

**Workshop - “Trendy fish with Nordic flavours”**  
**29th - 30th of October 2019**  
**Klippfiskakademiet, Ålesund, Norway**



**Authors:**

Kolbrún Sveinsdóttir, Aðalheiður Ólafsdóttir, Matís, Reykjavík, Iceland  
Ingebrigt Bjørkevoll, Wenche Emblem Larssen, Møreforskning, Ålesund, Norway

**Skýrsla Matís 23-19**

**Desember 2019**

**ISSN 1670-7192**

**DOI 10.5281/zenodo.3587879**

# Skýrsluágríp Matís ohf

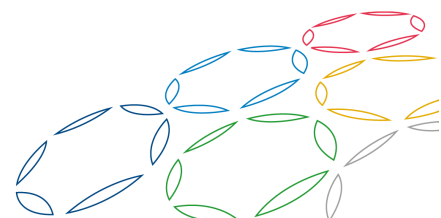
Icelandic Food and Biotech R&D



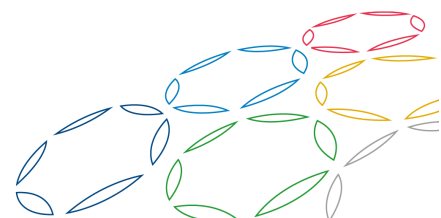
## Report summary

ISSN: 1670-7192

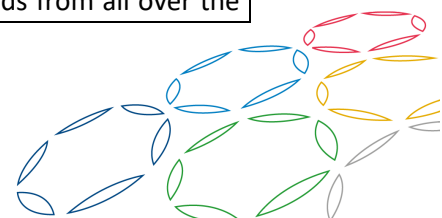
<i>Titill / Title</i>	Trendy fish with Nordic Flavours, Workshop in Ålesund, Norway 29-30 October 2019		
<i>Höfundar / Authors</i>	Kolbrún Sveinsdóttir, Aðalheiður Ólafsdóttir, Matís, Reykjavík, Iceland Ingebrigt Bjørkevoll, Wenche Emblem Larssen, Møreforsking, Ålesund, Norway		
<i>Skýrsla / Report no.</i>	23-19	<i>Útgáfudagur / Date:</i>	20.12.2019
<i>Verknr. / Project no.</i>	62531		
<i>Styrktaraðilar /Funding:</i>	AG Fisk 185-2019		



<p><i>Ágrip á íslensku:</i></p>	<p>Löng hefð er fyrir vinnslu saltfisks hér á landi en áður fyrr var öðru fremur notast við saltið til að lengja geymsluþol fiskins. Í dag telst saltfiskur sælkeravara sem nýtur mikilla vinsælda víða um heim. Til að styrkja stöðu saltfisksins, með sína löngu hefð, sögu og sterk tengsl við norræn lífsviðurværi, er mikilvægt að efla virðisbæturina í heild, frá framleiðendum, smásöluáðilum, til matreiðslumanna, skóla og neytenda.</p> <p>AG-Fisk (Arbejdsgruppen for Fiskerisamarbedet) á vegum Norrænu ráðherranefndarinnar styrktir verkefnið, m.a. með það að markmiði að auka þekkingu á norrænu sjávarfangi, svo sem saltfiski. Verkefninu er stýrt af Matís og eitt verkefnanna var að skipuleggja vinnustofu í Noregi í samvinnu við Møreforsking og Klippfiskakademiet í Álesund. Vinnustofan var samfjármögnuð af viðskipta-, iðnaðar- og sjávarútvegsráðuneytinu í Noregi og var haldin 29. og 30. október 2019. Aðaláherslan var lögð á saltfisk. Matreiðslunemar ásamt matreiðslumeisturum frá Noregi, Færeyjum og Íslandi unnu saman að því að þróa nýstárlega rétti með áherslu á norrænt hráefni og saltfisk. Á vinnustofunni voru kynntar norrænar hefðir og saga, ólíkar saltfiskafurðir og ólíkir skynrænir eiginleikar þeirra. Þátttakendurnir smökkuðu mismunandi þorskaufurðir (uppbíddan þorsk, léttsaltaðan þorsk, útvatnaðan saltfisk og útvatnaðan klippfisk) með það að markmiði að greina mismunandi eiginleika þessara afurða. Niðurstöðurnar sýndu greinilega fram á ólíka eiginleika afurðanna.</p> <p>Norrænir matreiðslumeistarar fluttu erindi um reynslu sína, framtíðarsýn og hugmyndir um norrænt hráefni til að leggja línur fyrir vinnuna sem framundan var. Í hópastarfi var lögð áhersla á að greina tækifæri og hindranir, stöðu dagsins í dag og hugmyndir til að auka neyslu á hefðbundnum afurðum. Einnig voru ræddar vöruhugmyndir til að koma saltfiski betur á kortið sem aðlaðandi kostur á heimamarkaði. Eitt aðalmarkmiðið var að auka neyslu meðal ungs fólks með því að hvetja það til að búa til nýstárlega rétti. Fjölbreytnin í uppskriftum og framreiðslu rétta sýndi glögggt ógrynni möguleika þessa hefðbundna hráefnis í ljúffenga rétti, allt frá einföldum og auðveldum í undirbúningi til krefjandi og metnaðarfullra rétta.</p> <p>Fram kom að hefðir voru taldar styrkur en skortur á tilbúnum réttum í ljósi breyttra neysluvenja var hins vegar veikleiki. Upplýsingar af þessu tagi eru mikilvægar þegar horft er til framtíðar fyrir saltfisk, bæði á heimamarkaði og á útflutningsmörkuðum. Norsku þátttakendurnir þekktu saltfisk nokkuð vel, bæði er saltfiskur á borðum heima við sem og nokkur fjölbreytni í boði í matvöruverslunum. Til að auka fjölbreytileika rétta og aukna neyslu hefðbundinna norrænna matvæla eins og saltfisks er mikilvægt að vinna með börnum, fræða þau um norrænna mat og efla þátttöku þeirra í matarundirbúningi, bæði heima og í skólanum. Nýta ætti betur áhersluna á sjálfbærni, heilsu og jákvæð loftslagsáhrif, sem og breytingar í neysluvenjum er byggja á áhrifum víðsvegar að úr heiminum sem innblástur fyrir nýjungar í réttum úr hefðbundnu hráefni eins og saltfiski.</p> <p>Leggja verður áherslu á að auka þekkingu meðal matreiðslumanna, sem og neytenda, á mismunandi afurðum úr saltfiski, svo sem léttsöltuðum þorski, útvötnuðum afurðum úr fullsöltuðum þorski og þorski, þar sem einkenni þessara vara eru mjög mismunandi. Vanda þarf til ef auka á neyslu saltfisks, fræða og mennta neytendur, og ekki síst unga neytendur. Nýrri samskiptatæki eiga skilið athygli með áherslu á það hvernig yngri fólk leitar, finnur og fær upplýsingar.</p>
<p><i>Lykilorð á íslensku:</i></p>	<p><i>Vinnustofa, saltfiskur, norrænn matur, hefðbundinn matur</i></p>

