

BIO-info 25/2011, 19. aug 2011 [BIO: sakslister og møtereferater](#) [BIO-info arkiv](#)
submission deadline to bio.info@bio.uib.no is Wednesday 16:00

Fra toppen!

Well done!

Sist uke ble kartleggingen av torskens genom publisert i [Nature](#), med spennende innsikt i torskens (og vårt eget!) immunsystem som resultat. Vi gratulerer alle som har bidratt i dette arbeidet, både våre egne (Frank Nilsen og Anders Lanzén), Inge Jonassen og hans bioinformatikk-medarbeidere på CBU og Institutt for informatikk, samt alle de andre medarbeiderne og medforfatterne i torskegenom-konsortiet under ledelse av Kjetill S. Jakobsen ved UiO og CEES.

Det er også på sin plass å gratulere Ruth Anne Sandaa og Lawrence Kirkendall med personlig opprykk til professor! At bare to av våre fire søkere slapp gjennom nåløyet viser at det ikke er noen selvfølge å bli funnet kvalifisert for et slikt opprykk. Søkerne må kunne dokumentere kvalifikasjoner og kvaliteter over en stor bredde av aktiviteter, både innen forskning, veiledning og formidling og annen virksomhet.

Dette nåløyet slapp også våre to BFS-kandidater, Mikko Heino og Boris Lenhard gjennom, da de ble kallet til professorater ved UiB av Universitetsstyret i deres møte i mai. Gratulerer til Mikko og Boris også!

Til slutt må vi få gratulere alle våre nye bachelor- og masterstudenter med et godt valg av studievei, og takke alle BIO-ansatte for en flott innsats i åpningsuken for de nye studentene. Dette gjelder både forskerne våre og studieadministrasjonen, som i følge tilbakemeldingene har gitt et godt og inspirerende inntrykk for neste generasjon biologer.

Hilsen Anders



Ukens bilde



Feltarbeid i Etiopia

Fotograf: **Anders Lanzén**

Anders Lanzén, Lise Øvreås og Ingrid Mørseth prosesserer prøver fra Lake Chitu i Etiopias Rift Valley i samarbeid med Universitetet i Addis Ababa (et NUFU-prosjekt).

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

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Siste nytt fra BIO

HMS-møte 29. september; BIO+ 29. september

HMS-møte 29. september kl. 11.30-16.15

29. september blir det HMS-møte for alle ansatte på BIO og for ansatte leietakere. Møtet vil finne sted i auditoriet på VilVite fra kl. 11.30-16.15. Mer info vil komme, men sett av datoen allerede nå.

BIO+ 29. september fra kl. 16.30

I forlengelsen av HMS-møtet arrangeres BIO+ - et sosialt arrangement for alle BIO-ansatte. Mer info vil komme.

Undervisningsnytt

Mottak av studenter

Mottak av nye studenter ved BIO

Studentene som begynte på bachelorprogrammet i biologi hadde i tillegg til alt annet program møte på planen denne uken. Anders Goksøyr og Andreas Steigen gav studentene et innblikk i undervisningen og forskningen som foregår på instituttet vårt. Studentenes tilbakemeldinger på møtet har vært strålende og vi gleder oss til å sette i gang med undervisningen neste uke.



En streng pekefinger fra programstyreleder Andreas Steigen.... men studentene smiler likevel. Foto: Beate Ulrikke Rensvik



Masterstudentene ble også ønsket velkommen denne uken, og BIO300 setter i gang som avslutning på uken med 41 studenter. Masterstudentene i fiskehelse skal ha sitt oppstartsmøte senere i august.

Se også artikkel og bilder fra åpningen av det akademiske året [her](#).

Siste nytt fra STIM

Fest på fredag 26.8

Semesterets første STIM-fest blir fredag 26.8. Mer informasjon kommer på oppslag og info-skjerm.



