BIO-info

Nyheter fra Institutt for biologi

BIO-info 01/2012, 06. jan 2012 BIO: sakslister og møtereferater BIO-info arkiv
submission deadline to bio.info@bio.uib.no is Wednesday 16:00

Fra toppen!

Godt nytt år!

2012 er i gang, og vi ønsker hverandre på sedvanlig vis til lykke med det nye året. La oss også håpe at året blir fremgangsrikt og fruktbart på alle mulige måter. Når vi ser på beholdningen etter fjorårets NFR-søknadsrunde, ligger vi nok litt etter ønsker og håp der.

Når nye muligheter nå åpner seg bl.a. med det nye bioteknologiprogrammet BIOTEK2021, NORKLIMA har vedtatt en ny utlysningsrunde, og EUs 7. rammeprogram går inn i sin siste utlysningsrunde med viktige tema knyttet til miljø, klima og den kunnskapsbaserte bioøkonomien, er det viktig at vi er på hugget, etablerer gode samarbeidskonsortier, og utvikler gode søknader. Her skal BIO gjøre sitt ytterste for å bidra til at søknadene blir best mulig, gjennom videreutvikling av den «beste praksis»-modellen som vi begynte på i fjor.

Vi ønsker også å ha et sterkt fokus på undervisning og utdanning dette året. Ikke bare skal vi jobbe frem en glitrende søknad om Senter for fremragende utdanning. Vi vil også dra i gang en seminarserie knyttet til undervisning, vi skal utvikle et bedre organisert tilbud for besøk av skoleklasser for å styrke rekrutteringen til studiet, og vi skal fortsette satsingen på felt og lab i det nye bachelorprogrammet slik det er nedfelt i strategiplanen vår «Høyere mål - dypere innsikt». I tillegg til en masse annet.

Det kan faktisk bli et godt år!

Hilsen Anders

Ukens bilde

Ixiolirion tataicum

Photographers: **John and Hilary Birks**

A member of the amaryllis family, this lovely bulb comes from the steppes of central Asia. Its common names include Siberian lily and the Lavender mountain lily. It is the January picture in the Birks' 2012 calendar.

Our Picture-of-the-Week folder is empty. Any interesting images to share from your travels, teaching activities, research etc.?

You are invited to submit photos (electronically!) for "Ukens bilde". Please include a very short description and credit information. Send to bio.info@bio.uib.no

Innhold:

BIO-info

Nyheter fra Institutt for biologi

Faste lenker:

BIO-info arkiv Sakslister & referater BIOs interne websider BIO's eksterne websider
Facebook BIO Facebook STIM Facebook UiB

VIKTIG INFORMASJON

Nytt adgangskontrollanlegg / Updating of entry card system; Endringer i prosjektforvaltningen

Updating of entry card system

(information in Norwegian) UiB is beginning to change the current entry card reading system to a touch-free reading system. The change-over process will last until July 2013. Two places, Parkveien 9 (Department of Estate and Facilities Management (EIA)) and Allegaten 41(Realfagbygget) are the first buildings to undergo the change. Many of today's current cards will not work in the new system. Each person must check their own card. A test reader has been set up at the Student Centre (Parkveien 1) by the main staircase.

How to test your card:

- The system is touch-free. Place your card in front of the reader. (It is not necessary to type in your pin-code)
- The **GREEN** light beside the card reader should light up. This means your card will function in the new system.
- If this does not happen, your card must be registered again (all cards made before 2009 will probably need to be re-registered). STUDENTS: re-register at the Card Centre EMPLOYEES: contact the expedition at BIO. You will need your name and card number.
- **NB:** the test reader will not be updated, so it will not show any change to your card status

Endringer prosjektforvaltningen på økonomiseksjonen

BIO har en så stor prosjektportefølje at vi ser at det er nødvendig å gjøre noen endringer i arbeidsfordelingen for å sikre en god kvalitet i prosjektoppfølgingen. Heidi Lappegård vil fortsatt forvalte brorparten av prosjektene våre, men for å redusere sårbarheten ved for eksempel sykdom og lignende, og for å bedre utnyttelsen av ressursene i økonomiseksjonen, vil Annike Lygren og Sidsel Kjølleberg overta ansvaret for noen prosjekter. De av dere som vil bli berørt av endringene vil få en egen mail.

