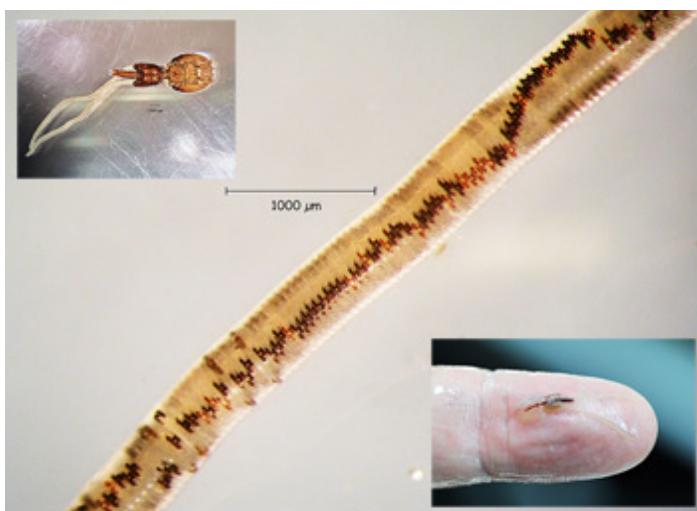


Siden sist!

Biofagevalueringen kommer

Forskningsrådet planlegger en internasjonal evaluering av biologi, medisin og helsefag i 2010/2011. Fagevalueringen blir den mest omfattende i forskningsrådets historie. I hht [utsendt informasjon](#) skal BIO foreslå eksperter til fagpanelene i april og levere sin egenvurdering i september/oktober 2010. Det vil være forskningsgruppene som står i fokus for evalueringen, så her må forskningsgruppene begynne å forberede seg. Arbeidet med eksterntweb-sidene blir ekstra viktig i denne sammenheng! Mer info [her](#).

Ukens bilde



Millions and millions!!!

Photographer: **Enrique Perez Garcia-Solheim**

Garcia-Solheim, a Masters student in fish health working with **Frank Nilsen** and the **Fish Disease group**, sent in these pictures of an adult salmon louse, *Lepeophtheirus salmonis*.

The louse in this picture produced 359 eggs. Each egg string had an average of 16 eggs per millimetre - and each can be up to 40mm long!! Fortunately only about a third of the eggs survive! Garcia-Solheim is working with a new treatment to check the effects of diflubenzuron on eggs - let's hope that he is successful!

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 [Elinor Bartle](#)

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Fra toppen

Biologi over alt!

Harald Eias NRK-sendte programserie «Hjernevask» skaper store bølger for tiden. Det er ikke ofte biologi-begrepet blir nevnt så hyppig i aviser, på TV og radio og i nettdebatter. Åpenbart har Eia satt fingeren på noe sårt i norsk samfunnsforskning, men samtidig tror jeg ikke det står så dårlig til som disse programmene kan gi inntrykk av.

Som Eia selv og mange andre har påpekt, så handler ikke debatten om arv eller miljø, men om arv OG miljø, i en kombinasjon som vil variere mellom hvilke situasjoner og egenskaper vi snakker om. Også innen en veldig biologisk vitenskap som medisin er det innlysende at enkelte sykdommer utløses i overveiende grad av miljøfaktorer, selv om det ligger viktige genetiske disposisjoner bak. Eksempler er lungekreft og hjerte-karsykdommer.

Det er fortsatt mye vi ikke vet om årsakene til disse variasjonene. Epigenetikk er et relativt nytt forskningsfelt som studerer når og hvor gener brukes, og hva som påvirker at to celler som er utstyrt med samme DNA, i et tilfelle uttrykker en egenskap, og i et annet tilfelle en annen. Man sier gjerne at genene har fått merkelapper på seg som sier: «Skal ikke brukes!». Denne tendensen til å bruke bare et utvalg av genene i bestemte situasjoner er vist å være både miljøpåvirket og arvelig!

Noen av debattantene har hoppet ned i sine ferdiggravde skyttergraver og hevder at dette snakket om biologi leder oss inn i «biologismen», at vi biologer mener alt er styrt av gener, at vi ønsker 70-tallets sosiobiologi som en samfunnsnorm, og at nynazistene jubler over debatten.