Siste nytt fra verden rundt oss

Nye retningslinjer for kreditering av vitenskapelige publikasjoner; Handlingsplan for UiBs internasjonale virksomhet; Nye tjenester fra IT-avdelingen; Velferdstilbud: Byvandring; Rehabilitering av uteområder Realfagbygget; Video tutorial Cell Press; Postdoc position available at Uni Miljø

Veiledende retningslinjer for kreditering av vitenskapelige publikasjoner fra Universitets- og høyskolerådet (UHR).

Retningslinjene gjelder spesielt hvem en ph.d. kandidat skal kreditere i en vitenskapelig publikasjon. [Last ned dokumenter](#)

Handlingsplan for UIBs internasjonale virksomhet. [Last ned her](#)

Nye tjenester fra IT-avdelingen

1. Tjenestenavn: Prosjekt.uib.no

IT-avdelingen har nå etablert et web-basert prosjektstyringsverktøy (prosjekt.uib.no) som kan bidra til bedre informasjonsflyt og oversikt over viktige prosjekter. All informasjon ligger på ett sted og er lett tilgjengelig. Tjenesten er tilgjengelig for alle ansatte og studenter ved UiB.

Du kan lese mer om tjenesten [her](#)

2. Tjenestenavn: Skjemaker.app.uib.no

IT-avdelingen har nå etablert et web-basert skjemaverktøy (<http://skjemaker.app.uib.no>). Brukere kan lage enkle påmeldingsskjemaer som ikke krever avansert rapporteringsfunksjonalitet. Alle påmeldingsdata ligger på ett sted og er lett tilgjengelig.

Hvilke typer skjemaer kan opprettes i skjemaker.app.uib.no?

Skjemaker.app.uib.no kan brukes til skjema som ikke krever avansert rapporteringsfunksjonalitet .

Eksempler på bruksområder er:

- . Enkle påmeldingsskjema til kurs, seminarer og sosiale arrangementer
- . Enkle spørreskjema
- . Enkle evalueringsskjema

Skjemaker.app.uib.no er et alternativ til lignende tjenester med til dels ulike bruksområder som:

- . Utvikling av avanserte påmeldingsskjema i samarbeid med IT-avdelingen
- . SurveyXact (verktøy for utvikling, utsending og analyse av spørreundersøkelser)
- . Undersøkelser i Mi side

Du kan lese mer om tjenesten på https://it.uib.no/Skjemaverktøy_og_-tjenester

Tilbud fra velfersutvalget: byvandring med Jo Gjerstad 15. september

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[Påmelding og informasjon:](#)

Rehabilitering av uteområdene rundt Realfagbygget

I løpet av de tre neste årene vil uteområdene rundt Realfagbygget rehabiliteres. Rehabiliteringen vil foregå fra 1. september 2011 - 30. november 2013 med avbrekk i eksamensperiodene juni og desember, samt vinterperioden januar-april.

Første del vil bli rehabilitert i perioden 1. september - 30. november 2011.

Vedlagt følger oversiktskart over arbeidsområdene. Områdene det gjelder vil bli avsperrert i rehabiliteringsperioden og inn-/utgang i sørenden av Realfagbygget vil også stenges. [Forklarende kart](#)

From Cell Press: video tutorial: prepare, submit and publish an article

Cell Press has published some tutorial videos on how to prepare, submit and publish an article that may be of interest for PhDs and postdocs. [Read More](#)

Høringssaker kommet til Institutt for biologi

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

Høring av verneforslag - **Utvidelse av Hellhela naturreservat, Drangedal kommune**
[Last ned dokumenter](#)

Ledige stillinger for biologer

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

Assistant Professor in Biological Oceanography

The Marine Science Program and the Department of Biological Sciences at the University of South Carolina invite applications for a tenure-track, assistant professor position in biological oceanography. The position is a 9-month academic year appointment. A Ph.D. is required at the time of appointment. Post-Doctoral experience is desirable. Specifically, we seek an individual with interests in one or more of the following areas: **micro-, meso- or macro- plankton ecology and physiology, vertical/horizontal transport processes, carbon and nutrient cycling, and climate change**. Deadline **October 15, 2011**. [Read more](#)