HVA SKJER?

Mastereksamener Kaldestad og Mydland

Dato	Handlinger, navn	Tid og sted
09.01.2012	Avsluttende mastergradseksamen i Fiskehelse - **Marte Kaldestad**	kl. 10:15, Seminarrom K1, 1. etasje, Biobyggene
11.01.2012	Avsluttende mastereksamen i Biologi – **Anne Mette Mydland**	Onsdag 11. januar, kl. 10:15, Seminarrom K1, 1. etasje, Biobyggene

NYHETER FRA BIO

Wild BC salmon and ISA; Havforsuring og torsk; Fiskens dag

BC salmon may have exhibited virus for decades

Are Nylund says that wild salmon in British Columbia (BC) waters have been found to carry what a federal scientist believes may be a new strain of the infectious salmon anemia (ISA) virus, which has afflicted fish farms in eastern Canada, Chile and Europe. Read more from FIS Norway. Also reported in: fishfarmingXpert, post-gazette.com, The globe and mail, CTV News, and News1130

CO2 trugar torsken

Arild Folkvord sier at torsk får dødelege indre skader om CO2-utsleppa held fram som i dag. CO2 forsurar havet, og det er ille for den nyklekte torskelarven. Les mer fra BT.

Invitasjon til å samarbeide

Universitetsmuseet i Bergen har planer om å lage arrangementet Fiskens dag søndag 25. mars kl 12-16. Målgruppen er barnefamiler. Onsdag 21. mars fra kl 19-21 vil det etter planen arranges populærvitenskapelige foredrag for voksne med tema fisk.

De vil gjerne invitere dere til samarbeid rundt disse to arrangementene. Dersom dere har lyst å bidra med noe eller være med på utviklingen av et eller begge arrangement, ta kontakt med Eli Hausken (eli.hausken@um.uib.no, tlf: 55589363/48133749) eller Margareth Hosøy (margareth.hosoy@um.uib.no tlf: 90620138).

Avsluttende mastergradseksamen

Marte Kaldestad: Opptak og effekt av antibakterielle midler mot *Francisella noatunensis* subsp. *Noatunensis in vitro* i hodenyreleukcytter fra Atlantisk torsk (*Gadus morhua* l.)

Marte Kaldestad holder mandag 9. januar avsluttende presentasjon av sin masteroppgave i Fiskehelse

Tittel på oppgave: Opptak og effekt av antibakterielle midler mot *Francisella noatunensis* subsp. *Noatunensis in vitro* i hodenyreleukcytter fra Atlantisk torsk (*Gadus morhua* l.)

Veileder: Heidrun Wergeland og Ole Bent Samuelsen. Sensor: Ragna Heggebø. Bisitter: Harald Kryvi

Tid og Sted: Mandag 9. januar, kl. 10:15, Seminarrom K1, 1. etasje, Biobyggene

Anne Mette Mydland: Habitats important in maintaining biodiversity – a study of Norwegian Red Listed vascular plants, Lepidoptera, Diptera and Coleoptera

Anne Mette Mydlad holder onsdag 11. januar avsluttende presentasjon av sin masteroppgave i biologi – biodiversitet, evolusjon og økologi.

Tittel på oppgave: Habitats important in maintaining biodiversity – a study of Norwegian Red Listed vascular plants, Lepidoptera, Diptera and Coleoptera

Veileder: John-Arvid Grytnes. Sensor: Magne Sætersdal. Bisitter: Petter Larsson.

Tid og sted: Onsdag 11. januar, kl. 10:15, Seminarrom K1, 1. etasje, Biobyggene

Alle interesserte velkommen!

ANDRE NYHETER

Klarspråk har oppdatert ordlister; Going Green; Stadig flere tviler på vitenskap,

Ordliste med 2 000 administrative termar frå universitets- og høgskolesektoren

Termbasen til Universitets- og høgskolerådet (UHR) er ei ordliste med 2 000 administrative termar frå universitets- og høgskolesektoren. Nå kan du også søkje på nynorsk i UHR sin termbase. Les meir.

