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Second International Symposium

Effects of Climate Change on the World's Oceans

May 15-19, 2012 Yeosu, Korea
www.pices.int/climatechange2012.aspx



ICES/PICES/IOC Effects of Climate Change on the World's Oceans Conference takes place in Yeosu, Korea, 15-19 May 2012.

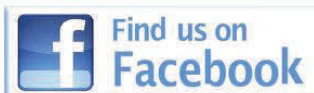
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ICES Council convenes in Copenhagen

ICES President reflects on the business of the day

ICES Council held its 99th Statutory meeting at ICES Secretariat in Copenhagen 26–27 October. ICES President Michael Sinclair led discussions on the scientific, advisory, strategic, operational, and financial issues affecting ICES. Delegates from all 20 Member States attended, along with representatives from ACOM, SCICOM, and the Secretariat.

Sinclair described the meeting as “very dynamic and interactive”, a comment elicited by the open strategic discussion session held to consider the [Marine Strategy Framework Directive](#) (MSFD). During the half-day session, chaired by ICES First Vice-President Paul Connolly, key collaborators, in this case representatives from [HELCOM](#) and the European Commission, were invited to contribute to the discussion. The session focused on the challenges faced by ICES European Member States in addressing and implementing the Directive, and how ICES can help. Delegates will be selected to continue the work under the Joint ACOM/SCICOM Marine Strategy Framework Directive Steering Group.



ICES delegates meet at ICES Secretariat.

Sinclair noted that an additional reason for the meeting’s energy might have been the composition of the delegates. “I think having delegates who are also participants, with a number in SCICOM and ACOM, generates a dynamism of very quick feedback within Council, which is an overarching group that is more policy related than oriented towards the operational aspect”.

Other highlights of the meeting included:

Science Programme

Science Committee (SCICOM) Chair Manuel Barange noted the excellent progress of several of the strategic initiatives, including the Strategic Initiative on Stock Assessment Methods and ICES/PICES Strategic Initiative on Climate Change Effects on Marine Ecosystems.

In order to reduce the burden of annual reporting and provide Expert Groups with a longer perspective on which to base their activity, the Terms of Reference for new groups will now be multi-annual, remaining in place for three years. With this change, groups are expected to become more strategic and achieve clearer outcomes, demonstrating advance and innovation, and making the Expert Group portfolio more responsive to future changes in [ICES Science Plan](#).

[ICES Training Programme](#) received great support from the delegates, with an initial review praising it as an excellent initiative. Barange reported that almost 400 students have attended ICES courses from more than 30 countries, most of them (89%) from ICES Member States.

Advisory Services

Advisory Committee (ACOM) Chair Jean-Jacques Maguire stated that ICES provided advice on more than 140 stocks during the past year.

Because it has now been three years since the reform of Advisory Services, during which the ecosystem, environmental, and fishery advice committees were integrated, the upcoming inaugural meeting of the Working Group on the Advisory Reform was discussed. Sinclair commented, “We’ve created an external group composed of external experts, who are starting a one-year review period in

November. Advisory Services is more directed towards the European Commission and the various countries that have asked questions. And so, we have the Council Working Group on the Advisory Reform asking, ‘Okay, how has it worked? Where are we now?’ We need to have an external review to ensure that our advice is credible.”

New Vice-Presidents

Four **new Vice-Presidents** were elected to ICES Council.

All work and no play

At the conclusion of the first day of the Council meeting, Council members attended a reception at the official residence of the Norwegian Ambassador to Denmark in the Copenhagen suburb of Hellerup.

After welcoming his guests, Ambassador Jørg Willy Bronebakk explained that the official residence, a striking example of the **Bauhaus** style of architecture, was built in 1934 as a gift from the Danish people to Prime Minister Thorvald Stauning. It was purchased in 1947 by the Danish shipping magnate Arnold Mærsk McKinney Møller, former CEO and Chair of the A. P. Møller–Mærsk Group. It became the official diplomatic residence in 1991.

