

Innhold (klikk på sidetallet, så kommer du dit direkte ...)



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Postadresse:	Besøksadresse:	Telefon:	E-post:	Jarl Giske:
Postboks 7803	Bioblokken, 3. etg.	+47 55 58 44 00	post@bio.uib.no	Tlf 84403
N-5020 Bergen	Høyteknologisenteret	Telefaks:	Internett:	Mob 9920 5975
Norge	i Bergen.	+47 55 58 44 50	http://www.bio.uib.no	
	Thormøhlensgate 55			

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Denne ukas viktigste

Pensumlitteratur – tilbakemeldinger mangler!!

Studieseksjonen mangler ennå MANGE tilbakemeldinger når det gjelder pensum for høstens undervisning! Husk at du må melde fra selv om det skal brukes samme litteratur som i fjor. Send melding snarest til studie@bio.uib.no.

Hilsen Eli

Bli med og sett navn på våre nye hus

Høytteknologisenteret AS inviterer BIO til å foreslå navn på bygninger på Marineholmen! Navnene skal ha assosiasjoner med bruken av bygningene og/eller området og bør ikke være for langt å skrive eller uttale. Fint om det også kan sies på fremmede tungemål. Kom med spennende forslag, gjerne knyttet til personer som vi gjerne vil assosieres med! Eller helt andre typer av gode navn som vil tåle tidens tann. Fristen i navnekonkurransen er **1. juni**. Les mer og kom med forslag [her](#).

Viktige tidsfrister

Mer info om følgende utlysninger og mange flere (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)

29. apr	ESF: Exploratory Workshops - 2008 Call for Proposals	31. juli	Matsumae International Foundation 2009 Fellowship Announcement
5. mai	Mia J. Tegner Memorial Research Grants in		

[Marine Environmental History and Historical Ecology](#)

- | | | | |
|---------|---|---------|---|
| 15. mai | Erasmus Mundus | 1. aug | Nordic Marine Academy |
| 15. mai | Mobilitetsstipend fra SCAR (Scientific Committee on Antarctic Research) | 12. aug | ERA-NET / ERA-NET PLUS Call 2008 |
| 2. juni | ESF: 2008 Call for EUROCORES theme proposals | 19. aug | FP7 People:
Intra-European Fellowships (IEF)
International Incoming Fellowships (IIF)
International Outgoing Fellowships (IOF) |
| 4. juni | NFR deadline NB kl. 12:00 | | |

** for more information check [BIO-web](#) for more deadlines, further details and on-going opportunities as well as [UiB's Department of Research Management](#)

Essentials in English

New regulations for travel inside Norway

There are new regulations for travel inside Norway that are valid from 1 May 2008. Unfortunately these regulations are only available in [Norwegian](#).

Important points include:

Reimbursement per kilometer for use of one's own car is now 3.50NOK/km

Per diem rate has increased to 530NOK

There is no longer any undocumented overnight allowance, but the documented overnight allowance is increased to 1300NOK.

The [electronic form](#) available on the net is updated automatically (there is an English version). One unfortunate consequence is that if you have been late filling out your travel forms, all travel forms submitted from 1 May (even if the travel was before that) will follow the new rules.

The general public is invited to record bio-diversity data

Norway has set itself a goal of documenting its biodiversity by 2010. To assist in this endeavour, a [new website](#) was launched 5 May where all are invited to record data about any species observations.

[Read more \(in Norwegian\)](#)

Re-building in HIB approaches

There is a delay in the start of the re-building process, now they project the beginning of October for phase 1 instead of August. Before this time we must empty all the space where the rebuilding will occur. This means that during September 2008 all the masters students and the researchers currently in the affected area must move to space in the "in-between" building. A room committee will delegate office-space in the new area.

Phase 1 is supposed to be finished before summer 2009 and in August 2009 the re-building process will continue with Phase 2. This includes many labs and offices for the research group Fisheries Ecology and aquaculture as well as the formalin lab.

It is projected that BIO's new building will be finished in October 2009. We hope to move in as quickly as possible.

During the building period, the 3rd floor will be closed for through traffic: people will have to go through the second floor. There are many details to be decided and information will be published as it becomes available.

It is going to be a rather unsettled period. We must pull together to try to make the best of it and to help one another out. [More information](#) The latest information is in a file called:

Framdriftsplan for ombyggingen pr 20080505

Tips for writing a better application

Jarl has some great tips for helping people to write more effective applications this June. Unfortunately they are in Norwegian, but he suggests [a web site](#) for tips in English. Read a [loose translation](#) of Jarl's tips in English.

Publications thus far in 2008 – almost double the total this far last year!

Jarl has registered 91 new publications thus are this year. Last year the total at this time was 52, and last year was a record year for publications! Keep up the good work!

Siste nytt fra BIO

Tips til en litt bedre søknad

Jeg vil henvisse til den teksten som sto i BIO-INFO fra samme tid i fjor ([INFO17/2007](#)), i håp om at den kan bidra til at noen får de pengene fra NFR som de virkelig både trenger og fortjener. Beklager at den bare er på norsk, jeg har ikke kapasitet til å skrive dem om, men det finnes jo oppskrifter på gode søknader fra andre også. Her er en engelsk link til kunsten å søke:
<http://www.hfsp.org/how/ArtOfGrants.htm>

Publisering så langt i 2008: nesten dobbelt så mye som i fjor

Hittil i år har jeg registrert 91 nye publikasjoner fra BIO. På samme tid i fjor var tallet 52 – og det ble jo et rekordår i antall publikasjoner. Det er også litt bedre svung over tidsskriftnavnene. Men det er fremdeles god plass til flere høyt opp på lista over artikler i tidsskriftene med høy impact-faktor.

