 mosses. We measured stone cover in each quadrat, and soil pH, C, N and C/N ratio from two randomly located samples collected from 10-cm depth within each band. C, N and C/N decreased with elevation, stoniness increased and soil pH did not change with altitude. We employed detrended correspondence analysis (DCA), canonical correspondence analysis (CCA) and generalized linear models (GLMs) to assess the relationships of species richness and species composition to the environment. The first two axes of the CCA biplot explained 87.7% of total variation in the species-environment relationship, and 27.7% of total variance of species data. The first CCA axis is associated with elevation, while the second axis is related to soil pH and stone cover. We also compared patterns in species richness against expectations from species pools interpolated from the literature. Total species richness was relatively constant between 4,985 and 5,400 m a.s.l. and declined continuously above 5,400 m a.s.l. Similar declining patterns were observed for forbs and graminoids. Cushion plants and lichens abundance exhibited a unimodal

relationship with altitude while shrubs declined monotonically. Except for lichens, models derived from our observations and the literature were quite similar in shape. The proportion of the species pool represented in each elevational band increased as a function of elevation for non-vascular plants, but decreased markedly for vascular plants. Thus, vascular plants are more likely to be constrained by dispersal at higher elevations, resulting in more local endemism, while the relatively easily-dispersed high-elevation cryptogams have little local differentiation. Our comparative approach demonstrates that complex scale-dependent differences between life forms may underlie the apparent simplicity of elevational gradients. Furthermore, elevational gradients summarized from distributional notes cannot be assumed to be proxies for elevational gradients on individual mountain slopes.

Fahmy AA, Kalyoncu M, **Castellani M** (2012) Automatic design of control systems for robot manipulators using the bees algorithm. Proceedings of the Institution of Mechanical Engineers Part I- Journal of Systems and Control Engineering 226:497-508

**Abstract:** This paper proves the capability of the bees algorithm to solve complex parameter optimization problems for robot manipulator control. Two applications are presented. The first case considers the modelling of the inverse kinematics of an articulated robot arm using neural networks. The weights of the connections between the nodes need to be set so as to minimize the difference between the neural network model and the desired behaviour. In the proposed example, the bees algorithm is used to train three multilayer perceptrons to learn the inverse kinematics of the joints of a three-link manipulator. The second case considers the design of a hierarchical proportional-integral-derivative (PID) controller for a flexible single-link robot manipulator. The six gains of the PID controller need to be optimized so as to minimize positional inaccuracies and vibrations. Experimental tests demonstrated the validity of the proposed approach. In the first case, the bees algorithm proved very effective at optimizing the neural network models. Compared with the results obtained employing the standard back-propagation rule and an evolutionary algorithm, the bees algorithm obtained superior results in terms of training accuracy and robustness. In the second case, the proposed method demonstrated remarkable efficiency and consistency in the tuning of the PID controller parameters. In 50 independent optimization trials, the PID controllers designed using the bees algorithm consistently outperformed a robot controller designed using a standard manual technique.

Talbert, Paul B. Ahmad, Kami Almouzni, Genevieve Ausio, Juan Berger, Frederic Bhalla, Prem L. Bonner, William M. Cande, W. Zacheus Chadwick, Brian P. Chan, Simon W. L. Cross, George A. M. Cui, Liwang Dimitrov, Stefan I. Doenecke, Detlef Eirin-Lopez, Jose M. Gorovsky, Martin A. Hake, Sandra B. Hamkalo, Barbara A. Holec, Sarah Jacobsen, Steven E. Kamieniarz, Kinga Khochbin, Saadi Ladurner, Andreas G. Landsman, David Latham, John A. Loppin, Benjamin Malik, Harmit S. Marzluff, William F. Pehrson, John R. Postberg, Jan Schneider, Robert Singh, Mohan B. Smith, M. Mitchell **Thompson**, Eric Torres-Padilla, Maria-Elena Tremethick, David John Turner, Bryan M. Waterborg, Jakob Harm Wollmann, Heike Yelagandula, Ramesh Zhu, Bing Henikoff, Steven (2012) A unified phylogeny-based nomenclature for histone variants. *Epigenetics & Chromatin* 5

Histone variants are non-allelic protein isoforms that play key roles in diversifying chromatin structure. The known number of such variants has greatly increased in recent years, but the lack of naming conventions for them has led to a variety of naming styles, multiple synonyms and misleading homographs that obscure variant relationships and complicate database searches. We propose here a unified nomenclature for variants of all five classes of histones that uses consistent but flexible naming conventions to produce names that are informative and readily searchable. The nomenclature builds on historical usage and incorporates phylogenetic relationships, which are strong predictors of structure and function. A key feature is the consistent use of punctuation to represent phylogenetic divergence, making explicit the relationships among variant subtypes that have previously been implicit or unclear. We recommend that by default new histone variants be named with organism-specific paralog-number suffixes that lack phylogenetic implication, while letter suffixes be reserved for structurally distinct clades of variants. For clarity and searchability, we encourage the use of descriptors that are separate from the phylogeny-based variant name to indicate developmental and other properties of variants that may be independent of structure.