Dette er selvsagt misforstått. Biologien er ikke normativ, men en forskningsgren som søker svar på de store uløste spørsmål omkring livet på denne planeten. Vi er nysgjerrige på hva som har påvirket livets utvikling på jordkloden, hva som styrer livsprosessene, hvordan miljøet påvirker arter, bestander og økosystemer og hvordan alt henger sammen. Mennesket deler sitt genetiske opphav med alle andre organismer, og vi er selvsagt en del av dette systemet.

Det pågår mye spennende forskning innenfor moderne biologi, og her skal BIO være på banen. Så langt har det vært få biologer synlige i «Hjernevask»-debatten. Min oppfordring er at alle BIOS forskere forbereder seg på å ta et tak! Det er sjelden det er så lett å slippe til i media med ordet «biologi»!

Hilsen Anders



Siste nytt fra BIO

Ventilasjonsinformasjon, instituttrådsmøte, eksterntwebinfo mm

Ventilasjon 53A og 53B og Bioblokka

Ståle Kolbeinson har fått siste informasjonen fra Terje Gunnestad Driftsjef: Kontorventilasjon går mandag til fredag fra kl 0630 til 2000. Av i helgen.

Lab ventilasjon går på fullt mandag til fredag fra kl 07 til 19 og på fullt lørdag fra kl 09 til 15. Det er i denne tiden dere kan jobbe med full sikkerhet i avrekksskapene. Utenom dette går lab ventilasjon på halvt resten av døgnet og alle ukedager.

Instituttrådsmøte 19. mars

I dagens instituttrådsmøte skal rådet behandle instituttets forskningsmelding, forskerutdanningsmelding og utdanningsmelding for 2009. Sakspapirene ligger [her](#).

Dypvannsmaneter utkonkurrer fiskene

Vannet langs kysten endrer seg og blir mer uklart. **Dag Aksnes** sier at forskere tror denne endringen fører til at dypvannsmaneter utkonkurrerer fisken i flere fjorder langs kysten. Les mer fra [TV2](#)



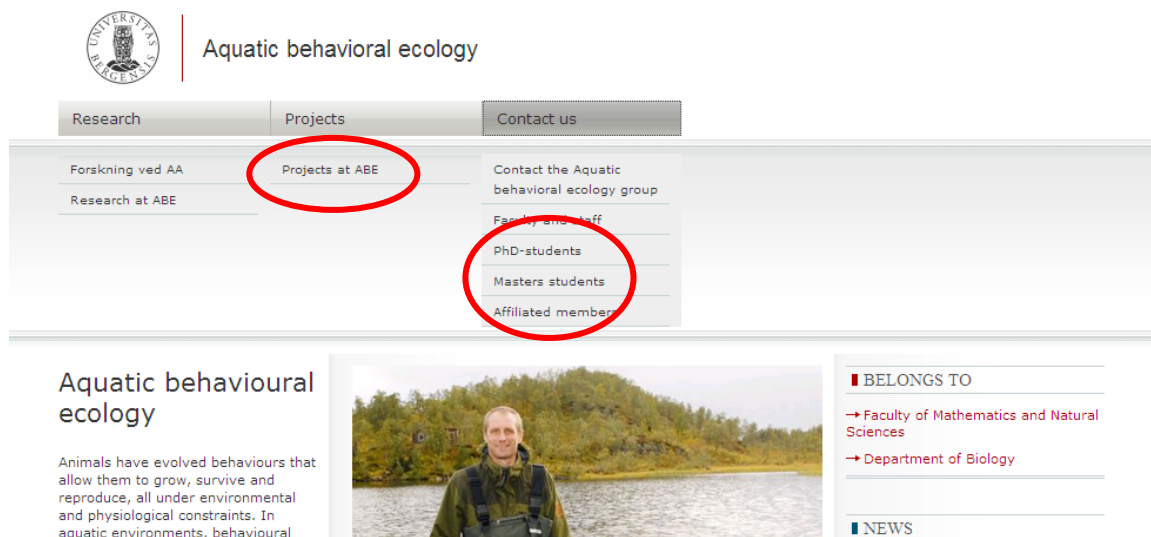
Looking for UiB presentation material??

It is easy to forget where to find UiB's ppt template – now there are poster templates, logos etc. It can be found on UiB's [profiltoget on the internal web](#).

BIO's external web project is progressing

15 May – the deadline for having a good external web at BIO – including the research groups' pages - is not that far away – many holidays between now and then!

A number of groups are beginning to make real progress with their pages and most groups have taken the important first step of sitting down to discuss what they would like to have on their pages. There has been updating activity on 40% of BIO's groups' pages!