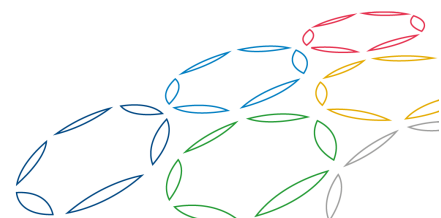


<p><i>Summary in English:</i></p>	<p>Salt-curing of cod is an ancient storage method. Today, salt-curing is not merely a storage method, but a method of producing high quality products of specific characteristics. To promote a product as salt-cured fish, with long tradition, history and strong connection to Nordic livelihoods, it is important to motivate the whole chain, from producers, to retailers, to chefs, to schools and the consumers.</p> <p>AG-Fisk (Arbejdsgruppen for Fiskerisamarbedet) under the auspices of the Nordic Council of Ministers has provided funding for a project with the aim to increase the knowledge of seafood, such as salt-cured cod, thus contributing to increased respect and thus increased value. The project is led by Matís and one of the project tasks was to organise a workshop in Norway in collaboration with Møreforskning and Klippfiskakademiet in Ålesund. The workshop was co-financed by The Ministry of Trade, Industry and Fisheries in Norway. The workshop was held on 29th and 30th of October 2019 and the focus was salted and dried cod. Culinary students together with chefs from Norway, Faroe Islands and Iceland, aimed to develop new trendy dishes with emphasis on Nordic raw materials combined with salted and dried cod. During the workshop, Nordic traditions and history were presented, the different salt fish products and their different sensory properties. The participants tasted different cod products (thawed, lightly salted, desalted salt-cured cod and desalted clip fish) with the aim of analysing the different sensory properties of these products. The results clearly demonstrated the unique sensory properties of salt-cured and clip fish products.</p> <p>Nordic chefs gave talks of their experiences, thoughts, visions and ideas for Nordic raw materials, to set the scene for the work ahead. Group work was focused on analysing opportunities and barriers, today's status and ideas to increase consumption of traditional products, product ideas to make salt-cured and clip fish more known and attractive in home markets. One of the main targets was to increase the consumption among young people by inspiring them to create new, trendy recipes and dishes that they would like. Based on this, innovative dishes were made and evaluated during the workshop. The variety in the dishes, clearly demonstrated the enormous potentials of this traditional raw material, to be used in delicious trendy innovative dishes, from simple and easily prepared to challenging and ambitious.</p> <p>The group discussions showed that traditions were considered a strength but a lack of ready to cook and ready to eat meals as well as changes in consumption habits were considered a threat. This kind of information is important when setting the scene for the future of salt-cured fish, both in home markets and export markets. The Norwegian participants were familiar with salt-cured fish and clip fish and it was not uncommon to prepare such dishes at home, and some variety was available in the supermarkets. However, to increase product variety and increased consumption of traditional Nordic foods such as salted fish, it is important to work with kids, both at home and at schools. It is of great importance to educate them about Nordic food and involve them in food preparation, both at home and in school. The emphasis on sustainability, health and positive climate impact, as well as adapting food trends from all over the</p>
-----------------------------------	---



	<p>world, can be used to inspire new innovative dishes made from traditional raw materials such as salted fish.</p> <p>Emphasis must be placed on increasing knowledge among chefs, as well as consumers, of the different products made of salted fish, such as lightly salted cod, fully salt-cured and clip fish, as the characteristics of these products are very different. How consumers, and not the least young consumers, are to be educated and motivated to consume such dishes needs thorough consideration. Newer means of communication deserve attention, with focus on how the young people seek, find and receive information.</p>
<i>English keywords:</i>	<i>Workshop, fully salt-cured cod, desalted cod, Nordic food, traditional food</i>

© Copyright Matis ohf / Matis - Food Research, Innovation & Safety



## Abstract

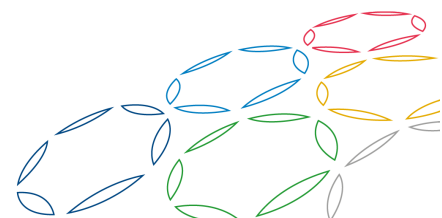
Salt-curing of cod is an ancient storage method. Today, salt-curing is not merely a storage method, but a method of producing high quality products of specific characteristics. To promote a product as salt-cured fish, with long tradition, history and strong connection to Nordic livelihoods, it is important to motivate the whole chain, from producers, to retailers, to chefs, to schools and the consumers.