Satterthwaite WH, **Mangel M** (2012) Behavioral models as a common framework to predict impacts of environmental change on seabirds and fur seals. *Deep-Sea Research Part II-Topical Studies in Oceanography* 65-70:304-315

In this paper, we lay out the theoretical framework for using modeling approaches from behavioral ecology (in particular, state-dependent and game theoretical models) to predict the behavioral responses of central place foragers to changes in their food environment. We develop individual-based models of the state-dependent behavior of individual central place foragers over the course of a breeding season and show how our approach provides a framework for the prediction of trip lengths, foraging location, food delivery, and reproductive success. We formulate a common framework of models for northern fur seals (*Callorhinus ursinus*), black-legged kittiwakes (*Rissa tridactyla*), and thick-billed murres (*Uria lomvia*), and provide worked examples parameterized to represent fur seals and murres. We then develop a game theoretic model at the colony-level for predicting the distribution of multiple individuals across space in the face of potential interference or facilitation, providing a worked example for kittiwakes. We demonstrate how these models can be used to predict near-term aspects of foraging behavior such as diet choice and trip destinations and durations at the individual and colony level. We show how (i) behavioral predictions can be translated into predictions of foraging success, (ii) foraging success can be scaled up to demographically relevant parameters such as survival and reproduction, and (iii) this approach can help predict impacts of environmental change on top-level predators.

Lutzen J, Faasse M, Gittenberger A, **Glenner H**, Hoffmann E (2012) The Japanese oyster drill *Ocenebrellus inornatus* (Recluz, 1851) (Mollusca, Gastropoda, Muricidae), introduced to the Limfjord, Denmark. *Aquatic Invasions* 7:181-191

The predatory neogastropod *Ocenebrellus inornatus* was first reported from Europe in W France in 1995 and has since been detected at other sites in NW and N France and The Netherlands. It is native to the North Pacific where it preys on the Pacific oyster *Crassostrea gigas*. Here we report on the occurrence of the species in beds of European oysters (*Ostrea edulis*) in the Limfjord, NW Jutland, Denmark. The morphology-based identification has been confirmed by genetic analysis. The species was probably introduced with oysters imported from France in the 1970s and 1980s. The invasion is still relatively localized but as the species has established a reproductive population, it may eventually spread to other parts of the fjord and in time pose a problem to the oyster fishery. The species' invasion history is reviewed.

Lenoir, Jonathan Virtanen, Risto Oksanen, Jari Oksanen, Lauri Luoto, Miska **Grytnes**, **John-Arvid Svenning**, Jens-Christian. (2012) Dispersal ability links to cross-scale species diversity patterns across the Eurasian Arctic tundra. *Global Ecology and Biogeography* 21:851-860

**Abstract:** Aim The role of dispersal in structuring biodiversity across spatial scales is controversial. If dispersal controls regional and local community assembly, it should also affect the degree of spatial species turnover as well as the extent to which regional communities are represented in local communities. Here we provide the first integrated assessment of relationships between dispersal ability and local-to-regional spatial aspects of species diversity across a large geographical area. Location Northern Eurasia. Methods Using a cross-scale analysis covering local (0.64 m<sup>2</sup>) to continental (the Eurasian Arctic biome) scales, we compared slope parameters of the dissimilarity-to-distance relationship in species composition and the local-to-regional relationship in species richness among three plant-like groups that differ in dispersal ability: lichens with the highest dispersal ability; mosses and moss allies with intermediate dispersal ability; and seed plants with the lowest dispersal ability. Results Diversity patterns generally differed between the three groups according to their dispersal ability, even after controlling for niche-based processes. Increasing dispersal ability is linked to decreasing spatial species turnover and an increasing ratio of local to regional species richness. All comparisons supported our expectations, except for the slope of the local-to-regional relationship in species richness for mosses and moss allies which was not significantly steeper than that of seed plants. Main conclusions The negative link between dispersal ability and spatial species turnover and the corresponding positive link between dispersal ability and the ratio of local-to-regional species richness support the idea that dispersal affects community structure and diversity patterns across spatial scales.