<http://biologi.uib.no/BIOINFO/2011/extras/25BiologicalOceanographypositionavailable.msg>

Postdoc at Uni Miljø

Three-year post-doctoral position in molecular marine zooplankton biology/ecology
Uni Miljø, Bergen. Deadline **12 September**. [More info](#)

Forskning: utlysninger, nye satsinger og prosjekter

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

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

[Fulbright; FWA og IRB-nummer for UiB; EuroMarine Network of Excellence](#)

Fulbright stipend 2012-2013

The Traditional Scholars program offers Norwegian citizens with a Ph.D. or equivalent degree in any field the opportunity to do research and/or teach in the U.S. for a period of 3 to 9 months. Recipients

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of this prestigious scholarship will receive a stipend from 60,000-150,000 NOK. **The deadline to apply for the 2012-2013 year is October 1, 2011.**

Norwegian citizens with a Ph.D. in Arctic Biology, Arctic Geology, Arctic Geophysics, Arctic Technology, or a closely related field focusing on polar and High North issues, and 5-10 years of experience, are eligible to apply for an Arctic Chair grant. The Arctic Chair for Norwegian scholars is a seven month grant to do research and lecture at any accredited U.S. university. One award is given to a Norwegian scholar each year. Made possible by a generous support from the Norwegian Ministry of Foreign Affairs, the Arctic Chair receives the most funding of any Norwegian Fulbright recipient. The deadline to apply for the 2012-2013 year is October 1, 2011.

Attached is a flyer for the 2012-2013 Fulbright grant year. Please look at the flyer and share it with any colleague you think would be interested. For more information on these or any other grant opportunities, please visit the [Fulbright website](#)

FWA og IRB-nummer for UiBs deltagelse i medisinske prosjekter i USA.

[Les mer](#)

EuroMarine: Integration of European Marine Research Networks of Excellence

EuroMarine is a FP7 coordination action to support FP6 NoEs durable integration, starting February 2011 until January 2013. EuroMarine aims towards a durable integration between the major European marine networks - EUR-OCEANS, MarBEF and Marine Genomics Europe -, with a roadmap for joint programming, creating synergies between different scientific fields, and a common research strategy and a shared vision for the oceans of tomorrow. EuroMarine will engage the European marine data management and scientific communities in durably shaping the long-term integration of data and lead technological developments. It will have a leading role in structuring and driving forward marine biological research and technical development in Europe and beyond. [More info](#)

PhD: disputas og prøveforelesning

Ph.d. forelesning Fabian Zimmermann

Fabian Zimmermann: Ecological effects of fishing

Fabian Zimmermann vil holde en prøveforelesning for ph.d. graden

Bedømmelseskomite: Arne Johannessen, Jeppe Kolding, Magnar Aksland

Tid og sted: Onsdag 24. august kl 13:15 i K3, 1 etasje, Biobyggene blokk B, Thormøhlensgt. 53

Alle interesserte er velkommen

Avsluttende mastergradseksamen

Hanne Eik Pilskog, Siri Skoglund

Hanne Eik Pilskog: The invertebrate fauna of Svalbard bird nests; ecology and as facilitating colonisation of an Arctic archipelago

Hanne Eik Pilskog holder tirsdag 23. august avsluttende presentasjon av sin masteroppgave i biologi – biodiversitet, evolusjon og økologi.

Tittel på oppgaven: The invertebrate fauna of Svalbard bird nests; ecology and as facilitating colonisation of an Arctic archipelago

Veileder: John-Arvid Grytnes og Steve Coulson (UNIS). Sensor: John Skartveit. Bisitter: Rune Rosland.

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Tid og sted: **Tirsdag 23. august**, kl. 10:15, Seminarrom K 3, Biobyggene, B-blokk

Siri Elisabeth Skoglund: Vegetasjonsendringer i myr og lynghei på Runde i perioden 1928-2010

Siri Elisabeth Skoglund holder fredag 26. august avsluttende presentasjon av sin masteroppgave i biologi – biodiversitet, evolusjon og økologi.