Bronebakk also noted that Norway is currently celebrating the 150th anniversary of the birth of **Fridtjof Nansen**, the Norwegian explorer, scientist, diplomat, and humanitarian, who was a co-founder of ICES.

ICES President said that, although Sweden was crucial to the creation of ICES, Norway was just as crucial to its survival. In 1902, Committee A–dedicated to the study of the fluctuations in the “great fisheries” on herring and cod, which were thought to be generated by interannual changes in migration patterns–was formed and funded for two five-year periods. At the end of the second period, no discernible progress had been made. Without any hint that progress in his thinking had taken place, Johan Hjort, the Norwegian fishery scientist, marine zoologist, and oceanographer who had been studying the nature and causes of the large fluctuations of fish populations, delivered a two-hour lecture in London that in essence solved the problem, thus assuring the continued funding–and the survival–of ICES.

The lecture became the basis of his 1914 paper “Fluctuations in the Great Fisheries of Northern case, Europe”, which was a paradigm shift in the development of fishery science. Like meteorological developments of the time, this contribution allowed predictions of future landings. The applied nature of his ideas “saved ICES”. Sinclair concluded by toasting the long-term contribution of Norway to ICES and to marine science in general.

ICES Council will assemble again for its 100th Statutory meeting in October 2012.



ICES delegates gathered at the residence of the Norwegian Ambassador Jørg Willy Bronebakk .

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New Vice-Presidents elected at ICES Council meeting in October

Many changes at one time

At the 99th Statutory meeting of ICES Council in October, four new Vice-Presidents were elected. This unusually large number of elections at one meeting was made necessary by retirement, shifting responsibilities, and the usual expiration of term, leaving four places vacant. The Vice-Presidents, along with the President and First Vice-President form ICES Bureau, which is the Executive Committee of ICES. The Bureau will meet next in February.

Carmela Porteiro is welcomed back to the Bureau, where she served as Vice-President from 2006 to 2008. Porteiro is a Senior Scientist at the Spanish Institute of Oceanography ([Instituto Español de Oceanografía](#)). A biologist with expertise in fishery research and stock assessment, she has a long history of involvement with various ICES expert groups. She served as the Spanish representative on the Advisory Committee on Fisheries Management (ACFM; 1995–2004) and, in recent years, as Spanish delegate, on both the Bureau and Finance Committee.



Carmela Porteiro.



Fred Serchuk.

Fred Serchuk is the Senior Science Advisor at the [NMFS Northeast Fisheries Science Center \(NEFSC\)](#) in Woods Hole, Massachusetts. Serchuk, a US delegate, is also the US representative on ICES Advisory Committee (ACOM). He has been a member of the ICES network since the late 1970s, involved with various working groups and committees. Between 1985 and 1993, he was a member of the Advisory Committee on Fishery Management (ACFM) and served as ACFM Chair from 1990 to 1993, the first North American (and only US) scientist ever to serve in that position. Over the past decade and a half, he has been a member of the ICES Demersal Fish Committee, the Publications Committee, and the Resource Management Committee.

Tore Nepstad is the Director of the [Norwegian Institute of Marine Research](#), a role he assumed in 2004. It was at this time that he also became ICES Norwegian delegate. Nepstad, a Navy officer, was educated at the Norwegian Royal Naval Academy and studied political science at the University of Bergen where he received a two-year scholarship from the Norwegian Council for Management Development. He served as director of Haukeland University Hospital for 15 years and as director of NUTEC research department for one and a half years.



Tore Nepstad.



Fritz W. Köster.

Fritz W. Köster is the Danish delegate and Institute Director of [DTU Aqua](#), the Danish National Institute of Aquatic Resources, where he is responsible for overall institute management and research. Köster has served as the Danish delegate since 2004. He has a long history of involvement with ICES and served as a member of ACFM between 2005 and 2007. Since 2007, Köster has been a member of the Board of Directors of the European Fisheries and Aquaculture Research Organisation (EFARO) and is involved with various related initiatives and projects, e.g. MARCOM+.