AG-Fisk (Arbejdsgruppen for Fiskerisamarbedet) under the auspices of the Nordic Council of Ministers has provided funding for a project with the aim to increase the knowledge of seafood, such as salt-cured cod, thus contributing to increased respect and thus increased value. The project is led by Mátis and one of the project tasks was to organise a workshop in Norway in collaboration with Møreforskning and Klippfiskakademiet in Ålesund. The workshop was co-financed by The Ministry of Trade, Industry and Fisheries in Norway. The workshop was held on 29th and 30th of October 2019 and the focus was salted and dried cod. Culinary students together with chefs from Norway, Faroe Islands and Iceland, aimed to develop new trendy dishes with emphasis on Nordic raw materials combined with salted and dried cod. During the workshop, Nordic traditions and history were presented, the different salt fish products and their different sensory properties. The participants tasted different cod products (thawed, lightly salted, desalted salt-cured cod and desalted clip fish) with the aim of analysing the different sensory properties of these products. The results clearly demonstrated the unique sensory properties of salt-cured and clip fish products.

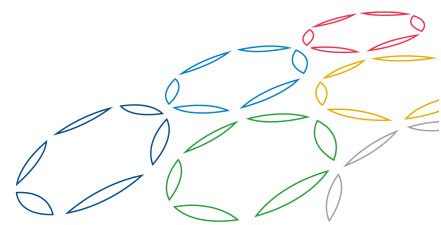
Nordic chefs gave talks of their experiences, thoughts, visions and ideas for Nordic raw materials, to set the scene for the work ahead. Group work was focused on analysing opportunities and barriers, today's status and ideas to increase consumption of traditional products, product ideas to make salt-cured and clip fish more known and attractive in home markets. One of the main targets was to increase the consumption among young people by inspiring them to create new, trendy recipes and dishes that they would like. Based on this, innovative dishes were made and evaluated during the workshop. The variety in the dishes, clearly demonstrated the enormous potentials of this traditional raw material, to be used in delicious trendy innovative dishes, from simple and easily prepared to challenging and ambitious.

The group discussions showed that traditions were considered a strength but a lack of ready to cook and ready to eat meals as well as changes in consumption habits were considered a threat. This kind of information is important when setting the scene for the future of salt-cured fish, both in home markets and export markets. The Norwegian participants were familiar with salt-cured fish and clip fish and it was not uncommon to prepare such dishes at home, and some variety was available in the supermarkets. However, to increase product variety and increased consumption of traditional Nordic foods such as salted fish, it is important to work with kids, both at home and at schools. It is of great importance to educate them about Nordic food and involve them in food preparation, both at home and in school. The emphasis on sustainability, health and positive climate impact, as well as adapting food trends from all over the world, can be used to inspire new innovative dishes made from traditional raw materials such as salted fish.

Emphasis must be placed on increasing knowledge among chefs, as well as consumers, of the different products made of salted fish, such as lightly salted cod, fully salt-cured and clip fish, as the characteristics of these products are very different. How consumers, and not the least young consumers, are to be educated and motivated to consume such dishes needs thorough consideration.

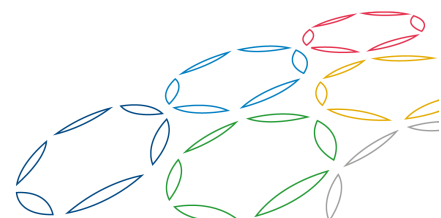


Newer means of communication deserve attention, with focus on how the young people seek, find and receive information.



## Contents

Introduction .....	9
Workshop aim .....	10
Procedure – the Workshop .....	10
Organisers and lecturers .....	10
Workshop presentations.....	11
Tasting session of different products.....	12
Practical work – innovative dishes .....	13
Tasting of the innovative dishes.....	14
End discussion and summary of the workshop and of the Icelandic workshop –.....	16
identify further actions .....	16
Results and Discussions.....	17
Tasting session of different products.....	17
Practical work – innovative dishes .....	21
Tasting of the innovative dishes.....	24
Workshop Conclusions and final remarks.....	26





## Introduction

Seafood is in general healthy food and gourmet, if processed, handled and prepared correctly. Little used raw materials from the sea, as well as traditional products such as salt-cured fish, need to be properly introduced, e.g. with respect to utilisation and handling.

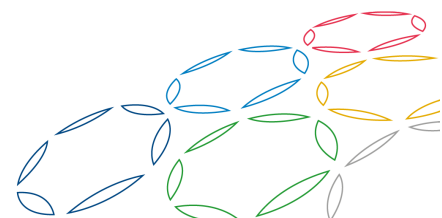
Salt-curing of cod is an ancient storage method. Today, salt-curing is not merely a storage method, but a method of producing high quality products of specific characteristics. The export of fully salted fish products is among the most valuable export fish products from Iceland and Norway. Most of the exported salt-cured fish goes to countries such as Spain, Portugal, Italy, Greece and France, but in these countries, salt-cured cod has an extensive tradition as a luxury product.

The sensory profile of the final desalted product depends on the salt-curing method and how it is desalted afterwards. Where consumption of desalted cod has an extensive tradition, the characteristic sensory attributes are a key factor. Traditional products such as salt-cured fish, need to be properly introduced, e.g. with respect to utilisation and handling. To promote a product as salt-cured fish, with long tradition, history and strong connection to our nations` livelihoods, it is important to motivate the whole value chain, from producers, to retailers, to chefs, to schools and the consumers.

AG-Fisk (Arbejdsgruppen for Fiskerisamarbedet) under the auspices of the Nordic Council of Ministers has provided funding for a project with the aim to increase the knowledge of seafood, such as salt-cured cod, thus contributing to increased respect and thus increased value. The project is led by Matís and in 2019, Matis has organised workshops and meetings with chefs, and culinary students, along with dissemination, which have taken place in Iceland in collaboration with Promote Iceland and producers of salt-cured cod. In collaboration with Møreforskning, Matis organised a workshop in Ålesund, Norway with culinary students and chefs from Iceland, Norway and Faroe Islands. The workshop was partly funded by The Ministry of Trade, Industry and Fisheries in Norway, via the project "Trendy klippfisk" (Project nr. 19/57-117), with the aim of developing new, trendy recipes of salt-cured cod aimed for children.