JIF	Referanse
30,0	Jørgensen, C., Enberg, K., Dunlop, E.S., Arlinghaus, R., Boukal, D.S., Brander, K., Ernande, B., Gårdmark, A., Johnston, F., Matsumura, S., Pardoe, H., Raab, K., Silva, A., Vainikka, A., Dieckmann, U., Heino, M., and Rijnsdorp, A.D. 2008. The role of fisheries-induced evolution - response. <i>Science</i> , 320: 48-50
9,6	Islam T, S Jensen, LJ Reigstad, Ø Larsen & NK Birkeland 2008. Methane oxidation at 55°C and pH 2 by a thermoacidophilic bacterium belonging to the <i>Verrucomicrobia</i> phylum. <i>PNAS</i> 105: 300-304
7,7	Ekman, Stefan, Andersen, Heidi L., Wedin, Mats 2008. The limitations of ancestral state reconstruction and the evolution of the ascus in the Lecanorales (Lichenized ascomycota). <i>SYSTEMATIC BIOLOGY</i> 57: 141-156
4,6	Karlsen Marius, Are Nylund, Kuninori Watanabe, Jon V. Helvik, Stian Nylund & Heidrun Plarre 2008. Characterization of 'Candidatus Clavochlamydia salmonicola': an intracellular bacterium infecting salmonid fish. <i>Environmental Microbiology</i> 10: 208-218, doi:10.1111/j.1462-2920.2007.01445.x
4,1	Chen Fahu, Zicheng Yu, Meilin Yang, Emi Ito, Sumin Wang, David B. Madsen, Xiaozhong Huang, Yan Zhao, Tomonori Sato, H. John B. Birks, Ian Boomer, Jianhui Chen, Chengbang An and Bernd Wünnemann 2008. Holocene moisture evolution in arid central Asia and its out-of-phase relationship with Asian monsoon history. <i>Quaternary Science Reviews</i> 27: 351-364
4,0	Eichner Christiane, Petter Frost, Bjarte Dysvik, Inge Jonassen, Bjørn Kristiansen & Frank Nilsen 2008. Salmon louse (<i>Lepeophtheirus salmonis</i>) transcriptomes during post molting maturation and egg production, revealed using EST-sequencing and microarray analysis. <i>BMC Genomics</i> 9:126 doi:10.1186/1471-2164-9-126
3,6	Heino Mikko, Loïc Baulier, David S. Boukal, Erin S. Dunlop, Sigrunn Eliassen, Katja Enberg, Christian Jørgensen, Øystein Varpe 2008. Evolution of growth in Gulf of St Lawrence cod? <i>Proc. R. Soc. B</i> 275: 1111-1112, doi:10.1098/rspb.2007.1429
3,4	Nylund, Stian, Karlsen, Marius, & Nylund, Are 2008. The complete genome sequence of the Atlantic salmon paramyxovirus (ASPV). <i>VIROLOGY</i> 373: 137-148
3,4	Liu Y, Moore L, Koppang EO, Hordvik I 2008. Characterization of the CD3 zeta, CD3 gamma delta and CD3 epsilon subunits of the T cell receptor complex in Atlantic salmon. <i>DEVELOPMENTAL AND COMPARATIVE IMMUNOLOGY</i> 32: 26-35
3,4	Holmstad Per R, Knut H. Jensen & Arne Skorping 2008. Ectoparasite intensities are correlated with endoparasite infection loads in willow ptarmigan. <i>Oikos</i> 117: 515-520

Ombyggingen på HIB nærmer seg!

Vi har tidligere meldt i BIO-INFO at ombyggingen i 3. og 4. etg på HIB trolig kunne starte nå i august. Men nå vet vi at byggestarten blir litt seinere, nemlig i begynnelsen av oktober. Dette gjelder del 1 av ombyggingen som er sør før knekken. Innen byggestart skal vi tømme de arealene som skal ombygges. Dette innebærer for del 1 at alle masterstudenter og våre ansatte som sitter i arealet skal flytte til mellombygget. Denne utflyttingen må være gjennomført i løpet av september. Romkomiteen vil tildele plass til de ansatte og studieseksjonen for masterstudentene.

Del 1 skal være ferdig før sommeren 2009 og i august 2009 fortsetter ombyggingen med del 2 som er nord for knekken i bygget. Denne ombyggingen vil nok bli den vaskeligste for mange av oss. Laboratorier og mange kontorer for forskningsgruppa Fiskeriøkologi og havbruk må fraflyttes og formalinlabben i dette bygget opphører.

Nå er det slik at BIOs nybygg skal være ferdig 1. okt 2009 og vi kan håpe på rask innflytting. Vi har derfor valgt å avvente beslutninger om hvordan vi skal løse plassproblemene som oppstår høsten 2009. Forskningsgruppelederne er spesielt informert om dette på ledermøtet 5. mai.

I byggeperiodene blir 3. etg på HIB stengt for gjennomgang, all trafikk mellom sør- og nordenden vil måtte foregå via andre etasjer. Det er svært mange detaljer knyttet til ombygging som kan påvirke aktiviteter vi har gående. Vi skal informere mer målrettet om slike til de det gjelder.

Vi må altså forberede oss på en urolig tid framover, - det kommer til å bli mange forstyrrelser. Vi håper at vi så langt som mulig kan opprettholde vår forskning i arealene mens ombyggingene pågår. Detaljer ligger her: <http://www.bio.uib.no/internesider/Ombygg/ombygg.php> i fil som heter: Framdriftsplan for ombyggingen pr 20080505

Biology in action

Since 2005 researchers in realfagbygget have followed a pair of Oystercatchers nesting on the roof of realfagbygget. [See the webcam.](#) Read about it in [Norwegian](#).

Get the news out!

Involved in field work, an exciting lab project or interesting course – tell us about it! Reports of “Biology in Action” can be motivational and encourage recruitment to science education. Check out this [free-ware web programme](#). It was used by a mesocosm group at [Espegrend in 2006](#)

Find out about this year’s mesocosm experiments at Espegrend. [What is a mesocosm?](#) [This year’s experiments.](#)



Belgian visitors

The three Belgian students together with their professor from Louvain University, who have been visiting BIO for two weeks, were not working on chocolate or beer, they are studying a bioluminescent shark!! (see "Picture of the week"). [Read more.](#)



Documenting species invasion

There are three main threats to bio-diversity around the world: climate change, habitat alterations, and invasive organisms. [Read more.](#)

Lynghesenteret for alle

[Artikkelen](#) om [Lynghesenteret](#) i BT med **Peter Emil Kaland**.

Media forvrenger bildet av Afrika

Media overdriver nøden i u-land, med god hjelp fra bistandsapparatet, ifølge flere bistandsfolk og forskere. Artikkel i BT med **Jepp Kolding** [Media forvrenger bildet av Afrika](#) og [Hjelparbeid i krise](#)



STIM's spring social and field work at Varaldsøy

In Bergen on the 16th of May? It's time to get SOCIAL! [STIM](#) is planning its annual 16th of May BBQ - keep your eyes out for more information closer to the date!!

The STIM field work at Varaldsøy will be Thursday 22nd May. Travel cost will be covered, and free lunch will be served. We leave in the morning and return late afternoon. There is no need for any previous knowledge or field experience. [More info](#)

[Send me an email](#) if you want to join! As soon as possible, and no later than Tuesday 14th May.



Need to send large documents electronically?

Remember that UiB has an [ftp service](#) (thanks to **Audrey Geffen** for the tip). This link is also on BIO's home page under "hurtiglinker".

Ukens masterprat. På tokt etter torsk

Heidi Finden bruker dager og måneder på å studere fiskesperm. Det kan det bli publisering av. [Les mer.](#)

Siste nytt fra verden rundt oss

Nye satsar for reiser

Reglane for reiser på staten si rekning *innanlands* er revidert med verknad frå 1. mai 2008.