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ICES Advisory Committee hold annual meeting

Jean Jacques Maguire reviews his first meeting as ACOM Chair

The annual Advisory Committee meeting was held 15–18 November at ICES Secretariat. The main objectives of the meeting were to review ACOM's 2011 performance and plan its work for 2012 and beyond. In addition to providing **advice** on more than 140 stocks this year, ACOM also advised on the impact of fisheries, scientific surveys in deep water, the monitoring of Arctic Ocean fish stocks, cold water corals, sponge and vulnerable ecosystems, protocols for assessing the status of sea-pen and burrowing megafauna, and several harvest control rules. Together with the advice provided in 2010 to **OSPAR**, ICES finalized a significant piece of work on guidance for integrated monitoring and assessment of chemicals and biological effect.

Advice process

After draft advice is prepared by expert groups, the technical analyses are assessed by a review group. The draft advice is finalized by an advice drafting group and approved by ACOM meeting via video conferences. The majority of the advice was provided in the first half of this year, which presented a timing challenge. Expert groups, review groups, advice drafting groups, and video conferences had to operate within a limited time frame in which to approve the advice and, normally, there are only a few days between the circulation of the draft advice and the video conference. This left very little time to resolve issues. However, the ACOM vice-chairs, who generally chair the advice-approving video conferences, were great at resolving these issues ahead of the video conferences.



ACOM Chair Jean Jacques Maguire.

ICES advice on stocks without quantitative assessment is not yet as useful as it could be. Therefore, two workshops (**WKFRAME3** and **WKLIFE**) are being organized at the beginning of 2012 to address this issue. A workshop on the frequency of assessments (**WKFREQ**) will be held to streamline ACOM's work. ACOM reiterated the view that age-based assessments are neither necessarily desirable nor appropriate to all stocks. Frequency of assessment and advice will also be discussed at the meeting with the Regional Advisory Councils (MIRAC) and at the meeting of ICES with Recipients of ICES Advice (MIRIA – formerly MICC).

Auditing the new Advisory Committee

A subgroup of ACOM, under the leadership of Bill Turrell, will carry out an audit of the past three years (2008–2011) to assess the provision of strategic foresight and direction for advisory services, as set out in the Advisory Plan. This group will review the current version of ACOM Working Procedures and propose changes that will increase ACOM's effort on strategic foresight and development, and improve the delivery of the Advisory Plan. A draft of the ACOM Advisory Plan for 2012–2014 will also be prepared by this group.

A further external audit will be conducted by an External Review Group. The initial meeting of this group took place alongside the main ACOM annual meeting and their final report to ICES Council is expected in 2012.

Celtic Sea ecoregion

Scientists providing advice for the Celtic Sea ecoregion have a particularly heavy workload, including many stocks without quantitative assessments, several new stocks, and stocks whose boundaries are

unclear. A subgroup of ACOM led by Maurice Clarke will provide a roadmap to streamline the workload for stocks in this ecoregion, which may touch on the frequency of assessment, frequency of advice, stock identity, and stock assessment methods.

Strategic Initiatives

ACOM Vice-Chair Eugene Nixon reported feedback from expert groups regarding ICES Strategic Initiatives on Marine Spatial Planning and the Marine Strategy Framework Directive. Although the expert group's initial reaction was less than positive, in the end, several members supplied very useful and informative material, and [updated reports](#) are now available.

The future of mixed-fishery advice

In 2012, ACOM is planning to provide mixed-fishery advice for the North Sea and multispecies/integrated advice for the Baltic Sea. Mixed and multispecies/integrated advice is expected to be progressively extended to other areas as information becomes available.

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Time to say goodbye

Outgoing colleagues comment on their time at the top

As another year draws to a close, so too does the Service term for some of our colleagues. We pause to thank these individuals, who have given their time and expertise to ensure the smooth running of various sections of ICES work.

Manuela Azevedo (Portugal) steps down as ACOM Vice-Chair, Andrew Payne (UK) retires from his position as Editor-in-Chief of the ICES Journal of Marine Science, Pierre Petitgas (France) finishes his time as Chair of the Science Steering Group on Ecosystem Functions (SSGEF), and Pierre Pepin (Canada) concludes his term as Chair of Publications Committee (PUBCOM).