Tittel på oppgaven: Vegetasjonsendringer i myr og lynghei på Runde i perioden 1928-2010

Veileder: John-Arvid Grytnes . Sensor: Gunnar Austrheim. Bisitter: TBA.

Tid og sted: **Fredag 26. august**, kl. 13:00. Straumen, 4 etasje, Biobyggene, A-blokk

Kurs, møter, seminar og arrangement

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

[Introduction seminar for new employees; Forum for vitenskap og demokrati; Research course in Advanced biocomputing; +various workshops/conferences](#)

Introduction seminar for new employees at the University of Bergen

We would like to invite all new employees at the university to an introduction seminar (in English). In the seminar we want to give you some information about the university and about your rights and possibilities as an employee here.

The seminar will take place September 14, 2011, registration and coffee from 08:45. Location: room 3.43, 3. etasje, at Christiegate 18 (same building as the salary office).

See preliminary programme and register for the seminar before September 12: [here](#)

HØSTENS FØRSTE MØTE I FORUM FOR VITENSKAP OG DEMOKRATI

Rangering, sammenlikning, verdsetting

Kunnskapsgrunnlaget for vurdering av forskningen ved universiteter og høyskoler

Jarl Giske deltar som kommentator

TID: FREDAG 2. SEPTEMBER KL 1415-1600

STED: STUDIA, STUDENTSENTERET

Research course in Advanced biocomputing September 12-23:

MCB research school offer a 2-week intensive course in advanced biocomputing. This course focuses on how to use computers to streamline the analysis of biological data, with an emphasis on "working smart" rather than hard.

Although primarily designed for PhD-candidates, the course is open for anyone interested, and should be very well suited also for post docs, researchers or technical personnel who need or wish to utilize advanced biocomputational tools.

See <http://www.uib.no/rs/mcb> for course topics and further details.

- **4 ECTS credits** will be awarded for the course
- **Registration:** contact@mcb.uib.no
- **Deadline:** September 1st
- **Course fee:** free for PhD-candidates, 2000NOK for others

50th ECSA Conference 2012: Today's science for tomorrow's Management

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CALL FOR ABSTRACTS! Deadline: 13 January 2012. [Les mer](#)

Sjømatkonferansen 2011 - Påmeldingen er nå åpen [Les mer](#)

Invitasjon til dialogseminar om bergindustri og sjømatnæring 8. – 9. september

Norges Fiskarlag og Norsk Bergindustri arrangerer et felles seminar om sameksistens og bruk av norske fjorder og sjøområder. Seminaret blir arrangert på Scandic Bergen Airport hotell torsdag. 8. og fredag 9. september. [Les mer](#)

NELN+ workshop on Evidence based management of ecosystems

Bergen, 14-16. September, 2011. Please note the short deadline for registration by 25 August!

[Les mer](#)

Planet Under Pressure 2012

New Knowledge Towards Solutions

26-29 March 2012 • London, UK

NEW SESSIONS AND PRELIMINARY PROGRAMME ANNOUNCED. [Read more](#)

INOVUS 2011 - festivalen som setter fokus på entreprenørskap og gründeraktivitet i utdanning!

I år omfatter INOVUS tre parallelle konferanser:

- Entreprenørskap i grunnopplæringen
- Entreprenørskap i høyere utdanning (nytt i år!)
- Næringslivets INOVUS

[Les mer](#)

6th International Workshop on Marine Environmental Change of the South China Sea

December 4-7 2011 in Guangzhou, China [Read more](#)

Future visions in Neuroscience” - NevroNor conference Nov 29, 2011

The National Initiative on Neuroscientific Research (NevroNor) in the Research Council of Norway arrange a conference entitled "Future visions in Neuroscience" at the Radisson Blue Airport Hotel Oslo, Gardermoen Nov 29, 2011. The final program with link to registration will be spread by e-mailing in addition to the [NevroNor webpage](#) in September.