Brainstorming sessions were initiated with different stakeholders, resulting in a workshop that was held in Matis in April 2019. The goal was to analyse the current status, potentials and barriers for salt-cured, the history, processing, and sensory characteristics, recipes, opportunities and strategies to secure a status for these products as delicatessen and navigate new ways of presenting less used raw materials from the sea around us. The workshop participants were chefs, culinary students, and saltfish producers. The result of the workshop showed that there are many potentials for this type of traditional seafood. The workshop results were increased interest, knowledge and new networks were formed, - solutions to barriers and intention to proceed and bring the knowledge from the workshop forward in several ways. The participants in the workshop all agreed that salt-cured cod /desalted cod is an exciting ingredient to work with and gourmet food, if handled properly. There is however, a need to promote salt-cured cod, improve access, provide information and preferably establish desalting facilities from which restaurants and others can buy directly desalted cod.

Based on the experience from the Workshop in Iceland, a two-day workshop in Norway was organised, together with Møreforskning, Klippfiskakademiet, culinary students and chefs from the Faroe Islands, Iceland and Norway.



The workshop was about salt-cured cod and clip fish; the history, traditions, products, sensory characteristics, the status of the products today in home markets and development of new trendy recipes of salt-cured and clip fish aimed at young consumers.

### Workshop aim

The aim was to increase and share knowledge of traditional Nordic seafood and to create innovative recipes using local ingredients to make Nordic recipes of salt-cured and salt-cured and dried/clip fish of cod with high acceptance among young consumers. By gathering culinary students in Norway, experienced chefs from Norway, Faroe Islands and Iceland and scientists, new recipes targeting children were developed.

The workshop was a meeting place for Nordic chefs, culinary students (Herøy VGS), their teachers and scientists with focus on developing new dishes, to make salt-cured and clip fish more known and attractive in home-markets. One of the main targets was to increase the consumption of salt-cured and clip fish among young people by inspiring them to create new, trendy recipes and dishes that they would like to eat at this meeting place. The experienced chefs presented new ideas and exchange knowledge and experience among other chefs, scientists, students and teachers regarding how to make new dishes of salt-cured fish and clip fish.

***The Workshop Agenda is in Appendix***

***Further information and presentations from the workshop are accessible on [www.sjomat.org](http://www.sjomat.org)***

## Procedure – the Workshop

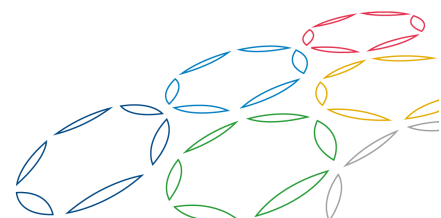
### Organisers and lecturers

***The workshop organisers were:***

Ingebrigt Bjørkevoll, Møreforsking Ålesund  
Wenche Emblem Larssen, Møreforsking Ålesund  
Kolbrún Sveinsdóttir, Matis, Reykjavik  
Aðalheiður Ólafsdóttir, Matis, Reykjavik  
Sigurjón Arason, Matis, Reykjavik

***Invited lecturers and participants in the workshop were:***

Leif Sørensen, Chef, Faroe Islands  
Gutti Winther, Chef, Faroe Islands  
Fanneý Dóra Sigurjónsdóttir, Chef/Culinary Instructor, Iceland  
Ronny Kolvik, Head Chef at Bro, Ålesund  
Ole Christian Skogen, Head Chef at Klippfiskakademiet, Ålesund  
Mette Marie Scott-Dahl, Communication, Leader at Klippfiskakademiet, Ålesund



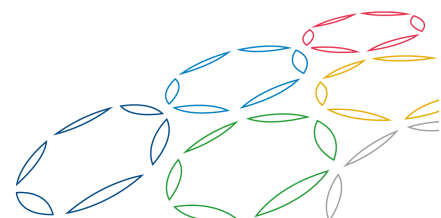
## Workshop presentations

Ingebrigt and Kolbrun presented history, traditions and products of salt-cured fish and clip fish in Norway and Iceland. Further, Ingebrigt described the production of salt-cured products and sensory characteristics.

The six chefs from Norway, the Faroe Islands and Iceland; Ronny Kolvik, Ole Christian Skogen, Mette Marie Scott-Dahl, Gutti Winther, Leif Sørensen, and Fanney Dóra Sigurjónsdóttir (Figure 1), presented who they were, shared their experiences and provided inspirational ideas of traditional salted and dried fish with local or Nordic ingredients, setting the scene for the dish innovation.



Figure 1. Chefs presentations



### Tasting session of different products

Adalheidur lead a tasting session on different sensory characteristics of different salted products. Following a presentation of main sensory characteristics, the participants received samples of fresh, lightly salted, desalted pickle salted/salt-cured cod and desalted clip fish. Fully salted cod was desalted before sample preparation, but light salted cod samples were prepared directly without further treatment.

Sensory evaluation using CATA (Check all that apply) was prepared (Table 1) based on previous research by Magnússon et al 2006. The questionnaire was prepared in Survey Monkey and combined with questions about sample thickness (1 =very thin 4 =neither/nor 7 =very thick), saltiness (1 =far too little salty 4 =just about right salty 7 =far too much salty). Each sample was ca 40 g crosscut from fillet and steam cooked in aluminium boxes for five minutes, covered with plastic lids and served directly to the 30 participants. The samples were coded with:

- A (thawed cod),
- B (lightly salted cod),
- C (desalted salt-cured cod)
- D (desalted clip fish)

and evaluated via Survey Monkey. The participants accessed the questionnaire via web link / QR code using their smart phones. Each participant evaluated the samples independently. After the evaluation sessions, the results were presented and discussed.