Going Green: 12 Simple Steps for 2012

Even for those already living pretty green, the New Year is an opportunity to "go greener"----to see if there are more ways to move persistently toward sustainable behavior: on a daily basis how low can you keep their thermostats in the winter, how rarely can you use a car, and how much can you reduce your household waste. To help with more modest shifts toward the verdant color, here are 12 simple steps that you can take to go green(er) in 2012. (From Robert Engelman, President, Worldwatch Institute)

Tvilen som tar liv

I forskning.no Tore Furevik sier at stadig fleire tviler på vitskap, uansett kor mange vitskaplege funn ein slår i bordet med. Forskarar fryktar antivitskaplege haldningar kan ta liv. Les mer.

På HØYDEN

Med Dannelse på nattbordet

Av Dag Rune Olsen

Ingen spaltist har så langt kontaktet meg for å spørre om hvilken bok jeg har liggende på nattbordet. Skulle det skje har jeg imidlertid svaret klart: 'Dannelse' – med undertittelen "alt det du må vite"! Les mer.

Ber fiskeriministeren om fullfinansiering

Fiskehelseforskningen ved UiB får toppkarakter i Forskningsrådets fagevaluering. Nå skal dekan Dag Rune Olsen overtale fiskeriministeren, slik at fiskehelsestudiet blir finansiert etter profesjonssatser. Les mer.

Stadig flere midlertidige forskere

Antall midlertidig tilsatte fortsetter å øke ved universitetene. Den største økningen har skjedd ved UiB. – Det er bare å beklage, sier rektor. Les mer.

Bioteknologi skal skapa verdiar

Bioteknologi skal brukast for å styrkja nasjonal verdiskaping, helse og ta vare på miljøet. Frå 2012 skal

regjeringa investera 175 millionar kroner årleg på prosjekt innanfor bioteknologi, opplyste statsråd Tora Aasland før helga. Les meir.

Newsletters

CICERO INN: Bergen International News & Activities IMBER Nordic Development Fund (NDF) Fiskeriforum vest

NYE UTLYSNINGER

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

ERA-Net MARTEC; NANO2021 (nytt); Students Innovact Campus Awards; Summer Schools: Aquatic Microbial and Molecular Ecology

ERA-Net MARTEC Call for proposals 2012 (MAROFF)

ERA-Net MARTEC inviterer til transnasjonale samarbeidsprosjekter innen maritim teknologi. Denne utlysningen gjelder den norske delen av samarbeidsprosjektene

Les mer på forskningsrådets hjemmeside og på MARTECs hjemmeside

Nytt program i forskningsrådet: NANO2021

Forskningsrådet har på tampen av 2011 etablert NANO2021, som et Stort program innenfor nanoteknologi og avanserte materialer

Den første utlysningen av prosjektmidler i det nye programmet er publisert her. Temaene er fornybar energi og forbedret helse (legemidler og medisinsk utstyr); - **søknadsfrist 15. februar 2012**:

Det nye programmet er basert på en foreløpig programplan. Sammen med nytt programstyre vil det utarbeides en endelig programplan, som forventes klar i mars/april i år.

Innovact Campus Awards' 10th edition!

For ten years, the Innovact Campus Awards have, with the support of the European Commission, enabled young students to implement their projects at European level.

If you are a student with a creative and innovative idea for a business project, you can, with a team or individually, take part in the 10th edition of the Innovact Campus Award. The aim of this european competition is to reward new and challenging projects. Your project can either be in its design stage, in progress or already launched.

All students can take part in the competition either individually or within the framework of their institution. Deadline for receipt of completed application forms: Monday 20 February 2012. More info

Kurs

PhD course in Aquatic Microbial and Molecular Ecology

July 30 to August 17, 2012 at University of Southern Denmark. The focus will not only be on theory, but also on state-of-the-art methods used in ecological, biogeochemical and molecular studies of aquatic sediments. Learn more. Please send applications by 15 May, 2012.

Mer info om kurs finner du her.

KOMMENDE MØTER OG SEMINAR

Mer info om kurs, møter, seminar og arrangement etc finner du her.