Asked to comment on their time at the helm, our outgoing colleagues had the following comments.



Manuela Azevedo

Being Vice-Chair of the ICES Advisory Committee (ACOM) for the period 2009-2011 was a professionally rewarding and fulfilling experience. I had the opportunity to be part of a great team, the ACOM leadership, and to work closely with the highly competent and dedicated ICES Secretariat. To ACOM members: thank you, colleagues! Your participation and collaboration during the advisory process and the many meetings held to finalize and approve ICES advice were important to ensure objectivity and consistency and enhance the credibility of ICES Advice.

Manuela Azevedo. Having participated in the development and establishment of the ICES Precautionary Approach for fisheries advice in early 2000, it was particularly rewarding for me to be part of the process that started in 2009 and resulted in the adoption of a Maximum Sustainable Yield (MSY) approach for ICES Advice. I believe that it has been an important first step towards developing the MSY approach to account for technical and biological interactions and the foreseen developments for an ecosystem-based advice.

Andy Payne

I have been associated with ICES since the early 1990s and with the Journal since 2000. However, through working with several highly competent people at ICES throughout, some of them still there, being involved in the change of publisher while Editor-in-Chief of the Journal, with the Journal entering the era of electronic submission and publication, and making masses of very good friends and acquaintances along the way, I can only describe my experience with ICES and the Journal as a privileged one. In terms of the Journal, I remember in 2003 when I took over the helm, thinking about what I wanted to achieve for it and specifically for ICES, and looking back, I wonder how successful I have been. Given my lifelong interest in the English language, therefore, and despite being an ecologist by training, one of my aims for the Journal was always to ensure the quality of the written and illustrative material in final publication, which, of course, had to be scientifically sound and largely innovative. I hope that I have achieved that target and have provided a base on which my successor can build his future vision.



Andy Payne.

Pierre Petitgas

As the first Chair (2009–2011) of the new SCICOM Steering Group on Ecosystem Functions (SSGEF), I had the chance to contribute to the implementation of the new science structure right from the start. It has been a great adventure. SSGEF's expertise spans all ecosystem sections, allowing an overall view on ecosystem functions. SSGEF currently has 12 long-term working groups and eight short-term study or workshop groups under its responsibility. Each expert group is specialized in a specific function of the ecosystem: hydrology, zooplankton, phytoplankton and microbes, benthos, invertebrates, fish (demersal and pelagic, anadromous), sea birds, biodiversity, and modelling physical–biological interactions.



Pierre Petitgas.

I envisaged my role as linking the top–down pilotage of the Science Plan with the bottom–up creativity of expert groups. I took action to monitor and map the activity of expert groups, in particular via the coding of their Terms of Reference, developing awareness of the Science Plan, and providing groups with the insight to place their work in the greater picture. In addition, I took action to change the format in which groups made their annual report at the ASC, implementing a more topical and scientific style of reporting where highlights could be presented and integrated to address cross-cutting issues. A core group of SSGEF, composed of expert group Chairs and SCICOM members, assisted me in these changes.

Working with constructive and open-minded colleagues, I have appreciated their comments and commitment, which made the job rewarding in its human dimension.

Looking back, the changes seem to have been positive. Expert groups have contributed actively and SCICOM has a clearer view of science developments in relation to the Science Plan. At the end of my term, I have two concerns: (i) the work of expert groups could become more product oriented, thus generating more science highlights; (ii) expert groups could work with more integration, and programming across SSGs could be strengthened. Science reporting and planning sessions across SSGs, as carried out at the ASC in Gdańsk, is a step in this direction.

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The mystery of dying salmon

Successful symposium shows substantial scientific progress

Salmon are often heralded as “aquatic canaries”, indicators of healthy aquatic environments. In recent years however, wild Atlantic salmon have been dying at sea in alarming numbers. Southern stocks of salmon on both sides of the Atlantic are facing the very real threat of extinction. Scientists do not yet fully understand the phenomenon, but they are gaining new information, and the recent Salmon at Sea (SALSEA) programme, run by the North Atlantic Salmon Conservation Organization (NASCO), has made major contributions to this knowledge.