Fullstendig tekst her: <http://www.sph.dep.no/templates/PersonalMelding.aspx?id=2760>

Viktigaste endringane er:

- Kilometergodtgjerdsla for bruk av eigen bil er endra frå kr 3,00 til kr 3,50.
- Satsen for kostgodtgjerdsla pr. døger er endra frå kr 460,- til kr 530,-.
- Ulegitimert sats for overnatting på hotell kr 700,- fell bort.
- Legitimert sats for overnatting på hotell er heva frå kr 1050,- til kr 1300,-.

Elektronisk reiserekningsskjema (for maskiner med Windows – for maskiner drifta av ITavdelinga er programmet ein standardtilbodet, andre kan lasta det ned, sjå:

<http://www.regjeringen.no/nb/dep/fad/dok/Lover-og-regler/retningslinjer/2000/denelektroniske-reiseregningen.html?id=438636>) vil (rimelgvis) bli oppdatet automatisk, men

ein bør passa på at tala blir rette om ein reiser før 1. mai, men fyller ut reiserekninga etter 1. mai.

<http://www.regjeringen.no/nb/dep/md/aktuelt/nyheter/2008/folkelig-deltakelse-skal-bidra-til-a-byg.html?id=510124>

Folkelig deltakelse bidrar kunnskap om biologisk mangfold

Rapporteringsverkøyet Artsobservasjoner lansert 5. mai. Norge har som mål å stanse tapet av biologisk mangfold innen 2010. For å oppnå dette må vi imidlertid først vite mer om hvilke arter som faktisk finnes i landet vårt (tips fra Eva Kittelsen, masterstudent ved BIO). [Les mer.](#)

DNA sekvenseringslab

Universitetets DNA sekvenseringsservice som er nå på SARS Senteret må flytte. Send innspill om behov og organisasjonsmodell til [Johan Lillehaug](#). En rimelig frist for tilbakespill er satt til 20. mai.

North Atlantic Bloom Experiment Collaboratory Web Site

The 2008 North Atlantic Bloom Experiment Collaboratory Web Site is now open. NABE scientists are currently operating floats and gliders equipped with biogeochemical sensors near the JGOFS NABE site (60N 20W). They plan to operate through June, 2008. You are invited to follow the progress of this experiment through mission reports, blogs, photos and real-time data display.

[More info](#)



Opportunity for graduates to participate in hydrographic cruises

Opportunities are available for graduates to participate in hydrographic cruises run by the National Oceanography Centre, Southampton as a chemical oceanographers involved in measuring inorganic nutrients/titrating dissolved oxygen samples. Modest additional sampling can probably be entertained.

Cruises are scheduled for the Arctic gateway, Canada Greenland UK (Summer 2008); Andrex Southern Ocean (Early 2009); Drake Passage, Southern Ocean (Early 2009); 25°S in the Atlantic (Easter 2009) and 24°N in the Atlantic (November 2009). For more information, please contact Richard Saunders (rics@noc.soton.ac.uk).

"YouTube for scientists"

Make your research known on [SCIVEE](#).



Would you like to take a Norwegian course at UiB?

Deadline for registration for UiB employees or spouses, dependents of UiB employees is 15 May, 2008 for the autumn semester. [Registration form](#).

Påminning om nitrogen forbruk

Forbruk av nitrogen 2007 Vedlagte brev ble første gang sendt den 19/2. Ber om at log-ført liste blir sendt Kjemisk institutt så snart som mulig to [Aase Methlie](#)!

Biomangfoldprogrammet er avsluttet

Forskning om introduserte arter, genmodifiserte organismer, taksonomi og biosystematikk må videreføres i andre programmer og aktiviteter når Biomangfoldprogrammet har avsluttet sin 10 års programperiode. [Les mer](#). Forskningen videreføres i programmet [Miljø 2015](#)



From Nature ... A place for everything

More researchers must record the latitude and longitude of their data. [Read more](#).

Ledige stillinger for biologer

Sjekk oversikten på [jobbnor](#)!

Frist	Stilling
now	Research Analyst / Associate on Coral Reefs People and Ecosystems Program World Resources Institute (WRI)
10.05	BIO: Senioringeniør ved Biodiversitetslaben
10.05	Praksisplass for opptil to studenter på den norske ambassaden i Hanoi
15.05	Data Manager and Web Services Programmer , Ocean Tracking Network (OTN), headquartered at Dalhousie University,
15.05	BIO: Avdelingsingeniør - mellombels tilsetjing
16.05	High Seas Conservation Project Director
19.05	Univ Tromsø: Stipendiat i marin biologi ved Norges fiskerihøgskole (NFH)
20.05	BIO: Postdoktor i evolusjonær økologi
21.05	postdoctoral position , Marine Biodiversity, Ecology and Evolution research group, University College Dublin, Ireland
22.05	Inst for biomedisin: Stipendiat knytt til prosjektet «Funksjonelle studier av cellulære nanorør»
23.05	Four new research scientist positions are open at the Australian Museum
25.05	Inst for biomedisin: Forskar
25.05	Inst for biomedisin: Stipendiat knytt til prosjektet «Funksjonelle studier av cellulære nanorør»
31.05	2 plankton analysts , SAHFOS
02.06	BIO: Personalkonsulent (førstekonsulent)
06.06	research Fellow / Analyst , SAHFOS
13.06	PhD scholarship , Marine Biodiversity, Ecology and Evolution research group, University College Dublin, Ireland
30.06	PostDoc "Short/medium term effects of Climate Change on Atlantic Salmon", INRA, France
14.09	Ass. Professor of Aquatic Animal Health , Dept of Med. & Epid., Sch. of Vet. Med., UC Davis

The latest from integrated marine biogeochemistry and ecosystem research (IMBER)

Read the latest [IMBER News](#) with funding and collaborative opportunities, early career scientist opportunities, jobs, publications, web resources, and notifications of Meetings / Conferences / Workshops. [Read more.](#)

Summer school programmes

	date	Location	application deadline
NMA - Marine microbial ecology in the Arctic: theory, facts and modelling.	21-30 July 2008	University Centre of Svalbard (UNIS)	16 May 2008 *new deadline
NMA - Phosphorous cycling in the aquatic environment.	4-14 August, 2008	Umeå Marine Sciences Centre, Umeå University.	20.05.2008
11-16 August 2008	Ankara, Turkey	Analyses of the interactions between end to end marine food webs and biogeochemical cycles (E2E EcoModel).	26 May, 2008
Turbulence, Plankton and Marine Snow	1-5 September, 2008	Vilanova, Nr. Barcelona, Spain	June 1, 2008
NMA - Practical and theoretical approaches to general nutrition with emphasis on aquaculture nutrition.	22-29 September, 2008	National Institute of Nutrition and Seafood Research (NIFES), Bergen, Norway	20.06.2008

Ukens billede

Title: Svarthå (Black velvet belly lantern shark, *Etmopterus spinax*): a not so dark shark that shines in the deep.