The screenshot shows the website for the Aquatic behavioral ecology group. At the top left is the University of Bergen logo. The main header is "Aquatic behavioral ecology". Below it are three navigation tabs: "Research", "Projects", and "Contact us". Under "Projects", there is a sub-menu with "Projects at ABE" circled in red. Under "Contact us", there is a sub-menu with "PhD-students", "Masters students", and "Affiliated members" circled in red. Below the navigation is a section titled "Aquatic behavioural ecology" with a description: "Animals have evolved behaviours that allow them to grow, survive and reproduce, all under environmental and physiological constraints. In aquatic environments, behavioural". To the right of this text is a photo of a man in a green jacket standing by a lake. Further right is a "BELONGS TO" section with links to "Faculty of Mathematics and Natural Sciences" and "Department of Biology". At the bottom right is a "NEWS" section.

The **Aquatic behavioral ecology** group has made [good projects' pages](#) and has opted for an "update by hand" solution to the PhD, masters and affiliated member challenge. (remember that affiliated members can be included in your automatically generated list IFF you contact **Thelma Kraft** to get a SEBRA account for the person in question)



Our Students

The Fisheries Ecology and Aquaculture research group encompasses a number of masters and PhD students from a wide range of master programs.

Students work on a variety of projects within different disciplines related to fisheries ecology and/or aquaculture.

Read about some of those projects here.



Christian Irgens - Master in Marine Biology

Christian is working on his Masters in Marine Biology and study otolith growth and formation in relation to the settling dynamics of juvenile Northeast Arctic cod (*Gadus morhua*).



Roland Koedijk - PhD Student

Roland has been working on his PhD entitled 'Phenotypic plasticity influenced by diet during early development'.

The **Fisheries Ecology and Aquaculture** group has made an [interesting page about their students](#) ... remember the updating challenge, but this can be a great way to profile your students and their research activities.

***there are some language questions to be resolved in this group ...

To everyone who has started the work – congratulations, keep up the good work and don't hesitate to get in touch!

Feltarbeid - registrering av utenlandsopphold for studenter

Alle studenter som skal reise på feltarbeid i utlandet med opphold over to uker skal registreres i vår database. Husk at opplysningsskjema skal fylles ut, dette finner dere på følgende lenke;

<http://www.uib.no/utdanning/om-aa-studere/studier-i-utlandet/slik-gaar-du-fram/for-og-under-opphaldet#underopphaldet>

Skjemaet vil bli benyttet for å kunne yte best mulig bistand ved en eventuell krisesituasjon.

Siste nytt fra verden rundt oss

Ny UiB-strategi på trappene, vårtegn før og etter skjema, handlingsrom, e-bøker med mer

Legger brikkene for ny strategi

Nå legges grunnlaget for [UiB sin strategiske plan](#) de neste fem årene. Prorektor Berit Rokne har døren på gløtt. Les mer fra [På Høyden](#).

IMBER newsletter update



Klar til hogg

Terje Lislevand, fra Bergen Museum sier at hoggormen er rekordtidlig ute. Les mer fra [Nordhordland](#).





Trollhassel to måneder etter skjema

Bjørn Moe, fra Bergen Museum/Arboretet og Botanisk Hage på Milde sier at de første vårtegnene har så smått begynt å vise seg. Men forsvinner snøen, kan to måneder tas igjen fort. Les mer fra NRK.

Fiskefôr tilpasset et varmere klima

Havtemperaturen er spådd å stige langs hele kysten. Nå ønsker Ernst Moren Hevrøy ved Nifes å finne en førsammensetning som er best mulig tilpasset oppdrettslaks ved høye vann temperaturer. Les mer fra Kyst.no.

Møt yngrebølgen med kvalitet

Rektor Sigmund Grønmo og Synnøve Mjeldheim Skaar, leder for Studentparlamentet har skrevet et leserbrev til Bergens Tidende som sier at tusener av unge vestlendinger banker nå på døren til universitetet. De fortjener best mulig utdanningskvalitet. Les mer fra BT.

Handlingsrom og handlingsevne

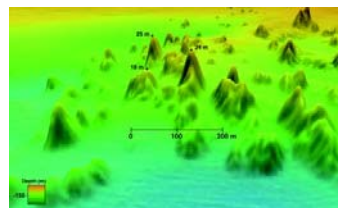
Arvid Hallén, administrerende direktør i Forskningsrådet har skrevet et leserbrev. Det ble først publisert i Aftenposten 8. mars 2010. Les mer i På Høyden

Ny vår for e-bøker

Med et nytt storinnkjøp av e-bøker, blir Universitetsbiblioteket på mange måter døgnåpent. Fremtiden til UB vil bli preget av mer veiledning og undervisning, mener Ole Gunnar Evensen. Les mer i På Høyden.