North Atlantic salmon. Photo courtesy of Gilbert van Ryckevorsel.

Advances in research on the marine life of salmon were presented at the recent symposium, co-convened by NASCO and ICES, “[Salmon at Sea: Scientific Advances and Their Implications for Management](#)”, which took place 11 to 13 October in La Rochelle, France.

Why are salmon dying? Where are they dying precisely? Is it before they reach their feeding area or is it on the way back? Is it correlated with other biological features? These are all questions that were asked but unfortunately remained unanswered.

Climate change, suggested as a possible driver, was not a generally accepted hypothesis, as the evidence to back the theory was thought to be insufficient. Henrik Sparholt, ICES representative in La Rochelle, asks, “If this is the case, why doesn’t the situation improve in the northern part of the distribution area where the feeding is good? You would expect that”.

The freshwater situation was also considered, because this could influence salmon survival at sea. If the way in which salmon mature in freshwater changes, they may enter the sea at a suboptimal time, which does not co-occur with the zooplankton maximum.

“At least we know that the freshwater phase, where they grow from eggs until they are smolt, 10-15 centimetres, is important and may play an important role in how they survive their first couple of months in the sea”, says Sparholt. “We think that’s where they are dying, but we are not actually sure”.

It might also be at a much later stage, because little is known about the period from when they leave the river until they return. It is a fact, though, that salmon are very rarely caught at sea nowadays, in contrast to the 1960s and 1970s, when the salmon catch was substantial. Sparholt continues, “And because salmon have been caught in the sea in large numbers, at least at that time, there must have been a better survival rate than at present. Today, we don’t know whether they are there or not. It may be that they are still there in the same numbers as in the 1960s, when catches were high, but people are not fishing for salmon anymore. Maybe they are dying on their way back to the river as large salmon, before they go to spawn”.

One reason for this could be an increase in predators, seals for example, or perhaps they are not finding their way back to their native river.

This phenomenon is not unique to the Atlantic. Pacific and Baltic salmon are also in decline, and the symposium provided the chance for scientists from different areas to compare research and share inspiration.

The SALSEA programme has been coordinating the science between member-state scientists. Most of the scientists involved are also members of ICES Northeast Atlantic Salmon Working Group, as well as participants in other expert groups on salmon. According to Sparholt, the programme has produced an impressive list of results.

A significant part of the SALSEA programme was to follow the smolt when they leave the river and, using various types of tagging, determine where they go, how quickly, at what time, and what their routes are.

Icelandic salmon provided a surprise. As soon as they enter the sea, even from the east of Iceland, they turn and swim west, almost directly to Greenland. Sparholt comments, "So those small salmon caught pretty close to east Iceland, bycatch of mackerel fishing, are not actually Icelandic salmon. They are actually Norwegian, Scottish, and Danish salmon. That's new to us!"

The tagging of adult salmon with popup tags and data storage tags has demonstrated that they are moving around in the Northeast Atlantic more than was thought previously. They are getting close to the ice edge in the Arctic area, between Svalbard and Greenland.

Sparholt observes, "This is much farther north than expected, because it was thought that they went to the Barents Sea or the Norwegian Sea, but now they seem to swim much farther, close to Greenland and the ice edge and, I think, into the North Pole area. They are also going very deep, diving down to almost 1000 metres. That's really interesting, new, and important because, if we know where they are, it's easier to find out what the problem is. If we don't understand where they are, then we may be looking for changes in the wrong areas".

The advances in research will of course affect management implications and future research priorities.

Sparholt describes the conference as one of the best he has attended. "The presentations were excellent, all of them, almost without exception, good, interesting, and well presented. The facility was good. And there were many good discussions, lively discussions, also in the corridors. It was simply a perfect conference. But unfortunately the main question was not answered!"

The proceedings of the Summit will be published, following peer review, in a special symposium issue of *ICES Journal of Marine Science* as well as a further report that will focus on the management implications and applications presented in La Rochelle.