Photographer: J. Mallefet

Description: A Belgian team (Pr. J. Mallefet -UCL, Lab Marine biology) has started the study of *Etmopterus spinax* bioluminescence. This research was initiated in 2007 in collaboration with Prof Schandler (UiB). The team composed of one PhD student (J. Claes) and two master students (M. Renwar and L. Berten) was hosted at HIB in F. Midtøy laboratory. Julien Claes PhD aims to discover how, why and when does this small shark use its capability to produce light.



You are invited to submit photos (electronically!) for "Ukens billede". 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 [Elinor Bartle](#) (preferable format jpg, gif; size around 300px sq; saved for web - under 60kb).

Forskning: utlysninger, nye satsinger og prosjekter

Posisjoneringsmidler for FP7

Det kan nå søkes om posisjoneringsmidler fra Norges forskningsrad og Universitetet i Bergen for forskere som har planlagt a søke på de neste utlysninger under det 7. rammeprogram. Søknadsfrist settes til fredag 30. mai 2008. [Les mer.](#) Application forms: [in Norwegian](#) [in English](#)



June 4 is coming! Remember to get your applications approved before you send them. One week in advance! And approval from research group leader!



Utlysning av forskningsmidler til frittstående prosjekter 2009 innen biologi og biomedisin (FRIBIO)

Forskerinitierte frittstående prosjekter er et hovedvirkemiddel for å støtte forskning innenfor molekylærbiologiske, fysiologiske og økologiske fag. Prosjektene skal bidra til faglig fornyelse og vitenskapelig erkjennelse gjennom grunnleggende forskning av høy faglig kvalitet.

Søknadsfrist: 04.06.2008 kl 12:00

[Les mer](#)

Utlysningen erstatter (f.o.m. 2007) de tre tidligere utlysningene FRIBIOMOL (bl.a. mikrobiologi, cellebiologi, immunologi, molekylærbiologi, genetikk, biokjemi, translasjonsforskning og genteknologi), FRIBIOFYS (bl.a. anatomi, fysiologi, patologi, farmakologi og toksikologi) og FRIBIOØKO (bl.a. økologi, evolusjonsbiologi, populasjonsbiologi, limnologi, biosystematikk og plantefysiologi).

Project Establishment Support, Pre-project Support and Support for Events (LATINAMERIKA)

There are 3 possible application types: (1) Project Establishment Support to develop grant proposals for the this autumn's planned call, (2) Pre-projects to lead to larger projects eligible for funding, (3) Support for Events - for organisation of relevant conferences/ workshops/ seminars).

Søknadsfrist: 04.06.2008 kl 12:00 [Les mer](#)

Utlysning av forskningsmidler til frittstående prosjekter for 2009 (FRINAT)

Utlysning av midler til forskerinitierte frittstående prosjekter innen matematikk og naturvitenskap. Frittstående prosjekter er et hovedvirkemiddel for å støtte grunnleggende forskning innen fysikk, geofag, kjemi og matematikk. Søknadsfrist: 04.06.2008 kl 12:00 [Les mer](#)

Utlysning av forskningsmidler til frittstående prosjekter for 2009 (FRITEK)

Utlysning av midler til forskerinitierte frittstående prosjekter innen teknologi. Frittstående prosjekter er et hovedvirkemiddel for å støtte grunnleggende forskning innen IKT og ingeniørfagene. Formålet er å bidra til faglig fornyelse og vitenskapelig erkjennelse gjennom grunnleggende forskning.

Søknadsfrist: 04.06.2008 kl 12:00 [Les mer](#)

Utenlandsstipend for stipendiater i KOSK og KOSK II. (KOSK II)

For å stimulere til utenlandsopphold for doktorgrads- og postdoktorstipendiater i programmet er det innført forenklet behandlingsfrist og løpende søknadsfrist for personlig utenlandsstipend. [Les mer](#)

Toppfinansiering av Marie Curie-stipender (TOPPCURIE)

Forskningsrådet tilbyr nå toppfinansiering til utgående og innkommende Marie Curie-stipendiater med kontrakter inngått fra og med 1. januar 2007 under EUs sjette og sjuende rammeprogrammer. [Les mer](#)
[Les siste nytt fra NFR](#)

Ny frist for NUCOOP-søknader: 13. juni

In the second call for proposals to the Norwegian University Cooperation Programme for Capacity Development in Sudan (NUCOOP II), projects will run from 2008-2012. Available funds for the second round amount to NOK 15.444.000. [Les mer.](#)

ROMFORSKNING utlyser programmidler for 2008 og 2009 (ROMFORSKNING)

Romforskning utlyser midler til prosjekter som kan bidra til å gi vesentlig, grunnleggende kunnskap om verdensrommet. I tillegg utlyses det midler til prosjekter innenfor jordobservasjon. [Les mer](#)

Nord-Amerika prosjektssøknadene

SIU har satt som krav at alle norske partnerinstitusjoner skal gjøre en institusjonell vurdering og rangering av prosjektssøknadene før de sendes til SIU og det nasjonale programstyret for endelig avgjørelse. Det er oppnevnt en ad-hoc komité som skal gjøre denne institusjonelle behandlingen av prosjektssøknadene på UiB. Fristen for UiBs søkere til å oversende sine partnerskapsprosjektssøknader

til den oppnevnte ad-hoc komitéen er satt til **fredag 16. mai**. Prosjektssøknadene skal oversendes elektronisk som vedlegg på e-post til Bjorn.Andersen@fa.uib.no. Utlysingen av programmet finnes på [SIUs nettside](#). [Mer info](#).

Call for workshop proposals - Ocean Carbon & Biogeochemistry

Deadline for submission: June 15, 2008 [more information](#)

Ny doktorgrad

Forelesning over selvvalgt emne, Rita Bartossek

Rita Bartossek holder forelesning over selvvalgt emne: "CRISPR - Resistance Against Viruses in Prokaryotes"

Bedømmelsekomite: Vigdis Lid Torsvik, Ruth-Anne Sandaa

Tid og sted: Onsdag 7. mai kl. 13:15, Aud. 101, Jahnebakken 5. Alle interesserte er velkommen!

Disputas, Sven Leininger: nye aktører i det globale nitrogenkretsløpet

Sven Leininger disputerer torsdag 8. mai for PhD graden ved Universitetet i Bergen med avhandlingen "Ammonia-oxidizing Archaea: Environmental Molecular Studies on Novel Players in Global Element Cycling".

Nitrogenkretsløpet er avgjørende for omsetning og tilgjengelighet av et av de viktigste næringsstoffer på jorden. Planter og dyr kan bare bruke nitrat som nitrogenkilde. Det er avgjørende at nitrogen blir tatt opp av organismer fordi det inngår både i arvestoffet (DNA) og i proteiner. Det er imidlertid bare mikroorganismer som er i stand til å drive alle de biologiske prosessene som inngår i nitrogensyklusen. Et viktig ledd i nitrogenomsetningene er nitrifisering, som er en todelt prosess, først med oksidasjon av ammoniakk til nitritt og så oksidasjonen av nitritt til nitrat. Nitrogenkretsløpet er begrenset av det første trinnet.