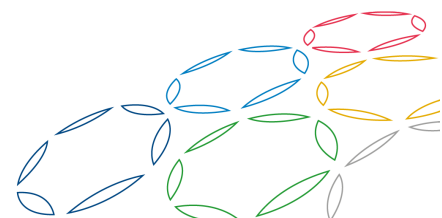
Figure 2. Sample preparation, - aluminium boxes



Figure 3. Sample preparation, -in action



Figure 4. Participants evaluating sensory characteristics of the samples on-line



**Table 1. Sensory evaluation of desalted clip fish, desalted salt-cured, lightly salted cod and thawed fresh cod, using CATA (check all that apply)**

Odour	Appearance	Texture	Flavour
Fresh fish	White colour	Soft	Fresh fish
Processing	Light colour	Firm	Processing
Spoilage	Yellowish colour	Flakes when pressed with fork	Mild
Strong	Dark stains	Rubbery	Strong
Weak	Dark colour	Tough	Salty
		Tender	

### Group discussions

Participants were split into three groups who took part in group discussions about:

- 1) Opportunities and barriers regarding young people and consumption of traditional dishes (SWOT) for 20 minutes, a discussion lead by Wenche;
- 2) Status today for salted and dried fish/food (participants experience with these products, availability, value chain, customers perception) for 20 minutes, a discussion lead by Ingebrigt and
- 3) How to increase consumption and ideas of dishes, local ingredients from Nordic regions for 20 minutes, a discussion lead by Kolbrun.

When all groups had covered the three topics, the discussion leaders presented the outcome shortly.

### Practical work – innovative dishes

The students were split up in five groups, three in each. Each group was led by the participating chefs; Leif, Gutti, Fanney, Ronny and Ole Christian

The first workshop day, dish ideas were generated, with focus on Nordic traditional food, Nordic raw materials with focus on salt-cured fish and clip fish. Following, two recipes were selected by each group and all materials collected. The following day, the two dishes were prepared by each group under the guidance of the chefs, followed by an introduction of the dishes to the other participants of the workshop and tasting (Figure 5).

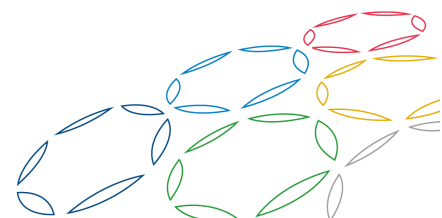




Figure 5. Practical work, innovative salted fish dishes in the making

### Tasting of the innovative dishes

The two dishes from each of the five groups were evaluated by workshop participants. All groups evaluated all dishes, except the dishes prepared by their own group. The evaluation was led by Aðalheiður. A questionnaire was prepared in Survey Monkey and the participants accessed the questionnaire via web link / QR code using their smart phones and each participant evaluated the samples independently.

The participants received the survey with the following introduction text: “The aim of this survey is to gain insight into what kind of dishes could be used for further development for different use and age groups. Only the liking scores for the three highest rated dishes will be presented to participants in this workshop”. The following questions for each of the dishes were: 1) Liking (on a 9-point scale; Dislike extremely/neither dislike nor dislike/like extremely): How much do you dislike or like this dish? 2) What use would this dish be suitable for? (maybe with some minor adjustments) a) Fancy restaurant, b) Cheaper restaurant, c) Home cooking, d) Fast food, e) Precooked dish for home use, f) other ..., 3) Do you think this dish would be preferred by certain age groups? a) Yes – please explain? or b) No, 4) Would you prepare this dish for your friends? a) Certainly not, b) Probably not, c) Maybe, d) Yes, probably, e) Yes, certainly, 5) Do you have any comments regarding this dish?

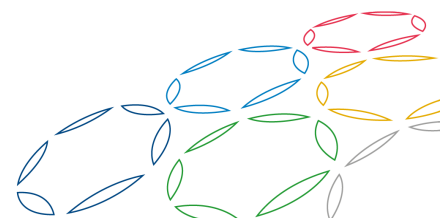
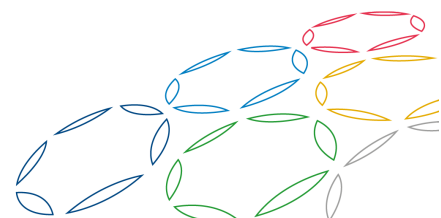


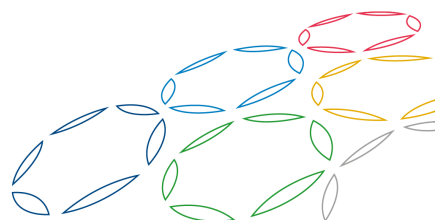


Figure 6. A part of the innovative salted fish dishes



## End discussion and summary of the workshop and of the Icelandic workshop – identify further actions

Kolbrun introduced workshop results from Iceland, and the results from arranging the “Saltfiskvika” or Bacalao week held in Iceland as an outcome from the work in Iceland ([www.saltfiskvika.is](http://www.saltfiskvika.is)). Afterwards, Ingebrigt introduced the winning dishes (3<sup>rd</sup>, 2<sup>nd</sup> and 1<sup>st</sup>), summed up the workshop and future steps.





## Results and Discussions

### Tasting session of different products

Sensory characteristics of the four different cod products varied very much as shown in figures 7-10.

The thawed cod was mainly characterised by fresh fish and weak odour and flavour, white colour, soft and firm texture, while especially the clip fish was described as having strong odour and flavour, yellowish colour, rubbery and tough texture. The lightly salted cod characteristics were somewhat similar as the thawed cod characteristics but was more described by salty taste than any other sample.

In Figure 11, all sensory attributes of the four groups are combined in PCA, showing the clear difference between the sensory characteristics of the fully salt cured products (C and D), described with yellowish colour, tough and rubbery texture, strong flavour and odour and processing odour and flavour.