Hold Norge rent; Nansen-seminar; Næringslivsdag; Deep-sea & sub-seafloor; Extremely energy-limited microbes; Larval fish

Hold Norge rent-konferansen

Oslo, 10. januar. Konferansen tar opp marin forsøpling - og det kommer flere internasjonale aktører (deriblant en forsker fra India, skandinaviske organisasjoner, europeisk plastindustri m.m). Vi vil også oppsummere Strandryddedagen 2011 og peker fremover mot vårens aksjon 5. mai. Lær mer.

NTVA-/NVP-møte i Bergen om Nansen og Johannessen i Polisen

Norges Tekniske Vitenskapsakademi, NTVA, og Norges Vitenskapsakademi for Polarforskning, NVP, inviterer til fellesmøte i Bergen i anledning 150-års jubileum for Fridtjof Nansen og 25-års jubileum for Nansensenteret. Tirsdag 24. januar 2012 kl. 19:00 Sted: Nansensenteret på Marineholmen. Les mer.

Forskningsrådets næringslivsdag 2012

På Forskningsrådets næringslivsdag skal vi lære av de som har lykkes gjennom søken etter ny kunnskap, innsatsvilje og lidenskap. Les mer.

The Deep-Sea & Sub-Seafloor Frontiers Conference - extended deadline

March 11th - 14th, 2012, Stiges (Barcelona, Spain). Extended deadline for abstract submission: January 13, 2012. The Deep-Sea and Sub-Seafloor Frontiers project (DS3F) is a EU-funded Coordination Action, which is developing sub-seafloor sampling and observing strategies for enhanced understanding of deep-sea and sub-seafloor processes by connecting marine research in life and geosciences, climate and environmental change with socio-economic issues and policy building. Read more.

2nd International Workshop on "Microbial Life under Extreme Energy Limitation"

It will take place at Aarhus University during May 6-9 2012.Abstract submission deadline is March 1, 2012. The goal is to develop our understanding of the energetic limits to microbial life, with relevance for the deep biosphere, planetary biology, and microbial ecology in general. Learn more.

Larval fish conference

36th Annual larval fish conference, 2-6 July 2012, at Solstrand, Norway. Learn more.

International Multidisciplinary Scientific Geo-Conference

12th International Multidisciplinary Scientific Geo-Conference and Expo - SGEM 2012 will be held 17 - 23 June, 2012 at Albena Resort & SPA, Bulgaria. Learn more.

Framtidskonferansen ved Nordahl Grieg vgs

Framtidskonferansen 2012 (20-22 februar). Årets tema er "menneskeverd og teknologi". UiB forskerer er invitert til å delta. Les mer om Framtidskonferansen 2011. Contact Arve.Aksnes@mnfa.uib.no for mer info.

Fra papir til digitalt pensum – status og konsekvenser

UHR inviterer medlemsinstitusjonene til møte 1. februar 2012 om arbeid med overgang til digitalt pensum/anbefalt studielitteratur og diskusjoner rundt institusjonenes tilnærming. Les mer.

Internasjonaliseringskonferansen 2012

Tid og sted: Torsdag 8. og fredag 9. mars i Oslo. Tema for konferansen er kobling mellom internasjonalisering av høyere utdanning og arbeidslivet. Vi ønsker å åpne for refleksjoner og debatt, og byr på aktuelle foredrag og innspill fra arbeidsliv, høyere utdanningssektor og organisasjonsliv. Konferansen åpnes av statsråd Tora Aasland. Les mer.

NYE ARTIKLER

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

Bristow; Aarnes; Birks; Avila-Jimenez; Hoie; Hatteland; Mangel; Bratbak; Heino; Fiksen; Pittman; Sjøtun; Brakstad; Klanderud; Magnesen; Jacobsen; Imsland

Bagdonas K, Nika N, **Bristow G**, Jankauskiene R, Salyte A, Kontautas A (2011) First record of Dicentrarchus labrax (Linnaeus, 1758) from the southeastern Baltic Sea (Lithuania). Journal of Applied Ichthyology 27:1390-1391

Aarnes I, Bjune AE, **Birks HH**, Balascio NL, Bakke J, Blaauw M (2012) Vegetation responses to rapid climatic changes during the last deglaciation 13,500-8,000 years ago on southwest Andoya, arctic Norway. Vegetation History and Archaeobotany 21:17-35