I de siste hundre år har man trodd at kun et fåtall typer av bakterier er involvert i ammoniakk-oksidasjonen, men i 2004 ble det oppdaget at denne viktige prosessen også kan utføres av en helt annen type mikroorganismer, de såkalte arkene (Archaea). Arkene ble først oppdaget i ekstreme miljø som varme kilder, områder med høyt saltinnhold, og miljø uten oksygen, og man trodde de kun fantes i slike miljø. Ved hjelp av molekylærbiologiske metoder har man nå vist at de også forekommer i vanlige miljø, som i jordsmonnet og i havet, og at de er meget tallrike i slike miljø. Til tross for sin utstrakte utbredelse, så har det frem til nå vært ukjent hva disse arkene lever av og hvor de får energi fra.

Leiningers arbeid har vært helt avgjørende for å vise at arker faktisk kan oksidere ammoniakk på like linje med bakterier. Hans studier har tatt utgangspunkt i jordsmonnet vi alle er omgitt av. I jord er nitrifikasjonsprosessen svært viktig, og arbeidet viser at det genet som arker trenger for å utnytte ammoniakk er tilstede i jorden. I tillegg til å påvise genet, er også mengden av det undersøkt i forskjellige jordprøver fra hele Europa. Resultatene viser at det vanligvis finnes mye mer av disse arke-genene enn de tilsvarende genene fra bakterier. Det kan bety at arker er viktigere enn bakterier når det gjelder oksidasjonen av ammoniakk. Videre er det undersøkt hvilke faktorer som påvirker antallet og forekomsten av arker i jord, og i hvilken grad de er ansvarlig for nitrifikasjonsprosessen sammenliknet med bakteriene.

Leiningers avhandling er blant de aller første undersøkelsene på ammoniumoksidierende arker og har omfattende betydning for forståelsen av økosystemer i jord. Det kan få følger utenfor laboratoriet, for eksempel for nye gjødslingsmetoder i jordbruket, for kloakkrensing og innenfor eutrofiering av innsjøer og kystvann.

Prøveforelesning over oppgitt emne, Gyri Teien Haugland

Gyri Teien Haugland holder prøveforelesning for PhD graden over oppgitt emne:

Mobile genetiske elementer hos Archaea

Bedømmeleseskomite: Ruth-Anne Sandaa, Runar Thyryhaug, Vigdis Torsvik

Tid og sted: 14. mai kl. 13:15, Aud. 101, Jahnebakken 5. Alle interesserte er velkommen!



Info fra studieseksjonen

Nor –Fishingstipend til utenlandsopphold

Stiftelsen Nor-Fishing har satt av midler til stipend som skal nyttes for at personer under utdanning skal få styrket si fiskerifaglige kompetanse gjennom utenlandsopphold i studietiden. Stipendet er et tilbud til personer under utdanning på teknisk fagskole og høyskole/universitet. I tillegg gis også stipend til personer i fiskerirelatert virksomhet som tar fiskerifaglig videreutdanning ved siden av jobben. Ordningen administreres av Norges Fiskerlag. Søknadsfrist er 16. mai. Søknadsskjema fås ved henvendelse til Norges fiskarlag: e-post: Fiskarlaget@fiskarlaget.no, Tlf.: 73 54 58 50

Nye medarbeidere

Linda Johansen begynte 1. mai som førstesekretær/ ekspedisjonssekretær ved BIO. Inntil nybygget er ferdig vil hun i hovedsak ha sin arbeidsplass i Jahnebakken, men må i tillegg være noen dager på HIB og i Realfagbygget. Linda skal jobbe tett sammen med **Anne Berge**, og når vi flytter til nybygget skal hun ivareta BIOs ekspedisjonstjenester. Dette betyr at hun må bli kjent med hele bredden av BIOs virksomhet.

Linda har en variert og spennende bakgrunn, - hun har jobbet i barnehage, i det private næringsliv og kom til oss fra en stilling ved NAV. Hun er mor til to jenter på 9 og 3 år.



Beatriz Diaz-Pauli arrived in Bergen on 4th May to start her PhD studies under **Mikko Heino**'s supervision. She will be working on the experimental focus of Evofish group's project on fisheries-induced evolution. For this purpose, experimental populations of guppies, *Poecilia reticulata*, will be set up and will be harvested mimicking natural fisheries harvested populations. Life history and behavioural traits will be measured throughout generations to assess changes due to the harvesting.

Beatriz obtained her degree in Biology from the University of Murcia (Spain) in 2005. One year later, she moved to Finland for an internship that was followed by a Masters at the University of Helsinki, working at Evolution of Reproductive Behaviour group. During these last two years she carried out lab and field work with two fish species the least killifish, *Heterandria formosa*, and the sand goby, *Pomatoschistus minutus*.



Anne Courrat is French and has recently joined the EvoFish Group. After a first Master degree in advanced agronomy, majored in environment, she worked in France during two years as a project manager in farmers associations.

During 2006, she restarted her studies in order to complete a Master in fishery sciences at Agrocampus Rennes, France. She wrote her master thesis in the Research Laboratory of the Aquatic and Fisheries Sciences Center in Agro campus Rennes, France. The thesis deals with anthropogenic disturbance on the nursery function of estuarine areas for marine fishes and it is mostly based on data analysis and modeling. Afterwards she worked as a research assistant (five months duration contract) in the same laboratory. Her research work consisted in developing fish indicators to evaluate the ecological status of estuaries within the Water Framework Directive (European Union Directive). She also developed an online course for the French virtual University on Sustainable Development. This course deals with the ecological interests of estuarine and coastal systems.

Anne has now started on a 4 years PhD project within the Evofish group. Her work will primarily focus on numerical and statistical approaches to study fisheries-induced evolution. Her supervisor will be **Mikko Heino**.



Gjesteforelesninger, seminarer og kollokvier

SPIE Asia-Pacific Remote Sensing Symposium

The next SPIE Asia-Pacific Remote Sensing Symposium, to be held in Noumea, New Caledonia, on November 17-21, 2008. The general theme of the symposium is "Remote Sensing for Island Ecosystem Management and the Diagnosis of Threats to the Global Environment". [More information](#)

Deadline extended for Nor-Fishing Technology Conference 2008

SINTEF Fiskeri og havbruk AS, N-7465 Trondheim
Deadline extended to Tuesday May 13. [More info](#).

News from NFTC

International Life Sciences Students' Conference - 2nd edition

This time in Warsaw, Poland 10-14 September, 2008. [web site](#) [more information](#)

Seeking Balance in a Changing North

The 5th Open Assembly of the Northern Research Forum, "Seeking Balance in a Changing North," will take place in Anchorage, Alaska, 24-27 September 2008. [conference web site](#).