Viser korallfjell i 3D

Nå kan du navigere mellom 40 meter høye korallfjell på havbunnen utenfor Vesterålen – fra din egen datamaskin. Les mer i forskning.no.



Ledige stillinger for biologer

Stillinger utlyst på UiB (herunder stillinger på BIO) finner du [her](#).

22.03	Post doc innen marine alger og primærproduksjon i isfylte farvann, Norsk polarinstitutt
25.03	Stipendiat i bioinformatikk og molekylær økologi ved Institutt for biologi
26.03	Project Officer with the International Project Office of the Surface Ocean- Lower Atmosphere Study (SOLAS).
28.03	Stipendiat i molekylærbiologi og økologi ved Institutt for biologi
30.03	Full professor in Biological Oceanography at IFM-GEOMAR in Kiel, Germany. More
31.03	Driftsbiolog matfisk, Lerøy Hydrotech AS for biolog med bachelor eller master – 3 stillinger
31.03	Faculty position in BioGeology , Université Libre de Bruxelles, Belgium
31.03	2 post docs University of Washington
23.04	Professorship in plant physiology at the University of Innsbruck, Austria
30.04	PhD position developmental Biology, Villefranche, France
?	Postdoc position on biogeochemical modelling, Brest, France
Spring 2010	10 post doctoral positions at The Alexander von Humboldt Foundation and the Cluster of Excellence „The Future Ocean” at the Christian-Albrechts University in Kiel, Germany

Forskning: utlysninger, nye satsinger og prosjekter

Forskningsrådet åpner for støtte til avskrivning og drift av utstyr, ESF ønsker innspill til nye forskningsprogrammer, Flere utlysninger fra forskningsrådet med søknadsfrist 21. april, Kommende utlysning fra regionalt forskningsfond Vestlandet



Kostnader til utstyr dekkes

Kostnader til avskrivning og drift av forskningsutstyr kan inkluderes i søknader til Forskningsrådets ulike finansieringsordninger. [Les mer her](#) og finn mer detaljert forklaring om hvordan dette føres i søknaden [her](#).

Ønsker innspill til nye programmer

European Science Foundation (ESF) ønsker forslag til nye forskningsprogrammer under sin EUROCORES-ordning. Frist for innsending er 21. mai 2010.

[Les mer](#)

Første utlysning for Indiaprogrammet

For første gang utlyses midler fra det nyopprettede Indiaprogrammet. **Frist: 21. april.** [Les mer](#)

4 mill kroner til prosjekter som kan øke interessen for realfag (PROREAL)

Støtte gis tiltak rettet mot barn, unge og allmennhet som kan gi målbare resultater for økt interesse for og rekruttering til realfag. **Søknadsfrist: 21.04.2010** [Les mer](#)

RENERGI lyser ut midler til brukerstyrte innovasjonsprosjekter (RENERGI)

50 - 100 millioner kroner er tilgjengelig for prosjekter som fokuserer spesifikt på å bringe forskningsresultater over mot realiseringsfasen. **Søknadsfrist: 21.04.2010** [Les mer](#)

Fellestur til European Seafood Exposition

Norske Sjømatbedrifters Landsforening (NSL) arrangerer fellestur til European Seafood Exposition (ESE) 26.-29. april 2010 i Brussel. Kun 30 plasser i år - flere av disse er allerede booket. For mer info. og påmelding se: www.nsl.no

Midler fra Regionalt forskningsfond - VESTLANDET

Det er planlagt utlysning fra Regionalt forskningsfondet – VESTLANDET 21. april 2010 innenfor temaene Bærekraftig matproduksjon, Energi og maritim sektor, Offentlige utviklingsprosjekt med søknadsfrist. 2 juni 2010. Informasjonsmøte: Fredag 16. april kl 09.30 – 12.00 på Clarion Hotel Bergen Airport Påmelding innen onsdag 7 april på www.hordaland.no/forskningsstrategi Forskningsavdelingen vil også holde et internt informasjonsmøte og foreløpig dato for dette er 27.04.2010. [Les mer](#)

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)