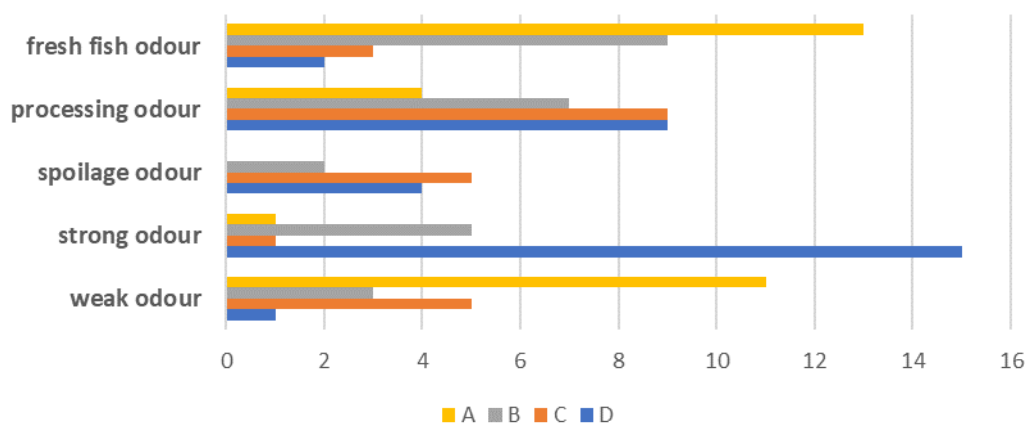


Figure 7. Sensory evaluation (Odour) of thawed/fresh cod (A), lightly salted cod (B), desalted salt-cured cod (C) and desalted clip fish (D) using CATA (check all that apply) by 30 workshop participants

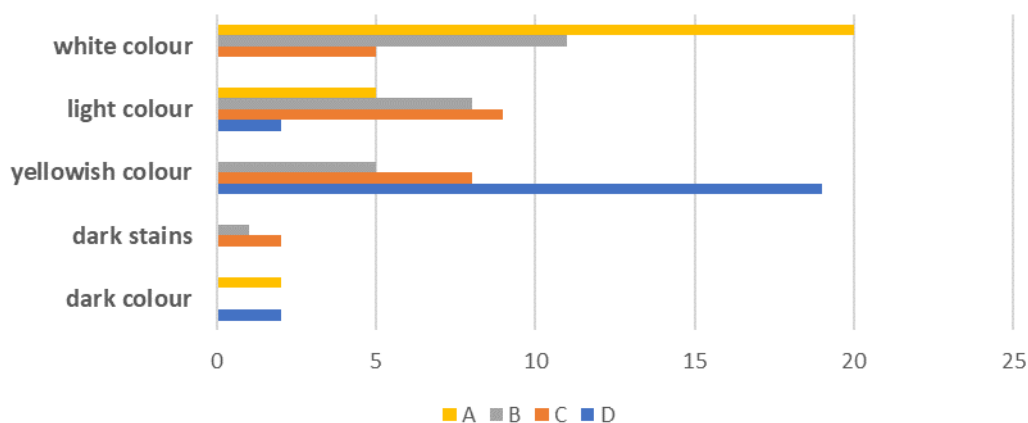
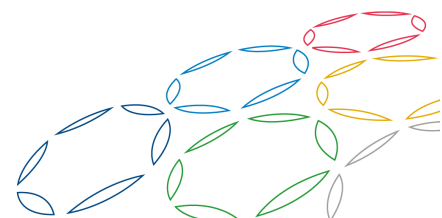


Figure 8. Sensory evaluation (appearance) of thawed/fresh cod (A), lightly salted cod (B), desalted salt-cured cod (C) and desalted clip fish (D) using CATA (check all that apply) by 30 workshop participants



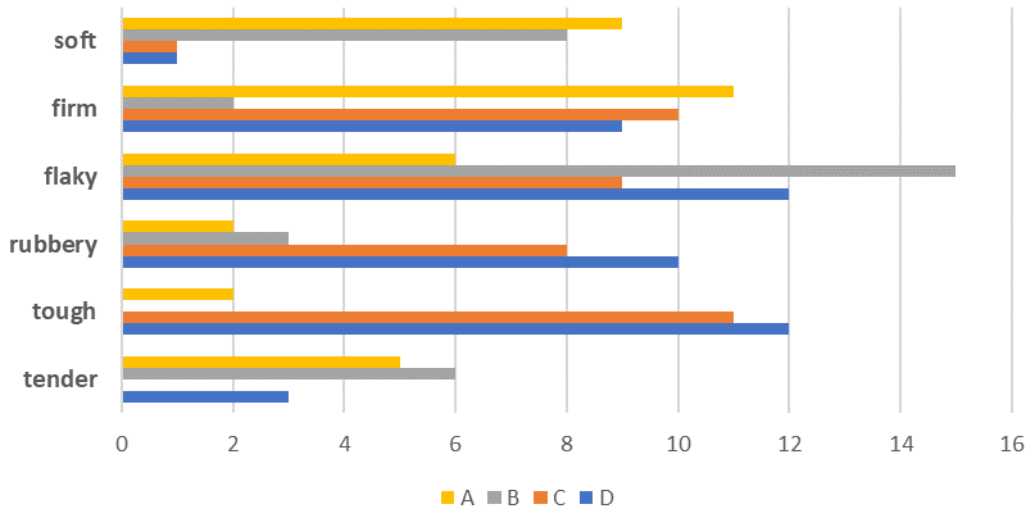


Figure 9. Sensory evaluation (texture) of thawed/fresh cod (A), lightly salted cod (B), desalted salt-cured cod (C) and desalted clip fish (D) using CATA (check all that apply) by 30 workshop participants