There is special funding for young researchers to attend the 5th NRF. The deadline for funding applications is 15 May 2008.

Deadline for position papers: 15 June. Deadline for early-bird registration: 15 August. [more info](#)



Roskilde science sunrise conference 2008

"Surviving Ourselves: The Human Condition" Roskilde University, August 13-15, 2008
Call for Papers - Submission deadline 1 June 2008. [more info](#)

IMBER IMBIZO - Second announcement

Biogeochemical and ecosystem interactions in a changing ocean, 9 - 13 November 2008, Miami (USA) Deadline for registration and application submission: 1 June 2008 [more info](#)

Cod Farming in Nordic Countries

Grand Hotel, Reykjavik, 30 Sept. – 1 Oct. 2008. [Conference website](#) [more information](#)

Nye artikler

Har du en artikkel, kapittel eller bok som ikke har stått her? Du kan sende bibliografi og abstract (helst i Word-format, helst ikke pdf av hele artikkelen!) til Jarl så snart du har sidetall eller DOI (slik at publiseringsår er fastsatt).

Lawrence Kirkendall documents first evidence of bioinvasion

Lawrence R. Kirkendall · Marialuisa Dal Cortivo · Enzo Gatti 2008. First record of the ambrosia beetle, *Monarthrum mali* (Curculionidae, Scolytinae) in Europe. Journal of Pest Science (2008), DOI 10.1007/s10340-008-0196-y

Abstract During research conducted in northern Italy for the State Forestry Service LIFE Nature project, a single male specimen of the scolytine ambrosia beetle *Monarthrum mali* (Fitch) was collected in an ethanol-baited window flight trap. Trapping started in 2005, but the species was first collected in August 2007, suggesting that the establishment of *M. mali* in northern Italy is very recent. *Monarthrum mali* represents the second North American ambrosia beetle to be introduced to Europe, and joins *Phloeotribus limnaris* and *Xylosandrus crassiusculus* as recent scolytine introductions to Europe via Italy that pose potential threats to Europe's nurseries, orchards and plantations.

Mikko Heino: fiskeri-indusert evolusjon hos laksefisk

Jeffrey J. Hard, Mart R. Gross, Mikko Heino, Ray Hilborn, Robert G. Kope, Richard Law, John D. Reynolds (2008) Evolutionary consequences of fishing and their implications for salmon. Evolutionary Applications 1, 388–408 doi:10.1111/j.1752-4571.2008.00020.x

Abstract: We review the evidence for fisheries-induced evolution in anadromous salmonids. Salmon are exposed to a variety of fishing gears and intensities as immature or maturing individuals. We evaluate the evidence that fishing is causing evolutionary changes to traits including body size,

migration timing and age of maturation, and we discuss the implications for fisheries and conservation. Few studies have fully evaluated the ingredients of fisheries-induced evolution: selection intensity, genetic variability, correlation among traits under selection, and response to selection. Most studies are limited in their ability to separate genetic responses from phenotypic plasticity, and environmental change complicates interpretation. However, strong evidence for selection intensity and for genetic variability in salmon fitness traits indicates that fishing can cause detectable evolution within ten or fewer generations. Evolutionary issues are therefore meaningful considerations in salmon fishery management. Evolutionary biologists have rarely been involved in the development of salmon fishing policy, yet evolutionary biology is relevant to the long-term success of fisheries. Future management might consider fishing policy to (i) allow experimental testing of evolutionary responses to exploitation and (ii) improve the long-term sustainability of the fishery by mitigating unfavorable evolutionary responses to fishing. We provide suggestions for how this might be done.

Erin Dunlop: fiskeri-indusert livshistorieevolusjon hos bekkerøye

Véronique Thériault, Erin S. Dunlop, Ulf Dieckmann, Louis Bernatchez, Julian J. Dodson (2008) The impact of fishing-induced mortality on the evolution of alternative life-history tactics in brook charr. *Evolutionary Applications* 1, 409–423 doi:10.1111/j.1752-4571.2008.00022.x

Abstract: Although contemporary trends indicative of evolutionary change have been detected in the life-history traits of exploited populations, it is not known to what extent fishing influences the evolution of alternative life-history tactics in migratory species such as salmonids. Here, we build a model to predict the evolution of anadromy and residency in an exploited population of brook charr, *Salvelinus fontinalis*. Our model allows for both phenotypic plasticity and genetic change in the age and size at migration by including migration reaction norms. Using this model, we predict that fishing of anadromous individuals over the course of 100 years causes evolution in the migration reaction norm, resulting in a decrease in average probabilities of migration with increasing harvest rate. Moreover, we show that differences in natural mortalities in freshwater greatly influence the magnitude and rate of evolutionary change. The fishing-induced changes in migration predicted by our model alter population abundances and reproductive output and should be accounted for in the sustainable management of salmonids.

Tom Ole Nilsen, Lars Ebbesson & Sigurd Stefansson: funksjon av gjelleproteiner under smoltifisering og sjøvannstilpasning hos laks

C. K. Tipsmark, P. Kiilerich, T. O. Nilsen, L. O. E. Ebbesson, S. O. Stefansson, and S. S. Madsen 2008. Branchial expression patterns of claudin isoforms in Atlantic salmon during seawater acclimation and smoltification. *Am J Physiol Regul Integr Comp Physiol* 294: R1563-R1574

Abstract: In euryhaline teleosts, permeability changes in gill epithelia are essential during acclimation to changed salinity. This study examined expression patterns of branchial tight junction proteins called claudins, which are important determinants of ion selectivity and general permeability in epithelia. We identified Atlantic salmon genes belonging to the claudin family by screening expressed sequence tag libraries available at NCBI, and classification was performed with the aid of maximum likelihood analysis. In gill libraries, five isoforms (10e, 27a, 28a, 28b, and 30) were present, and quantitative PCR analysis confirmed tissue-specific expression in gill when compared with kidney, intestine, heart, muscle, brain, and liver. Expression patterns during acclimation of freshwater salmon to seawater (SW) and during the smoltification process were examined. Acclimation to SW reduced the expression of claudin 27a and claudin 30 but had no overall effect on claudin 28a and claudin 28b. In contrast, SW induced a fourfold increase in expression of claudin 10e. In accord, a peak in branchial claudin 10e was observed during smoltification in May, coinciding with optimal SW tolerance. Smoltification induced no significant changes in expression of the other isoforms. This study demonstrates the expression of an array of salmon claudin isoforms and shows that SW acclimation involves inverse regulation, in the gill, of claudin 10e vs. claudin 27a and 30. It is possible that claudin 10e is an important component of cation selective channels, whereas reduction in claudin 27a and 30 may change permeability conditions in favor of the ion secretory mode of the SW gill.