Nye artikler

Telford; Birks; Høysæther; Schander; Rapp; Larsson; Roalkvam; Jørgensen; Stokke; Hocking; Dahle; Lanzén; Steen; Mangel; Kalgraff; Wergeland; Pettersen

Telford RJ, Birks HJB (2011) Effect of uneven sampling along an environmental gradient on transfer-function performance. *Journal of Paleolimnology* 46:99-106

Abstract: We investigate the effect that uneven sampling of the environmental gradient has on transfer-function performance using simulated community data. We find that cross-validated estimates of the root mean squared error of prediction can be strongly biased if the observations are very unevenly distributed along the environmental gradient. This bias occurs because species optima are more precisely known (and more analogues are available) in the part of the gradient with most observations, hence estimates are most precise here, and compensate for the less precise estimates in the less well sampled parts of the gradient. We find that weighted averaging and the modern analogue technique are more sensitive to this problem than maximum likelihood, and suggest a way to remove the bias via a segment-wise RMSEP procedure.

Plociennik M, Self A, **Birks HJB**, Brooks SJ (2011) Chironomidae (Insecta: Diptera) succession in Zabieniec bog and its palaeo-lake (central Poland) through the Late Weichselian and Holocene. *Palaeogeography Palaeoclimatology Palaeoecology* 307:150-167

Abstract: Subfossil Chironomidae assemblages were studied in a sediment sequence from Zabieniec bog in central Poland. The climate history and habitat changes in the palaeo-lake were reconstructed from these assemblages. Currently no chironomid-based climate calibration set is available from Poland and so past mean July air temperatures were inferred from chironomid-climate calibration data-sets from Norway, Russia, and Switzerland. During the Late Weichselian the three calibration functions from these data-sets provided similar temperature inferences but there was some divergence in the reconstructions for the Younger Dryas and Holocene. In the late Pleniglacial, inferred summer air temperature was relatively low (8-12 degrees C) and the lake was oligotrophic. At about 16.5 ka BP, temperature rapidly rose to 15 degrees C and assemblage diversity substantially increased. During the interstadial, temperature stayed at this level. In the Younger Dryas, July air temperature was only 1-2 degrees C lower than in the interstadial, as inferred from the Norwegian calibration data-set, whereas the Russian and Swiss calibration functions did not indicate any temperature decrease. From the beginning of the Holocene, taxa typical of meso-eutrophic conditions dominated. There was an increased abundance of phytophilous species and the assemblage composition was also influenced by changes in water-level. Palaeotemperature reconstructions differed in their values. From 8.0 to 8.7 ka BP, inferences based on the Swiss and Russian data-sets indicated a cold oscillation while reconstructions based on the Norwegian data-set did not show any temperature decrease. After 2.5 ka BP assemblage diversity and head-capsule concentrations decreased. In the last millennium semi-terrestrial taxa dominated, except from Late Medieval to Early Modern times when shallow-water species reappeared.

Høisæter T, Snæli J-A, **Schander C**, **Rapp HT**, Berggren M. 2011. *Xandarovula patula* (Pennant, 1777) (Gastropoda, Ovulidae) new to Scandinavia. *Marine Biodiversity Records* 4 (e58): 1-4. DOI:10.1017/S1755267211000583

Abstract. In August 2009 six specimens of the ovulid gastropod *Xandarovula patula* (Pennant, 1777) (formerly known as *Simnia patula* Pennant, 1777), were found in dredge samples from a locality west of Smögen in western Sweden (58°822'N 11°805'E). In June and November 2010 a total of three specimens of the same species were found in dredge samples from near Svelgen Bridge, Øygarden, Hordaland, western Norway (60827 'N 04857 'E). Several small colonies of the presumed prey species, *Alcyonium digitatum* Linnaeus, 1758 and *Tubularia indivisa* Linnaeus, 1758, were found in the same dredge hauls. *Xandarovula patula* has been recorded from the Atlantic coast of southern Spain to the western end of the English Channel, with scattered records from the west coasts of Ireland and Britain, as far north as the Orkneys. More recently it has been reported from most Irish coasts, several parts of the Scottish coast and also from some places in the North Sea. Until now there have been no confirmed records from Scandinavian waters. The specimens recorded here may indicate recent immigration of a southern species due to warmer water temperatures.