22. mar	HFSP preregistration
25. mar	Marie Curie International Research Staff Exchange Scheme (IRSES)
25. mar	Researcher Networks 2010 (NordForsk)
26. mar	COST pre-proposal
31. mar	HFSP Submission deadline

BIO-info

Nyheter fra Institutt for biologi

01. apr	Nordic Marine Academy : siste organisering av forskerkurs og støtte til konferanser og workshops
21. apr	SFI Endelig søknad
21. apr	NATUROGNAERING (NFR)
21. apr	JOINTINDNOR (NFR) og INDOOR (NFR)
21. apr	PROREAL
21. apr	RENENERGI
30. apr	Daniel Jouvance International Prize for young researchers in Marine Biology
01. mai	Nordic Marine Academy : siste mobilitetstipend
31. mai	EUROFLEETS call for multidisciplinary practical ship-based training courses
02. juni	Aurora-programmet . Forskerutveksling mellom Norge og Frankrike (IS-AUR)

Forskerutdanning / PhD training

Shalini Jayashankar PhD Forlesning

Shalini Jayashankar vil onsdag 24. mars holde forelesning over selvvalgt emne for PhD graden.

Tittel: "Evaluating environmental contaminants: a toxicogenomic approach"

Tid: Onsdag 24. mars kl. 09:00

Sted: Møterom Sildetønnen, Nasjonalt Institutt for ernærings- og sjømatforskning (NIFES),

Nordnesboder 2, Nordnes

Bedømmelseskomite: Pål Olsvik, Anne Krøvel, NIFES

Alle interesserte er velkommen

Avsluttende mastergradseksamen

Ana Sofia de Araújo Ferreira og Helge Erikstad

Ana Sofia de Araújo Ferreira: Vertical migration of Norwegian spring-spawning herring (*Clupea harengus* L.) larvae

Ana Sofia de Araújo Ferreira holder fredag 26. mars avsluttende presentasjon av sin masteroppgave i Fiskeribiologi og forvaltning.

Tittel på oppgaven: Vertical migration of Norwegian spring-spawning herring (*Clupea harengus* L.) larvae

Veiledere: Arild Folkvord og Erling Kåre Stenevik. Sensor: Torstein Pedersen. Bisitter: Arne Skorping.

Tid og sted: Fredag 26. mars kl. 12:15, Møterommet Florida (215G1), Biobyggene.

Alle interesserte velkommen!

Helge Erikstad: Differensiert uttrykk av metan monooxygenase genene i den termoacidofile bakterien *Methylococcus marisnigri*

Helge Erikstad holder fredag 26. mars avsluttende presentasjon av sin masteroppgave i Biologi – mikrobiologi.

Tittel på oppgaven: Differensiert uttrykk av metan monooxygenase genene i den termoacidofile bakterien *Methylococcus marisnigri*

Veiledere: Nils Kåre Birkeland og Sigmund Jensen. Sensor: Svein Bjelland. Bisitter: TBA.

Tid og sted: Fredag 26. mars, kl. 11:15, Møterommet Styrehuset, Biobyggene.

Alle interesserte velkommen!

Faglige møter

SARS Seminar next week, Microbial Communication, Harmful Algae, Global carbon cycle, Climate Change - health and ecology; ISME

SARS seminars next week

March 24 Wednesday Sars Sem Room 13:00: Lucas Leclère, Postdoc Sars Centre
Host: Rentzsch

March 26 Friday: MBI Seminar Room HIB - 5th Floor Bioblokk, 13:30

Guest Lecture - Dr. Philippe Ganot; UMR 7138 UNS-UMPC-CNRS

Systematic, Adaptation, Evolution Team Symbiosis: "Wedding and divorce under the sea; expression switches following bleaching in the endosymbiotic snakelocks anemone."

HOST: Thomposon

[Read more](#)

PhD course in microbial communication

The PhD students of the [Jena School for Microbial Communication](#) cordially invite you to attend the first European Student Conference on Microbial Communication on **September 28 - October 1, 2010** in the top-class [science city of Jena](#), Germany. [Read more](#)

Open Science Meeting on Harmful Algal Blooms in Benthic Systems

The IOC-SCOR Global Ecology and Oceanography of Harmful Algal Blooms (GEOHAB) program is pleased to announce an open science meeting (OSM) on HABs in Benthic Systems, to be held in Honolulu, Hawaii, USA on 21-24 June 2010. Abstracts should be contributed through the registration website. In conjunction with the meeting there will be a training workshop from 25 to 26 June on 'Taxonomy challenges and identification of benthic dinoflagellates'. The training workshop will include microscopy and molecular techniques. [Read more](#)