Bjørn Arild Hatteland & Torstein Solhøy: løpebiller og øybiogeografi i Øygarden

Bjørn A. Hatteland, Tom N. Pedersen, Finn Mortensen & Torstein Solhøy 2008. Species – area relations and island distribution of carabid beetles (Coleoptera, Carabidae) on small islands off the coast of western Norway. *Norw J Entomol.* 56: 73-80.

Abstract: The study explores carabid beetle communities on small islands to assess distribution patterns in terms of stochastic and non-random mechanism. The study was carried out on 14 small islands in Øygarden, an island archipelago 30 km north-west of Bergen, western Norway. The dominant vegetation was *Calluna* heath. Sampling was carried out with 83 pitfall traps operating continuously from 30 May to 14 November 1983. Log-linear regression was applied for analysing the data. The pitfall trapping yielded 29 species and 6139 specimens of ground beetles (Coleoptera, Carabidae). Island area was less significant than the habitat size in determining the species diversity. An island further away from the source area contained a higher proportion of species with the ability to fly than did islands close to the source area (i.e. nearest large island). Islands exposed to the actions of wind and waves were inhabited by species with adult hibernation. The immigration rate of *Carabus problematicus* Herbst is probably very low, leading to a certain degree of genetic isolation, expressed by differences in size between islands. Carabid beetles from small islands of the coast of western Norway were non-randomly distributed according to habitat size and distance from source areas. Extreme areas such as small islands alter carabid beetle communities in a profound way.

Jørn Einen & Lise Øvreås: metode for å telle bakterier og arker i havbunnen

Einen Jørn, Ingunn H. Thorseth & Lise Øvreås 2008. Enumeration of Archaea and Bacteria in seafloor basalt using real-time quantitative PCR and fluorescence microscopy. *FEMS Microbiology Letters* 282, 182–187

Abstract: A SYBR Green real-time quantitative PCR (Q-PCR) assay for the detection and quantification of *Bacteria* and *Archaea* present in the glassy rind of seafloor basalts of different ages and water depths is presented. Two sets of domain-specific primers were designed and validated for specific detection and quantification of bacterial and archaeal 16S rRNA genes in DNA extracted from basaltic glass. Total cell numbers were also estimated by fluorescence microscopy analysis of SYBR Gold-stained samples. The results from the two different approaches were concurrent, and Q-PCR results showed that the total number of cells present in basalts was in the range from 6×10^5 to 4×10^6 cells g^{-1} basaltic glass. Further, it was demonstrated that these cells were almost exclusively from the domain *Bacteria*. When applying the same methods on samples of different ages (22 years–0.1 Ma) and water depths (139–3390 mbsl), no significant differences in cell concentrations or in the relative abundance of *Archaea* and *Bacteria* were detected.

Laila Reigstad, Tim Urich & Christa Schleper: nitrifikasjon fra arker i varme kilder

Reigstad Laila J., Andreas Richter, Holger Daims, Tim Urich, Lorenz Schwark, Christa Schleper (2008) Nitrification in terrestrial hot springs of Iceland and Kamchatka. *FEMS Microbiology Ecology* 64, 167–174

Abstract: Archaea have been detected recently as a major and often dominant component of the microbial communities performing ammonia oxidation in terrestrial and marine environments. In a molecular survey of archaeal ammonia monooxygenase (AMO) genes in terrestrial hot springs of Iceland and Kamchatka, the *amoA* gene encoding the α -subunit of AMO was detected in a total of 14 hot springs out of the 22 investigated. Most of these *amoA*-positive hot springs had temperatures between 82 and 97 °C and pH range between 2.5 and 7. In phylogenetic analyses, these *amoA* genes formed three independent lineages within the known sequence clusters of marine or soil origin. Furthermore, *in situ* gross nitrification rates in Icelandic hot springs were estimated by the pool dilution technique directly on site. At temperatures above 80 °C, between 56 and 159 $\mu\text{mol NO}_3^- \text{L}^{-1}$ mud per day was produced. Furthermore, addition of ammonium to the hot spring samples before incubation yielded a more than twofold higher potential nitrification rate, indicating that the process was limited by ammonia supply. Our data provide evidence for an active role of archaea in nitrification of hot springs in a wide range of pH values and at a high temperature.

Gjert Knutsen: nytt antibiotikum og antikreft-middel fra marin sopp

Fiedler, Hans-Peter, Bruntner, Christina, Riedlinger, Julia, Bull, Alan T., Knutsen, Gjert, Goodfellow, Michael, Jones, Amanda, Maldonado, Luis, Pathom-aree, Wasu, Beil, Winfried, Schneider, Kathrin, Keller, Simone, Sussmuth, Roderich D. 2008. Proximicin A, B and C, novel aminofuran antibiotic and anticancer compounds isolated from marine strains of the actinomycete *Verrucosisspora*. JOURNAL OF ANTIBIOTICS 61: 158-163

Abstract: A family of three novel aminofuran antibiotics named as proximicins was isolated from the marine *Verrucosisspora* strain MG-37. Proximicin A was detected in parallel in the marine abyssomicin producer "*Verrucosisspora maris*" AB-18-032. The characteristic structural element of proximicins is 4-amino-furan-2-carboxylic acid, a hitherto unknown gamma-amino acid. Proximicins show a weak antibacterial activity but a strong cytostatic effect to various human tumor cell lines.

Sompong O-Thong & Nils-Kåre Birkeland: metode for å produsere hydrogen ved fermentering av palmeolje ved lavt oksygenbehov

Sompong O-Thong, Poonsuk Prasertsan, Nugul Intrasungkha, Srisuda Dhamwichukorn and Nils-Kåre Birkeland 2008. Optimization of simultaneous thermophilic fermentative hydrogen production and COD reduction from palm oil mill effluent by *Thermoanaerobacterium*-rich sludge. International Journal of Hydrogen Energy 33, 1221-1231

Abstract *Thermoanaerobacterium*-rich sludge acclimated with palm oil mill effluent (POME) in an anaerobic sequencing batch reactor operating at 60°C was used as a seed in batch experiments to investigate the effects of C/N (carbon/nitrogen) ratio, C/P (carbon/phosphate) ratio and iron concentration in POME on fermentative hydrogen production. A central composite design was performed with the aim of optimizing the hydrogen yield together with POME degradation using response surface methodology (RSM). The RSM results indicated that the presence of 257 mg Fe²⁺/l, a C/N ratio of 74 and a C/P ratio of 559 were optimal for simultaneous hydrogen production and COD (chemical oxygen demand) removal. C/N ratio, C/P ratio and iron concentration all had an individual effect on hydrogen production and COD removal, while iron concentration and C/N ratio had the greatest interactive effect on hydrogen production (P<0.05) while C/N and C/P ratio gave more profound interactive effect on COD removal (P<0.05). The predicted maximum simultaneous hydrogen production and COD removal were 6.5 l H₂/l-POME and 58%, respectively. In a confirmation experiment under optimized conditions highly reproducible results were obtained, with a hydrogen production and COD removal efficiency of 6.33 ± 0.142 l H₂/l-POME and 55 ± 1.5%, respectively. The total carbohydrate conversion was 92 ± 2.7%. The hydrogen production rate reached 25.9 mmol H₂/l/day and increased by 60% as compared with the use of raw POME. *Thermoanaerobacterium* spp. were found to be dominant and present at a higher population density under optimized conditions than in raw POME fermentation. Optimization of the culture cultivation conditions in POME resulted in a simultaneous increase in biohydrogen production and COD reduction.