Kongsrud JA, **Rapp HT**. 2011. *Nicomache (Loxochona) lokii* sp. nov. (Annelida, Polychaeta, Maldanidae) from the Loki's Castle vent field – an important structure builder in an Arctic vent system. *Polar Biology*. DOI: 10.1007/s00300-011-1048-4

Abstract. The discovery of the Loki's Castle vent field at 2,350 m depth on the Arctic mid-ocean ridge in 2008 represents the first known black smoker vent system in the Arctic region. Preliminary results on the benthic invertebrates collected at Loki's Castle indicate the presence of an endemic fauna dominated by tube-building polychaetes, melitid amphipods and gastropods. Here, we formally describe and investigate the ecological role of a new maldanid species, *Nicomache (Loxochona) lokii* sp. nov., a species found to be particularly common and regarded as a keystone species in this vent system. The description of the new species is supplemented with a DNA barcode. The subgenus *N. (Loxochona)* includes at present six nominal species, and the new species described herein is the fourth species associated with reducing habitats. A table with diagnostic characters for all species referred to the subgenus is provided. The new species builds tubes up to a length of 20 cm or more, tightly fastened to the substratum. Together with other tube-building species, *N. (L.) lokii* sp. nov. form

a complex three-dimensional habitat for a number of free-living invertebrates. Based on the morphology of the foregut, the microbial community in the gut and the stable isotope values found for this species, it is concluded that it acts as a grazer in this vent system.

Petter Larsson and Winfried Lampert. *Limnol. Oceanogr.*, 56(5), 2011, 1682–1688 Experimental evidence of a low-oxygen refuge for large zooplankton

Abstract: We tested the hypothesis that hypoxic zones in the metalimnion and hypolimnion of lakes can provide a refuge against fish predation for large zooplankton. Experiments were run in a large indoor mesocosm system (Ploⁿ Plankton Towers). We compared mortality rates of *Daphnia pulex* due to free-ranging fish in mesocosms with either oxic or hypoxic hypolimnia. In the presence of fish *Daphnia* moved down below the thermocline. Under hypoxic conditions their distribution peaked in the upper hypolimnion at a concentration of approximately 1 mg O₂ L⁻¹. In oxygen-saturated hypolimnia *Daphnia* were distributed evenly. The mortality rate of *Daphnia* in the hypoxic treatment was only one third of that in the oxic treatment. The hypoxic habitat provided a refuge, as *Daphnia* tolerated lower oxygen concentrations than did fish. However, there may be demographic costs associated with living in low-oxygen conditions. Hence, the importance of a hypoxic refuge under natural conditions will most likely depend on the trade-off between predation risk and cost of living in hypoxic waters.

Irene Roalkvam, Steffen Leth Jørgensen, Yifeng Chen, Runar Stokke, Håkon Dahle, William Peter Hocking, Anders Lanzén, Hafliði Hafliðason & Ida Helene Steen. New insight into stratification of anaerobic methanotrophs in cold seep sediments. *FEMS Microbiol Ecol*]] (2011) 1–11
DOI:10.1111/j.1574-6941.2011.01153.x