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In case of emergency

Secretariat staff trained to use a heart defibrillator

ICES Secretariat has acquired a Philips HeartStart First Aid Defibrillator. It is located in the reception area in front of the elevator.

Every year, ICES Secretariat hosts more than 70 working groups with approximately 1500 visitors. With so many guests, the likelihood of a cardiac emergency increases. Being prepared for an emergency greatly increases a victim's chances of survival. According to the [American Heart Association](#) "Less than eight per cent of people who suffer cardiac arrest outside the hospital survive. Unless CPR (cardiopulmonary resuscitation) and defibrillation are provided within minutes of collapse, few attempts at resuscitation are successful".



Philips HeartStart First Aid Defibrillator

Early defibrillation is the third link in the Chain of Survival concept that, when put into motion, can reduce the chances of mortality caused by cardiac arrest. The four interdependent links in the [chain of survival](#) are: early access, early CPR, early defibrillation, and early advanced cardiac life support.

The Secretariat's defibrillator is a simple-to-use unit that employs computer technology to analyse the heart rhythm and advises the user whether or not a shock is required. The unit was designed for use by lay persons, who require little training to operate it correctly.

In October, members of ICES and Eurofish staff were trained in a two-day course on the defibrillator's use; however, if trained individuals are unavailable, built-in automatic voice instruction in English will guide the user through the defibrillation process.

Detailed instructions regarding emergency procedures will be provided as part of the "Introduction to the Secretariat and Facilities" presentation given to working groups at the start of each meeting. The Secretariat hopes to maintain its excellent record of handling emergencies but is prepared just in case. The ICES heart defibrillator will be added to a map of all [defibrillators in Denmark](#).



The friendly faces from the Secretariat who may one day save your life—be kind to them! Pictured with course instructor Sven Hedegaard from Dansk Brandteknik A/S.

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International fishery modelling group meets in Woods Hole

First meeting of the Working Group on Multispecies Assessment Methods

Fishery scientists and modellers from more than a dozen nations met at NOAA's [Northeast Fisheries Science Center's Woods Hole Laboratory](#) 10–14 October. The international working group reviewed data, methods, and ecosystem models used throughout the North Atlantic and adjacent seas as part of an international effort to better manage the ocean using an ecosystem approach to fishery management.

It was the first meeting of ICES Working Group on Multispecies Assessment Methods to be held in Woods Hole. The group spent the week reviewing data, testing and validating models, and trying to establish best practices for model selection that can be used by fishery managers.

“We share ideas and test best practices from other nations and get to see things from a different perspective”, said Jason Link, working group Co-chair. “No one region or country has all of the answers. We learn from each other. We’re developing a virtual matrix of models, improving how they function as well as developing a better sense of which models are most reliable in which scenarios. There definitely isn’t a one-size-fits-all”.

The Woods Hole meeting built on past efforts of the working group to develop multispecies models and to fill in gaps in data. For example, recent meetings recommended gathering more information on food habits of fish through a stomach sampling programme in the North Sea, the Baltic Sea, and other areas without regular programmes to do so. In the United States, such sampling is routine. “Knowing what fish eat, and how much food is available to them, is critical to understanding how an ecosystem functions and helps improve the models”, said Link, a member of the Center’s Ecosystems Assessment Program.

“There are many kinds of models, each developed for a specific purpose” said meeting Co-chair Anna Rindorf from the Danish Technical University in Copenhagen. “Each member works on ecosystem



The Working Group On Multispecies Assessment Methods. Photo by Scott Large, NOAA Fisheries Service.

models from their own region, so working group meetings like this allow us to see beyond our own ecosystems. We get a better sense of ecosystems over a larger geographic area and where the data, methods, and models need to be improved, or where they seem to have consistent results and function best”.

Link said one goal of the meeting was to reach a consensus on which models are best for which situations, a best practices list of sorts because there is not one model for every situation. As an example, the group explored how various ecological factors in an ecosystem should be modelled to accurately reflect changes to the ecosystem, including climate change.