Jorun Egge og Jens Nejstgaard: dynamikk i organisk stoff under pelagisk CO₂-økningsforsøk

Schulz K. G. , U. Riebesell, R. G. J. Bellerby, H. Biswas, M. Meyerhöfer, M. N. Müller, J. K. Egge, J. C. Nejstgaard, C. Neill, J. Wohlers, and E. Zöllner 2008. Build-up and decline of organic matter during PeECE III. Biogeosciences 5, 707-718

Abstract. Increasing atmospheric carbon dioxide (CO₂) concentrations due to anthropogenic fossil fuel combustion are currently changing the ocean's chemistry. Increasing oceanic [CO₂] and consequently decreasing seawater pH have the potential to significantly impact marine life. Here we describe and analyze the build-up and decline of a natural phytoplankton bloom initiated during the 2005 mesocosm Pelagic Ecosystem CO₂ Enrichment study (PeECE III). The draw-down of inorganic nutrients in the upper surface layer of the mesocosms was reflected by a concomitant increase of organic matter until day t_{11} , the peak of the bloom. From then on, biomass standing stocks steadily decreased as more and more particulate organic matter was lost into the deeper layer of the mesocosms. We show that organic carbon export to the deeper layer was significantly enhanced at elevated CO₂. This phenomenon might have impacted organic matter remineralization leading to decreased oxygen concentrations in the deeper layer of the high CO₂ mesocosms as indicated by deep

water ammonium concentrations. This would have important implications for our understanding of pelagic ecosystem functioning and future carbon cycling.

Ana Paulino, Jorun Egge & Aud Larsen: effekt av økt CO₂ på små alger

Paulino AI, JK Egge & A Larsen 2008. Effects of increased atmospheric CO₂ on small and intermediate sized osmotrophs during a nutrient induced phytoplankton bloom. *Biogeosciences* 5, 739-748

Abstract. We report the transient population dynamic response of the osmotrophic community initiated by a nutrient pulse in mesocosms exposed to different *p*CO₂ levels. Differences in phytoplankton and heterotrophic bacteria abundances associated with the CO₂ treatment are also described. Coastal seawater was enclosed in floating mesocosms (27 m³) and nutrients were supplied initially in order to stimulate growth of microbial organisms, including the coccolithophorid *Emiliania huxleyi*. The mesocosms were modified to achieve 350 µatm (1×CO₂), 700 µatm (2×CO₂) and 1050 µatm (3×CO₂) CO₂ pressure. The temporal dynamics was related to nutrient conditions in the enclosures. Numerically small osmotrophs (picoeukaryotes and *Synechococcus* sp.) dominated initially and towards the end of the experiment, whereas intermediate sized osmotrophs bloomed as the initial bloom of small sized osmotrophs ceased. Maximum concentrations of *E. huxleyi* were approximately 4.6×10³ cells ml⁻¹ whereas other intermediate sized osmotrophs reached approximately twice as high concentrations. The osmotrophic succession pattern did not change, and neither were we able to detect differences with regard to presence or absence of specific osmotrophic taxa as a consequence of altered *p*CO₂. Towards the end of the experiment we did, however, record significantly higher picoeukaryotic- and lower *Synechococcus*-abundances in the higher CO₂ treatments. Slightly increased cell concentrations of *E. huxleyi* and other nanoeukaryotes were also recorded at elevated *p*CO₂ on certain days.

Tsuneo Tanaka, Frede Thingstad, Trond Løvdal & Aud Larsen: tilgjengelighet av fosfat og glukose for næringsopptak under ulike CO₂-konsentrasjoner

Tanaka T, T. F. Thingstad, T. Løvdal, H.-P. Grossart, A. Larsen, M. Allgaier, M. Meyerhöfer, K. G. Schulz, J. Wohlers, E. Zöllner, and U. Riebesell 2008. Availability of phosphate for phytoplankton and bacteria and of glucose for bacteria at different *p*CO₂ levels in a mesocosm study. *Biogeosciences*, 5, 669-678

Abstract. Availability of phosphate for phytoplankton and bacteria and of glucose for bacteria at different *p*CO₂ levels were studied in a mesocosm experiment (PeECE III). Using nutrient-depleted SW Norwegian fjord waters, three different levels of *p*CO₂ (350 µatm: 1×CO₂; 700 µatm: 2×CO₂; 1050 µatm: 3×CO₂) were set up, and nitrate and phosphate were added at the start of the experiment in order to induce a phytoplankton bloom. Despite similar responses of total particulate P concentration and phosphate turnover time at the three different *p*CO₂ levels, the size distribution of particulate P and ³³PO₄ uptake suggested that phosphate transferred to the >10 µm fraction was greater in the 3×CO₂ mesocosm during the first 6–10 days when phosphate concentration was high. During the period of phosphate depletion (after Day 12), specific phosphate affinity and specific alkaline phosphatase activity (APA) suggested a P-deficiency (i.e. suboptimal phosphate supply) rather than a P-limitation for the phytoplankton and bacterial community at the three different *p*CO₂ levels. Specific phosphate affinity and specific APA tended to be higher in the 3×CO₂ than in the 2×CO₂ and 1×CO₂ mesocosms during the phosphate depletion period, although no statistical differences were found. Glucose turnover time was correlated significantly and negatively with bacterial abundance and production but not with the bulk DOC concentration. This suggests that even though constituting a small fraction of the bulk DOC, glucose was an important component of labile DOC for bacteria. Specific glucose affinity of bacteria behaved similarly at the three different *p*CO₂ levels with measured specific glucose affinities being consistently much lower than the theoretical maximum predicted from the diffusion-limited model. This suggests that bacterial growth was not severely limited by the glucose availability. Hence, it seems that the lower availability of inorganic nutrients after the phytoplankton bloom reduced the bacterial capacity to consume labile DOC in the upper mixed layer of the stratified mesocosms.

Bok-kapittel

Frede Thingstad, Gunnar Bratbak & Mikal Heldal: økologi til bakterie-virus

T. Frede Thingstad, Gunnar Bratbak and Mikal Heldal. Aquatic Phage Ecology. In: Stephen T. Abedon (ed) *Advances in Molecular and Cellular Microbiology. Bacteriophage Ecology - Population Growth, Evolution, and Impact of Bacterial Viruses*. Cambridge University Press.

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