EUR-OCEANS / Europole Mer 2010 Conference

Influence of meso- and submesoscale ocean dynamics on the global carbon cycle and marine ecosystems will be discussed at a EUR_OCEAN/Europole Mer Conference held at Centre de la Mer, Aber Wrac'h, Brittany, France from 31 May to 2 June 2010. Registrations before April, 15th 2010. [Read more.](#)

Interdisciplinary conference: Climate Change: Health and Ecology

An interdisciplinary conference linking research from veterinary and human medicine, ecology and evolution is organized by the Climate Centre at National Veterinary Institute, Uppsala, Sweden. Sept. 1-3, 2010. Submission of abstracts for poster presentations open until May 7th

[Read more](#)

ISME13

The 13th International Symposium on Microbial Ecology (ISME13) will take place in Seattle, USA on August 22-27, 2010

Abstract submission deadline: MARCH 26, 2010.

For program, registration, abstract submission - see [here](#).

Summer school programmes

Date	Location	Course title	application deadline
May 24-29	Mammal Research Institute, Polish Academy of Sciences, Białowieża, Poland	Summer School in Ecology and Biodiversity: Understanding patterns and Processes	31 March
17 July - 1 August	Island of Madeira	3rd EDIT Summer School of Taxonomy	31 May
August 23-27	Brest, France	ClimECO2 Oceans, Marine Ecosystems, and Society facing Climate Change	15 April
Sept 5-14	Peyresq, France	Alter-Net Summer Schools: Biodiversity & Ecosystem Services	15 April

Nye artikler

Diatomeers og regulering av vertikal posisjon, zebrafisk og akvaporiner, cholecystokinin og fødeopptak hos fiskelarver, kolmule-diett, mollusk fylogeni

Svein Rune Erga, Geir Christian Lie, Lars Harald Aarø, Kjetil Aursland, Christine Daae Olseng: diatoméers evne til å opprettholde vertikal posisjon

Erga Svein Rune, Geir Christian Lie, Lars Harald Aarø, Kjetil Aursland, Christine Daae Olseng, Øyvind Frette and Børge Hamre 2010. Fine scale vertical displacement of *Phaeodactylum tricornutum* (Bacillariophyceae) in stratified waters: Influence of halocline and day length on buoyancy control. *Journal of Experimental Marine Biology and Ecology* 384: 7-17

Abstract: Diatom blooms are frequently seen in low-turbulent stratified coastal waters. The present work aims at demonstrating the ability of marine diatoms to regulate their vertical position in a strongly stratified water column, with special emphasis on the fine scale displacements within and around the halocline. Here we give results from such experiments in a specially designed artificial water column. The experiments were conducted on the pennate diatom *Phaeodactylum tricornutum*. Surface irradiance was $100 \mu\text{mol quanta m}^{-2} \text{s}^{-1}$, halocline strength was 28–34 psu, and temperature around 20 °C. Our results show that once introduced into a water layer *P. tricornutum* are able to remain within that water layer for 6–17 d, or even ascend/descend into new water layers by exerting active buoyancy control. We conclude that this was mainly due to cell density regulation and not to size. The presence of a strong halocline has a great impact on the vertical movement of *P. tricornutum* as revealed by a high degree of accumulation of cells within or just below it for descending and ascending cells. Cells needed about 4 d to pass through the halocline and into the upper layer. We have also seen that the physiological ability to exert buoyancy control varies among cells of the same species. The importance of day length for buoyancy control was demonstrated by the fact that the high gain of photosynthetic energy obtained during a 14 h light period cannot compensate for the low gain of respiratory energy during 10 h of darkness. Therefore cells being inoculated at the bottom only managed to ascend to the upper layer (above the halocline) and cells being inoculated in the upper layer to remain above the halocline during subsequent diel cycles when living in a 24:0 LD regime.

Nigel Finn: sebrafisk har det høyeste antall aquaporiner blant vertebratene

Tingaud-Sequeira Angèle, Magdalena Calusinska, Roderick N Finn, François Chauvigné, Juanjo Lozano and Joan Cerdà 2010. The zebrafish genome encodes the largest vertebrate repertoire of functional aquaporins with dual paralogy and substrate specificities similar to mammals. *BMC Evolutionary Biology* 2010, 10:38doi:10.1186/1471-2148-10-38

Background Aquaporins are integral membrane proteins that facilitate the transport of water and small solutes across cell membranes. These proteins are vital for maintaining water homeostasis in

living organisms. In mammals, thirteen aquaporins (AQP0-12) have been characterized, but in lower vertebrates, such as fish, the diversity, structure and substrate specificity of these membrane channel proteins are largely unknown.