Abstract: The late-glacial vegetation development in northern Norway in response to climate changes during the Allerod, Younger Dryas (YD), and the transition to the Holocene is poorly known. Here we present a high-resolution record of floral and vegetation changes at lake Lusvatnet, south-west Andoya, between 13500 and 8000 cal b.p. Plant macrofossil and pollen analyses were done on the same sediment core and the proxy records follow each other very closely. The core has also been analyzed using an ITRAX XRF scanner in order to check the sediment sequence for disturbances or hiatuses. The core has a good radiocarbon-based chronology. The Saksunarvatn tephra fits very well chronostratigraphically. During both the Allerod and the Younger Dryas time-periods arctic vegetation prevailed, dominated by Salix polaris associated with many typically arctic herbs such as Saxifraga cespitosa, Saxifraga rivularis and Oxyria digyna. Both periods were cold and dry. Between 12450 and 12250 cal b.p. during the Younger Dryas chronozone, the assemblage changed, particularly in the increased abundance of Papaver sect. Scapiflora and other high-Arctic herbs, suggesting the development of polar desert vegetation mainly as a response to increased aridity. After 11520 cal b.p. a gradually warmer and more oceanic climate initiated a succession to dwarf-shrub vegetation and the establishment of Betula woodland after 1,000 years at c. 10520 cal b.p. The overall late-glacial aridity contrasts with oceanic conditions in southern Norway and is probably related to sea-ice extent.

Coulson SJ, Fjellberg A, Snazell R, Gwiazdowicz DJ**, Avila-Jimenez ML** (2011) ON THE COLLEMBOLA, ARANEAE AND GAMASIDA FROM THE KINNVIKA REGION OF NORDAUSTLANDET, SVALBARD. Geografiska Annaler Series a-Physical Geography 93A:253-257

Abstract: The Collembola, Araneae and gamasid mite fauna from the vicinity of Kinnvika on the island of Nordaustlandet in the Svalbard archipelago are described. Few records of the invertebrate fauna from this remote and climatically extreme region exist. Twenty-four species of Collembola were identified, of which three were new records for Nordaustlandet. None were new records for Svalbard. In addition, seven species of Araneae, three of which were new records for Nordaustlandet, and five species of gamasid mite, all new to Nordaustlandet, were collected. All invertebrates collected were already known from locations on the west coast of Spitsbergen. These records supplement the scarce current terrestrial invertebrate data for this region and contribute towards the baseline data for this region proposed to become an Arctic environmental reference area.

Fablet, R, Pecquerie, L, de Pontual, H, **Hoie, H**, Millner, R, Mosegaard, H, Kooijman, Salm (2011) Shedding Light on Fish Otolith Biomineralization Using a Bioenergetic Approach. Plos One 6

Abstract: Otoliths are biocalcified bodies connected to the sensory system in the inner ears of fish. Their layered, biorhythm-following formation provides individual records of the age, the individual history and the natural environment of extinct and living fish species. Such data are critical for ecosystem and fisheries monitoring. They however often lack validation and the poor understanding of biomineralization mechanisms has led to striking examples of misinterpretations and subsequent erroneous conclusions in fish ecology and fisheries management. Here we develop and validate a numerical model of otolith biomineralization. Based on a general bioenergetic theory, it disentangles the complex interplay between metabolic and temperature effects on biomineralization. This model resolves controversial issues and explains poorly understood observations of otolith formation. It represents a unique simulation tool to improve otolith interpretation and applications, and, beyond, to

address the effects of both climate change and ocean acidification on other biomineralizing organisms such as corals and bivalves.

Hatteland BA, Symondson WOC, King RA, **Skage M**, **Schander C, Solhoy T** (2011) Molecular analysis of predation by carabid beetles (Carabidae) on the invasive Iberian slug Arion lusitanicus. Bulletin of Entomological Research 101:675-686