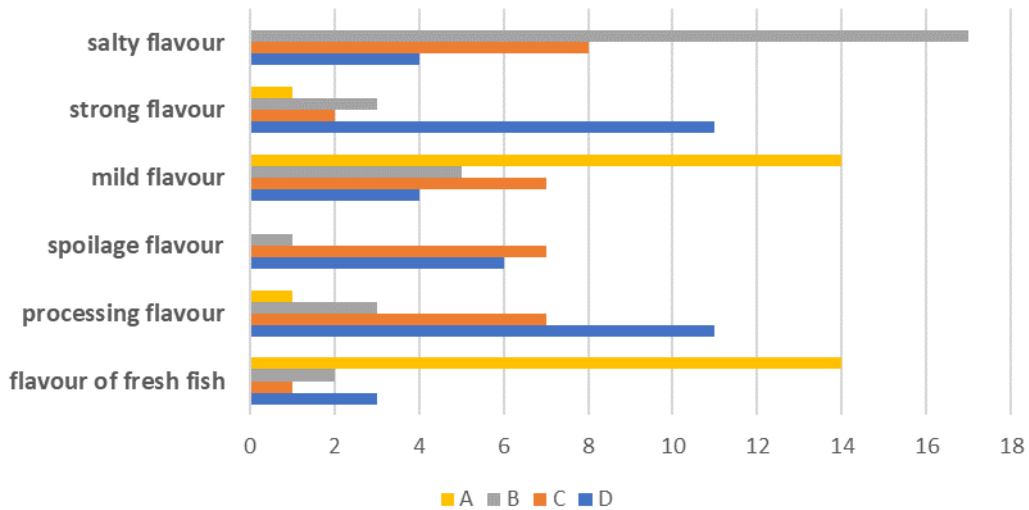
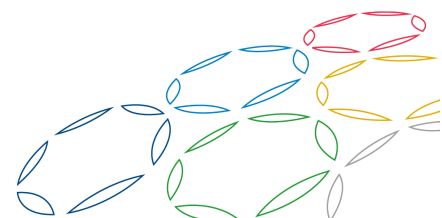
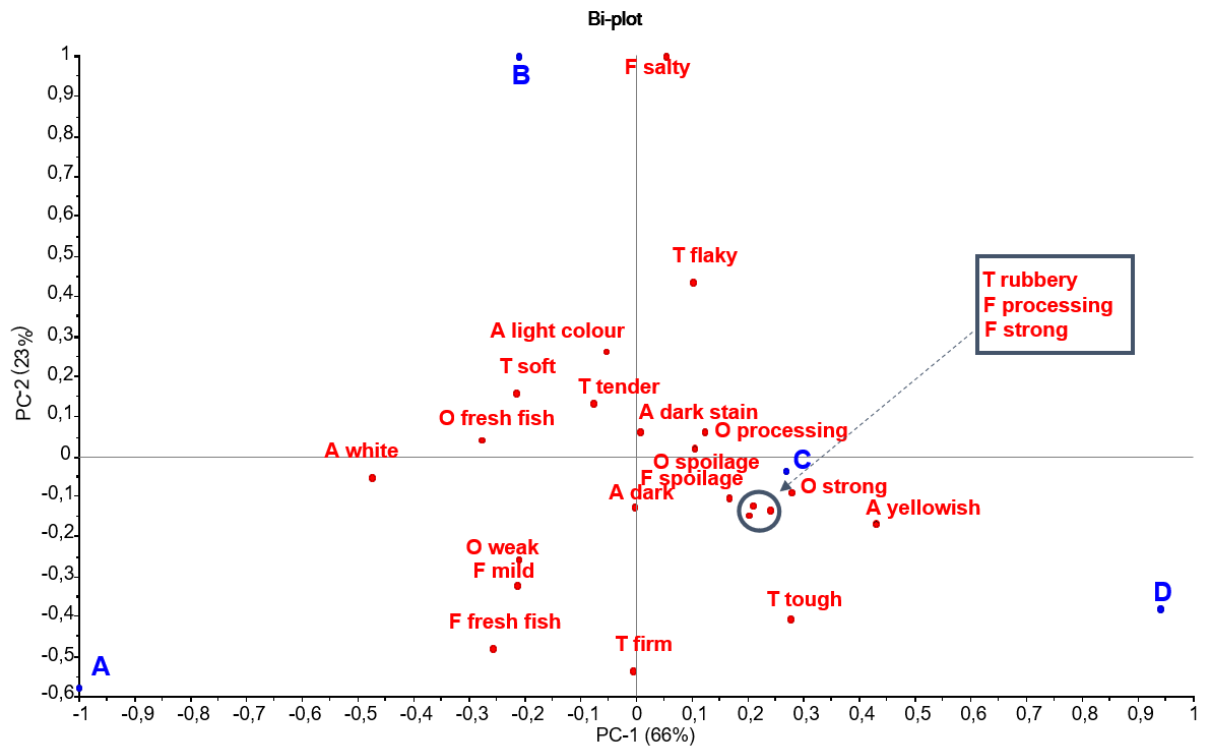
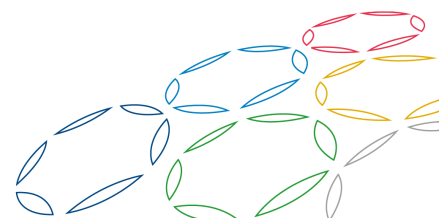


Figure 10. Sensory evaluation (Flavour) of thawed/fresh cod (A), lightly salted cod (B), desalted salt-cured cod (C) and desalted clip fish (D) using CATA (check all that apply) by 30 workshop participants





**Figure 11. Principal Component Analysis (PCA) of Sensory attributes (appearance (A red), odour (O red), flavour (F red), and texture (T red) of the of thawed/fresh cod (A blue), lightly salted cod (B blue), desalted salt-cured cod (C blue) and desalted clip fish (D blue) using CATA (check all that apply) by 30 workshop participants**



## Group discussions

### **Opportunities and barriers regarding young people and consumption of traditional dishes (SWOT)**

Table 2 shows SWOT analysis of traditional Nordic dishes carried out by the three groups during the group discussions.