Results The screening and isolation of transcripts from the zebrafish (*Danio rerio*) genome revealed eighteen sequences structurally related to the four subfamilies of tetrapod aquaporins, i.e., aquaporins (AQP0, -1 and -4), water and glycerol transporters or aquaglyceroporins (Glps; AQP3 and AQP7-10), a water and urea transporter (AQP8), and two unorthodox aquaporins (AQP11 and -12). Phylogenetic analyses of nucleotide and deduced amino acid sequences demonstrated dual paralogy between teleost and human aquaporins. Three of the duplicated zebrafish isoforms have unlinked loci, two have linked loci, while DrAqp8 was found in triplicate across two chromosomes. Genomic sequencing, structural analysis, and maximum likelihood reconstruction, further revealed the presence of a putative pseudogene that displays hybrid exons similar to tetrapod AQP5 and -1. Ectopic expression of the cloned transcripts in *Xenopus laevis* oocytes demonstrated that zebrafish aquaporins and Glps transport water or water, glycerol and urea, respectively, whereas DrAqp11b and -12 were not functional in oocytes. Contrary to humans and some rodents, intrachromosomal duplicates of zebrafish AQP8 were water and urea permeable, while the genomic duplicate only transported water. All aquaporin transcripts were expressed in adult tissues and found to have divergent expression patterns. In some tissues, however, redundant expression of transcripts encoding two duplicated paralogs seems to occur.

Conclusion The zebrafish genome encodes the largest repertoire of functional vertebrate aquaporins with dual paralogy to human isoforms. Our data reveal an early and specific diversification of these integral membrane proteins at the root of the crown-clade of Teleostei. Despite the increase in gene copy number, zebrafish aquaporins mostly retain the substrate specificity characteristic of the tetrapod counterparts. Based upon the integration of phylogenetic, genomic and functional data we propose a new classification for the piscine aquaporin superfamily.

Ivar Rønnestad: rollen til cholecystokinin i første fødeopptak hos fiskelarver

Webb Jr. Kenneth A., Izhar A. Khan, B. Scott Nunez, Ivar Rønnestad and G. Joan Holt 2010.

Cholecystokinin: Molecular cloning and immunohistochemical localization in the gastrointestinal tract of larval red drum, *Sciaenops ocellatus* (L.). *General and Comparative Endocrinology* 166, 152-159 doi:10.1016/j.ygcen.2009.10.010

Abstract The current study sought to clarify the role of cholecystokinin (CCK) in the digestion of larval red drum (*Sciaenops ocellatus*) in order to better characterize the processes limiting the utilization of microparticulate diets at first feeding. The red drum CCK cDNA, isolated from adult anterior intestine and pyloric caeca, contains a 414 base pair (bp) open reading frame encoding a deduced amino acid sequence of 138 residues which is highly similar to preprocholecystokinin from other vertebrates. The mature CCK octapeptide has the same amino acid sequence as that found in mammals and in Atlantic herring (*Clupea harengus*). Tissue distribution analysis of adult and juvenile red drum using primers specific for red drum CCK mRNA revealed bright bands in samples from the brain, pyloric caeca, anterior intestine, and gonad with fainter bands seen in all other tissues. Immunohistochemical analysis of larval red drum showed that CCK-immunoreactive (CCK-IR) cells were present as early as 3 days post hatch (DPH) in some fish and were present in all fish by 6 DPH. CCK-IR cells were found in the anterior midgut in early larvae and had spread to the first bend of the gut by day 6. In older larvae (18+ DPH), CCK-IR cells were found in large numbers in the anterior intestine and in the developing pyloric caeca. The sequence and distribution of CCK mRNA along with the presence of CCK-IR cells in early red drum larvae suggest that CCK is present and may be capable of regulating pancreatic secretion in early red drum larvae.