Abstract: The invasive Iberian slug, Anion lusitanicus, is spreading through Europe and poses a major threat to horticulture and agriculture. Natural enemies, capable of killing A. lusitanicus, may be important to our understanding of its population dynamics in recently invaded regions. We used polymerase chain reaction (PCR) to study predation on A. lusitanicus by carabid beetles in the field. A first multiplex PCR was developed, incorporating species-specific primers, and optimised in order to amplify parts of the mitochondrial cytochrome c oxidase subunit 1 (cox1) gene of large Anion slugs, including A. lusitanicus from the gut contents of the predators. A second multiplex PCR, targeting 12S rRNA mtDNA, detected predation on smaller Anion species and the field slug Deroceras reticulatum. Feeding trials were conducted to measure the effects of digestion time on amplicon detectability. The median detection times (the time at which 50% of samples tested positive) for A. lusitanicus and D. reticulatum DNA in the foreguts of Carabus nemoralis were 22 h and 20 h, respectively. Beetle activity-densities were monitored using pitfall traps, and slug densities were estimated using quadrats. Predation rates on slugs in the field by C. nemoralis in spring ranged from 16-39% (beetles positive for slug DNA) and were density dependent, with numbers of beetles testing positive being positively correlated with densities of the respective slug species. Carabus nemoralis was shown to be a potentially important predator of the alien A. lusitanicus in spring and may contribute to conservation biological control.

Lee WS, Metcalfe NB, Monaghan P, **Mangel M** (2011) A Comparison of Dynamic-State-Dependent Models of the Trade-Off Between Growth, Damage, and Reproduction. American Naturalist 178:774-786

Abstract: Fast growth can be costly, so trade-offs between growth and fitness are to be predicted when organisms adjust their growth to compensate for earlier environmental conditions. We developed four generic models of increasing complexity with different processes to predict the indeterminate growth of vertebrate ectotherms, which is sensitive to ambient temperature even when food is not limiting. We contrast the predictions of the models with observed experimental data on growth trajectories, feeding activity, and reproductive investment of three-spined sticklebacks and inferred patterns of accumulation of biomolecular damage arising from activity and growth. All models predicted observed patterns of compensatory growth (both accelerating and decelerating) in response to earlier temperature perturbations, but the more complex models provided the best fit to experimental data. Growth trajectories influenced future reproductive investment regardless of final body size at breeding. Our findings suggest that while models with fewer parameters can predict basic patterns of growth in stable conditions, they cannot capture the costly long-term effects of deviations from steady growth trajectories. In contrast, models in which foraging activity is assumed to carry costs are capable of predicting the complex patterns of feeding, growth, and reproductive investment seen in animals, with the cost of a heightened mortality risk (e.g., through predation) being more important than the cost of increased physiological damage.

Liu JW, Zheng TL, **Bratbak G**, **Thyrhaug R** (2011) Virus infection disturbs cyclin expression, leading to cell cycle arrest in the unicellular marine algae Emiliania huxleyi and Chrysochromulina ericina. African Journal of Microbiology Research 5:1801-1807

Abstract: To investigate the influences of viral infection on cell cycle of marine algae, we examined the changes of expression and activity of G(2)/M-phase cell cycle regulators in two unicellular marine algae Emiliania huxleyi and Chrysochromulina ericina after viral infection by immunoblot. The results revealed that the expression of cyclins could be altered by viral infection, thus inhibiting the progression of cell cycle. E. huxleyi virus (EhV) repressed the activity of p34cdc2/cyclinB complex by inactivating p34cdc2 kinase through phosphorylation of Cdc2, and block the life cycle of host cells at G(2)/M checkpoint. C. ericina virus (CeV) interfere with the activity of p34cdc2/cyclin B complex by the downregulation of cyclinB combined with the overexpression of kinase-active p34cdc2, resulting in a G(2) cell cycle. The G(2)/M cell cycle arrest caused by EhV infection indicated that EhV may transcribe its own genes without relying on the host cell cycle control. C. ericina cells blocked in a delayed G(2) phase may partly turn into the second S phase to synthesize proteins useful for viral

nucleic acid metabolism, suggesting that the replication of CeV viruses was dependent on cell cycle control. Our results indicated that algal virus infection selectively activates/inactivates certain components of the cell cycle with the aim to establish a more efficient environment for their gene expression and DNA replication.