Abstract: Methane seepages typically harbor communities of anaerobic methane oxidizers (ANME); however, knowledge about fine-scale vertical variation of ANME in response to geochemical gradients is limited. We investigated microbial communities in sediments below a white microbial mat in the G11 pockmark at Nyegga by 16S rRNA gene tag pyrosequencing and real-time quantitative PCR. A vertical stratification of dominating ANME communities was observed at 4 cmbsf (cm below seafloor) and below in the following order: ANME-2a/b, ANME-1 and ANME-2c. The ANME-1 community was most numerous and comprised single or chains of cells with typical rectangular morphology, accounting up to 89.2% of the retrieved 16S rRNA gene sequences. Detection rates for sulfate-reducing Deltaproteobacteria possibly involved in anaerobic oxidation of methane were low throughout the core. However, a correlation in the abundance of Candidate division JS-1 with ANME-2 was observed, indicating involvement in metabolisms occurring in ANME-2-dominated horizons. The white microbial mat and shallow sediments were dominated by organisms affiliated with Sulfurovum (Epsilonproteobacteria) and Methylococcales (Gammaproteobacteria), suggesting that aerobic oxidation of sulfur and methane is taking place. In intermediate horizons, typical microbial groups associated with methane seeps were recovered. The data are discussed with respect to co-occurring microbial assemblages and interspecies interactions.

Levi T, Lu F, Yu DW, **Mangel M** (2011) The behaviour and diet breadth of central-place foragers: an application to human hunters and Neotropical game management. *Evolutionary Ecology Research* 13:171-185

Abstract: Questions: When incorporating space, time, and attack limitation, how do predicted hunting strategies of Neotropical hunters differ from predictions based on classical diet-breadth models?

Mathematical methods: Dynamic state-variable models of central-place foragers implemented by stochastic dynamic programming.

Key assumptions: Neotropical hunters are central-place foragers who maximize their energetic return over the course of a single hunt with finite available ammunition. Encounters with game are sequential and hunters decide whether to attack each of nine Neotropical game species depending on (1) their own state variables including distance from home, time, number of attacks used, and meat already acquired, and (2) game-specific parameters such as encounter rate, kill rate, handling time, and body mass.

Predictions: Hunters expand their diet late in the hunt because there are few remaining encounter opportunities. Attack limitation restricts the diet breadth to large-bodied species with a high probability of being killed because ammunition can be used to hunt larger-bodied prey later in the hunt. Very late in the hunt, hunters will accept low-value game even if there are few attacks remaining. High-value prey, with long handling times may be ignored late in the hunt if there is not time to pursue. When vulnerable game species are depleted, hunter return rates are lower but remain consistent (i.e. most hunts still result in moderate harvest levels that meet subsistence needs). Our results question the efficacy of using longitudinal records of the composition and proportion of prey items (the prey profile) to assess levels of wildlife depletion. When space is included in foraging models, prey profiles do not change substantially even when several high-value game species are locally extirpated.

Kalgraff CAK, Wergeland HI, Pettersen EF (2011) Flow cytometry assays of respiratory burst in Atlantic salmon (*Salmo salar* L.) and in Atlantic cod (*Gadus morhua* L.) leucocytes. *Fish & Shellfish Immunology* 31:381-388

Abstract: The oxidation of dihydrorhodamine 123 (DHR) to the fluorescent rhodamine 123 (RHO) was detected using flow cytometry. This assay for detection of respiratory burst activity was established in peripheral blood leucocytes (PBL) and head kidney leucocytes (HKL) of Atlantic salmon and Atlantic cod. The leucocytes were stimulated by phorbol 12-myristate 13-acetate (PMA). For cod cells 10 times lower concentration of PMA had to be used compared to salmon cells, as higher concentrations were toxic and resulted in considerable cell death. The cells found to be RHO-positive were monocytes/macrophages and neutrophils based on the scatter dot plots, but for salmon also some small cells were found to have high fluorescence intensity both in the flow cytometry analyses and by fluorescence microscopy of cytopspin preparations. The nature of these cells is not known. For cod leucocytes, such cells were not obvious. The instrument settings are a bit more demanding for cod, as cod cells die more easily compared to salmon cells. In both assays the limit between negative and positive cells has to be carefully considered. The presented flow cytometry protocols for measurements of respiratory burst in salmon and cod leucocytes can be applied in various studies where respiratory burst functions are involved, such as to verify if it is activated or suppressed in connection with infections and immunostimulation.

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