“Fisheries are affected by many ecological factors, from temperature and salinity to invasive or introduced species, the availability of food, habitat, and predator–prey relationships”, Rindorf said. “As stocks rebuild from overfishing, for example, and predator–prey relations change, how do we model those changes? We cannot see into the oceans, so models help us visualize what that ecosystem looks like under various scenarios”.

Courtesy of the National Oceanic and Atmospheric Administration ([NOAA](#))

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Grammar Slammer

Bill Anthony says, I hope this fits

One of the things I really like about Christmas is that, aided by extra quantities of alcoholic lubricant, otherwise sensible people are willing to believe all kinds of nonsense, like an editor's claim that it's fruitcake on his breath and not gin. And there are other fanciful notions: an obese humanoid entity travels at great speed in a craft powered by antlered servants, and illegal fishing is merely a figment of the imagination.

There's one whimsical story that I really hope is true: Czarina Maria Fyodorovna once saved a man's life simply by moving a comma in a judicial sentence written by her husband Alexander III. The note was supposed to read "Pardon impossible, to be sent to Siberia". The man was set free after the Czarina rearranged a bit of punctuation so the document read, "Pardon, impossible to be sent to Siberia". (Maria Fyodorovna [1847–1928] was actually Dagmar, Princess of Denmark, which ought to give the Copenhagen-based ICES Secretariat staff something to ho ho ho about.)

It's childish to think that we always get whatever we ask for (I said I wanted a dog for Christmas, but my wife said I had to have turkey like everyone else). So, regardless of what you were expecting from me, this Christmas you're getting something really useful, the Oxford comma.

The Oxford comma (also known as the serial comma) is inserted immediately before a coordinating conjunction (usually and or or, and sometimes nor) preceding the final item in a list of three or more items. For example, a list of three countries can be punctuated as either "Portugal, Spain, and France" (with the Oxford comma) or as "Portugal, Spain and France" (without the Oxford comma). Not much chance for ambiguity there.

But how about this apocryphal book dedication, "To my parents, Madonna and Santa Claus"? Because the punctuation is the same as for an **appositive**, "Madonna and Santa Claus" seem to define "parents". Ho ho ho! That's obviously the result of some liberal seasonal lubrication. A comma placed after "Madonna" clears up the yuletide delusion: "To my parents, Madonna, and Santa Claus".

Holiday hilarity aside, there are instances when the absence of a comma can have serious consequences.

For example, here is a list of the usual parts of a research paper. "Articles must include an abstract, introduction, methods, results and discussion". A student could be forgiven for writing a "Results and Discussion" section. A comma after "results" would solve the problem.

How about "Prevention of dental caries requires regular check-ups, restriction of sugary snacks and tooth brushing". Let's restrict that brushing!

Finally, and not a moment too soon, "Determinants of smoking at age 11 include best friend's smoking, mother's smoking and having been drunk at least five times". Come on, Mom. Sober up. (The three preceding examples are taken from Carol Norris, University of Helsinki.)



A portrait of Czarina Maria Fyodorovna painted by I. N. Kramskoi in 1882. The portrait might have been painted around Christmas time. We're not sure.

As usual, the Oxford comma (also known as the Harvard comma by some North Americans) is not universally embraced. Some editors, both British and Yank, only insert a final comma when they feel there is a danger of ambiguity. But of course that's subjective. What a writer in one specialty understands perfectly well may be unclear to a reader in another area.

ICES advice: Always insert the Oxford comma and leave it up to the editor to remove it. ICES editors won't be removing any Oxford commas. By the way, the Oxford comma is so called because it has traditionally been used by editors and printers at Oxford University Press, publisher of *ICES Journal of Marine Science*.

This is a holiday gift that will serve you well, and while you continue to play with it, we at ICES Grammar Slammer wish you a peaceful holiday season and a happy and prosperous New Year.

Don't miss the *ICES Inside Out* story about a group of ICES scientists who crossed a snowman with a shark. They got frost bite [www.ices.just_kidding/happy_holidays!].

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