Myrseth J, Enberg K, **Heino M, Fiksen O** (2011) DO ACCURATE STOCK ESTIMATES INCREASE HARVEST AND REDUCE VARIABILITY IN FISHERIES YIELDS? Natural Resource Modeling 24:222-241

Abstract: Fisheries managers normally make decisions based on stock abundance estimates subject to process, observation, and model uncertainties. Considerable effort is invested in gathering information about stock size to decrease these uncertainties. However, few studies have evaluated benefits from collecting such information in terms of yield and stability of annual harvest. Here, we develop a strategic age-structured population model for a long-lived fish with stochastic recruitment, resembling the Norwegian spring-spawning herring (NSSH, Clupea harengus L.). We evaluate how uncertainties in population estimates influence annual yield, spawning stock biomass (SSB), and variation in annual harvest, using both the proportional threshold harvesting (PTH) and the current harvest control rule for NSSH as harvest strategies. Results show that the consequences of a biased estimate are sensitive to the harvest strategy employed. If the harvest strategy is suitably chosen, the benefits of accurate information are low, and less information about the stock is necessary to maintain high average yield. Reduced harvest intensity effectively removes the need for accurate stock estimates. PTH (a variant of the constant escapement strategy) with low harvest ratio and the current NSSH harvest control rule both provide remarkable stability in yield and SSB. However, decreased uncertainty will often decrease year-to-year variation in harvest and the frequency of fishing moratoria.

Pittman, K, Sourd, P, Ravnoy, B, Espeland, O, Fiksdal, I.U, Oen, T, Pittman, A, Redmond, K, Sweetman, J. (2011) Novel method for quantifying salmonid mucous cells. Journal of Fish Diseases 34:931-936

Sjotun K, Heldal HE, **Brakstad DS** (2011) Differential concentration of Technetium-99 ((99)Tc) in common intertidal molluscs with different food habits. Marine Pollution Bulletin 62:2420-2426

Abstract: Concentration of (99)Tc has been measured in fucoids and molluscs, sampled in a sheltered intertidal at the southwest coast of Norway from February to November 2006. The concentrations of (99)Tc in molluscs differed significantly between species. The filtering bivalve Mytilus edulis had the lowest concentrations with averages of 2.3-5.9 Bq kg(-1) d.w., while the herbivorous gastropods Littorina littorina, Littorina obtusata and Patella vulgata had higher concentrations. P. vulgata and L. obtusata had the highest concentrations, 40-47 and 26-30 Bq kg(-1) d.w., respectively. L. obtusata has a specialized habit of living, and prefers to feed on fucoids. P. vulgata can graze extensively on the fucoid Ascophyllum nodosum when available. Fucoids are known to have very high uptake of (99)Tc, and this was also found in the present study. The high (99)Tc-concentrations of L. obtusata and P. vulgata are most likely due to their habit of feeding on fucoids.

Yang Y, Wang GX, **Klanderud K,** Yang LD (2011) Responses in leaf functional traits and resource allocation of a dominant alpine sedge (Kobresia pygmaea) to climate warming in the Qinghai-Tibetan Plateau permafrost region. Plant and Soil 349:377-387

Abstract: Assessing the influence of warming on leaf traits, carbon, and nutrient concentrations above and below ground to understand how the dominant sedge Kobresia pygmaea (C. B. Clarke) C. B. Clarke may respond and adapt to extant and future climate in the alpine meadow of the Qinghai-Tibetan Plateau. A warming experiment was conducted in the permafrost region of the Qinghai-Tibetan Plateau from 2008 to 2009. Two 2-year warming treatments (T1, annual warming of 2.1A degrees C; T2, annual warming of 4.4A degrees C) were used, and responses of leaf traits and above- and belowground carbon, nitrogen, and phosphorus concentrations of K. pygmaea were examined. The results show that both moderate (T1) and more extensive (T2) warming decreased leaf mass, leaf thickness, and vascular bundle size, and increased the mass-based photosynthetic rate (A(mass)) and photosynthetic nitrogen use efficiency (PNUE). A moderate warming significantly decreased leaf carbon (C), nitrogen (N), and phosphorus (P), and root C and N concentrations of K. pygmaea. These decreases were even more pronounced under the more extensive warming. The decreases in leaf N and P were significantly larger than the decrease in leaf C concentration. Root P concentration increased more under the extensive than the moderate warming. The observed

increase in leaf C:N ratio in the warming treatment indicates that enhanced temperature may increase the long-term nitrogen use efficiency of K. pygmaea leaves. This again suggests that K. pygmaea might adapt well to future climate warming, and that nitrogen might be a more important factor for K. pygmaea dominated alpine meadows under future climate warming.