Mikko Heino: Kolmule-diett

Dolgov, A. V., Johannesen, E., Heino, M., and Olsen, E. 2010. Trophic ecology of blue whiting in the Barents Sea. *ICES Journal of Marine Science*, 67: 483-493. doi: 10.1093/icesjms/fsp254

Abstract: Blue whiting (*Micromesistius poutassou*) are distributed throughout the North Atlantic, including the Norwegian and Barents Seas. In recent years, both abundance and distribution of blue whiting in the Barents Sea have increased dramatically. Therefore, to evaluate the trophic impact of this increase, we analysed the diet of the species. In all, 54 prey species or taxa were identified, the main prey being krill. However, the diet varied geographically and ontogenetically: the proportion of

fish in the diet was higher in large blue whiting and in the north of the range. Blue whiting overlap geographically with other pelagic species at the edge of their distribution in the Barents Sea, with juvenile herring in the south, with polar cod in the north, and with capelin in the northeast. The overlap in diet between blue whiting and these other pelagic species ranged from 6 to 86% and was greatest with capelin in areas where both species feed on hyperiids and krill. The importance of blue whiting as prey for predatory fish was highest in the areas of greatest abundance, but overall, blue whiting were seemingly unimportant as prey of piscivorous fish in the Barents Sea.

Øyvind Fiksen: Seasonal plankton–fish interactions

Øystein Varpe and Øyvind Fiksen, Seasonal plankton–fish interactions: light regime, prey phenology, and herring foraging Ecology, 91(2), 2010, pp. 311–318 2010 by the Ecological Society of America

Abstract. When prey and predator are seasonal migrants, encounters depend on migration phenologies and environmental constraints on predation. Here we investigate the relative contribution of seasonality in irradiance and prey abundance in shaping the rapid seasonal body condition increase of a migrating predator searching visually for its prey: the Norwegian spring-spawning herring, *Clupea harengus*, feeding on the copepod *Calanus finmarchicus*. Two main seasonal pulses of prey are available to herring: (1) the parent generation of *C. finmarchicus*, with peak abundance in March–April, which appear too early to cause the main increase in herring condition; and (2) the abundant offspring generation of *C. finmarchicus*, with peak abundance in June–July, too late to explain the main increase in body condition. However, a mechanistic model of ingestion rate, including both solar irradiance and prey abundance, predicted seasonal food intake in good accordance with observed herring body condition. This suggests that the seasonality in herring foraging and energy storage is closely linked to the return of longer days in spring, and less dependent on a match or mismatch with seasonal peaks in abundance of their zooplankton prey. Consequently, light related constraints on foraging may make visually searching predators at high latitudes resilient to changes and fluctuations in prey phenology and abundance, but vulnerable to changes in the light regime, such as water clarity.

Christiane Todt: Mollusk fylogeni

Achim Meyer, Christiane Todt, Nina T Mikkelsen, Bernhard Lieb Fast evolving 18S rRNA sequences from Solenogastres (Mollusca) resist standard PCR amplification and give new insights into mollusk substitution rate heterogeneity. BMC Evolutionary Biology 2010, 10:70

<http://www.biomedcentral.com/1471-2148/10/70>

Abstract: Background: The 18S rRNA gene is one of the most important molecular markers, used in diverse applications such as molecular phylogenetic analyses and biodiversity screening. The Mollusca is the second largest phylum within the animal kingdom and mollusks show an outstanding high diversity in body plans and ecological adaptations. Although an enormous amount of 18S data is available for higher mollusks, data on some early branching lineages are still limited. Despite of some partial success in obtaining these data from Solenogastres, by some regarded to be the most “basal” mollusks, this taxon still remained problematic due to contamination with food organisms and general amplification difficulties.

Results: We report here the first authentic 18S genes of three Solenogastres species (Mollusca), each possessing a unique sequence composition with regions conspicuously rich in guanine and cytosine. For these GC-rich regions we calculated strong secondary structures. The observed high intra-molecular forces hamper standard amplification and appear to increase formation of chimerical sequences caused by contaminating foreign DNAs from potential prey organisms. In our analyses, contamination was avoided by using RNA as a template. Indication for contamination of previously published Solenogastres sequences is presented. Detailed phylogenetic analyses were conducted using RNA specific models that account for compensatory substitutions in stem regions.

Conclusions: The extreme morphological diversity of mollusks is mirrored in the molecular 18S data and shows elevated substitution rates mainly in three higher taxa: true limpets (Patellogastropoda), Cephalopoda and Solenogastres. Our phylogenetic tree based on 123 species, including representatives of all mollusk classes, shows limited resolution at the class level but illustrates the pitfalls of artificial groupings formed due to shared biased sequence composition.

Bokkapittel

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