Magnesen T, Jacobsen A. 2011. Effect of water recirculation on seawater quality and production of scallop (Pecten maximus) larvae. Aquacultural Engineering doi:10.1016/j.aquaeng.2011.12.005

Abstract: Scallop larval production systems in Norway have changed from the use of batch to continuous flow through systems (FTS) during the last decade. Energy use to heat water in both larval and spat nurseries is considerable. Two experiments (June 2010 and February 2011) using water recirculation technology (RAS) were performed in large scale systems (3500 L larval tanks) supplied with continuous addition of algal feed, and 20% renewal of seawater. In the RAS a gradual increase in CO2, decrease in pH and dissolved oxygen was observed over time. This was most obvious during experiment two, when the total organic carbon content increased in both FTS and RAS. The total bacterial number was lower and more stable in FTS than in the RAS. The variations in seawater quality parameters were smaller during the first experiment compared to the second, when values of oxygen saturation were reduced to <70%, pH was 7.8 and NO3− reached 5 mg L−1. Even though these changes would seem less beneficial for survival and growth of scallop larvae, results showed that the survival at the end of the larval stage was higher in the FTS, but the yield of competent larvae ready for settlement was not significant different (p > 0.05) due to large variations between tanks. The CV% was 28.9% in FTS, while it was 49.9% in RAS. In FTS the mean yield was 40.2%, while it was 26.5% of initial number of larvae in RAS. Large variations in survival and yield were found between the larval tanks as well as gradual reduction in pH and oxygen in RAS tanks. The results indicate that there is a large potential for 80% reduction in water use by utilizing recirculation technology.

Mette Remen, Frode Oppedal, Thomas Torgersen, **Albert K. Imsland**, Rolf Erik Olsen Effects of cyclic environmental hypoxia on physiology and feed intake of post-smolt Atlantic salmon: Initial responses and acclimation. Aquaculture 326–329 (2012) 148–155

Abstract: In order to investigate the effects of hypoxic periods on the feeding behaviour and physiology of Atlantic salmon (Salmo salar L.) post-smolts (237±7 g), fish were kept at constant 90% O2 (control) or subjected to cyclic reductions in oxygen, from 90% O2 (termed normoxia) to 40, 50, 60 or 70% O2 (termed hypoxia) for 2 h every 6 h for 23 days at 16 °C (groups are denoted as 90:40, 90:50, 90:60, 90:70 and 90:90). Fish were fed to satiation three times per day, twice in hypoxia and once in normoxia. Blood samples were drawn during hypoxic periods on day 0, 7, 14 and 21 and analysed for haematocrit, haemoglobin concentration and plasma cortisol, chloride, lactate and glucose concentrations. During first exposure to hypoxia (day 0), plasma

lactate was increased in 90:60, 90:50 and 90:40 groups, plasma cortisol was increased in 90:50 and 90:40 groups and plasma chloride was increased in the 90:40 group, indicating oxygen shortage and stress at oxygen saturations below 60% O2. On day 7, 14 and 21, there were no signs of stress, but plasma lactate levels remained increased in hypoxic periods in 90:40, 90:50 (all the days) and 90:60 groups (day 7 and 14), suggesting that the stress response was down-regulated in spite of a persisting oxygen shortage. Feed intake was reduced according to hypoxia severity in groups subjected to 40–60% O2 during the first meal of the day, and

in all experimental groups (40–70% O2) during the third meal of the day. The effect of hypoxia on feed intake persisted throughout the experiment, but total daily feed intake was substantially increased in 90:40 and 90:50 groups during weeks 2 and 3 due to compensatory feeding in the normoxic feeding period. Present results suggest that 70% O2 may represent a threshold for reduced growth and that 60% O2 represents a minimum O2 saturation considering the welfare of Atlantic salmon post-smolts subjected to cyclic hypoxia at 16 °C.

Nytt bokkapittel:

Heino, M., Rijnsdorp, A. D., and Dieckmann, U. 2012. The dawn of Darwinian fishery management. In *Pragmatic Evolution: Applications of Evolutionary Theory*, pp. 81-103. Ed by A. Poiani. Cambridge University Press