**Table 2. SWOT analysis of clip fish**

<b>Strengths</b>	<b>Weaknesses</b>	<b>Opportunities</b>	<b>Threats</b>
Shelf life	Lack of knowledge, especially among people up to 40	Campaigns	Availability
Tradition	Lack of knowledge how to prepare	Branding	Change in consumption habits
Healthy	Local traditions	We need to eat less meat	Pricy, especially for desalted product
Texture provides flexibility for cooking	Small variation in preparation Lack of ready to cook	Possibilities to us in traditional popular dishes instead of meat	Bulk production
Sustainable	Lack of ready to eat	Make different ready to eat products	Fish gives negative association
Possible to add flavour/marinate	Not to normal to get in restaurants	Education	
Eat at special occasion	Eats only at special occasions	Clip fish week	

### **Status today for salted and dried fish/food (participants experience with these products, availability, value chain, customers perception)**

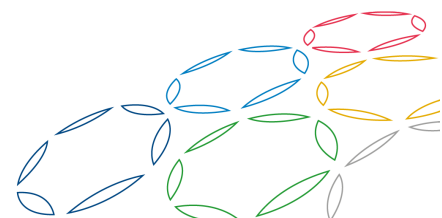
Most familiar/popular salt-cured fish products: The **red bacalao dish** (called bacalao in Norway). Usually prepared at home for special occasions or celebrations. Then the red tomato based bacalao dish is most used. The **boiled clip fish with skin and bone, served with white sauce, vegetables and bacon** is a more traditional recipe than red bacalao. Used more for ordinary meals, not for special occasions. However, the **white bacalao** is becoming more popular, that is, salted and dried fish with cream, vegetables, baked in the oven, like the Portuguese “Bacalhau con natas”. Both clip fish loins and pieces can be bought in the stores.

Experience of salt-cured fish consumption: Almost all students had eaten and liked salted and dried fish dishes. This was explained by the fact that they had grown up by the coast and were used to eating many kinds of fish products. This was normal food in the municipality Herøy where the students came from. Many had fishers in their family or knew fishers that could deliver fresh fish. Additionally, a very good fish store is in the region. They mainly consume salted dried fish at home but not at restaurants as it is considered everyday meals, so they do not prefer to buy it as an expensive dish at restaurants.

The most usual dish at restaurants is the red bacalao, but this dish many were used to eating at home and therefor didn't wish to eat in restaurants.

However, there is a new trend emerging, from fancy imported ingredients and recipes, to simple slow food and traditional dishes made from locally produced ingredients.

Some students had prepared clip fish themselves, such as clip fish with root vegetables, clip fish salat, with pecan.



Ready fish/products in the shops: Ready meals in stores are considered not as good as the home made and home made meals are preferred by the culinary students, as then they have more control of the quality. Products from stores are preferred bought salted and dried whole or smaller pieces without skin and bone, portion packed. Other wished to have desalted fish in the fresh fish counter for high degree of flexibility

Considerations of typical Nordic flavours: Potatoes, root vegetables, smoked flavour, pickled, salt, sheep, meat, shellfish, locally found onion. Association with something cold, fresh, clean.

Cured tastes, fat tastes, meat and fish cakes

### ***How to increase consumption, ideas of dishes, local ingredients from Nordic regions***

Upbringing is very important, so introduction at early age at home is important, as well as in schools. The healthy image should be used, and these kinds of products normalised. Fast food concepts may reach young people, such as pizza, kebab, taco, sushi or burrito.

Education, information about the ingredients including un-mystification, the whole process, more advertising and increase variety in stores may also increase consumption of traditional dishes as clip fish. There should be more cooking in schools, not enough emphasis on food and meal preparation at schools. However, advertising on TV or in newspapers would not work for young people. However, other channels reach young people, e.g. Youtube and Instagram. More focus on clip fish should be on competitions, e.g. if clip fish dish would be made on Bocusd'or, it could make a huge difference, and could be very influential.

### Practical work – innovative dishes

Following discussions within each of the five groups under the guidance of the chefs, the following recipes were generated and selected as the two recipes of each group. The Letters and numbers before the recipe type/dish name refer to the “code” for each dish during the tasting session in Survey Monkey.

#### Group 1 – led by Gutti Winther

##### ***B1 Michal Jackson tribute***

##### ***black or white - Norway fish and oil***

Desalted Clip fish. Poach in olive oil with 60°C/25 min with garlic chili.

Mushrooms; onion, garlic, citrus timian, butter – fried mushrooms – boil with cream – blend – salt - pepper.

Mayonnaise; yolk, salt, mustard, ash oil, white wine vinegar

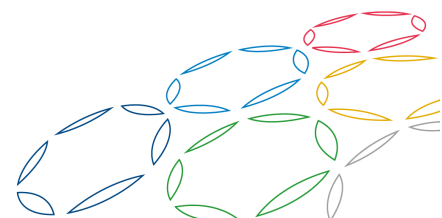
##### ***B2 Smoked cigar***

##### ***Sandwich with smoked bacalao, mango and coriander***

Brandade; onion, garlic, butter - Boiled potato + parsley – Alp cheese, spring onion, coriander, parsley, mango, lime – smoked (juniper, heather, hay) – oil – Clip fish belly – salt, pepper, lime juice, tabasco  
Cigar; freeze bread, sliced, 140°C /7 min

Ash; bread crumbs, leek ash, blend

Mayo; egg yolk, mustard, salt – ash of leeks (210°C /30 min) blitz, blend with oil. Ash oil. Smoked oil.



## Group 2 - led by Fanny Dóra Sigurjónsdóttir

### **D1 Pizza blanco**

#### **Clip fish pizza with olives, pickled carrot, apple and rucola**

Pizza dough; 500 ml warm water, 2 tsp instant yeast, 2 tsp sugar, 600 gr flour, 2 tsp salt  
*Mix water, sugar and yeast and leave for 5 min. Mix everything together and knead for 10 minutes. Let it proof for 1 hour. Make 4 pizzas. Spread bechamel on pizza base, bake at 220°C for 10-15 min. When ready, cut up and put rucola dressed with olive oil and lemon, lightly pickled carrots, clip fish salad and dried olives on top and serve.*

Bechamel; ½ onion, finely chopped, 1 garlic clove, finely chopped, 50 gr butter, 50 gr flour, 500 ml milk, ½ lemon, zest and juice

*Lightly fry onion and garlic in butter, add inn flour and stir well. When you smell a nutty smell add milk gradually and cook until thickened. Season with salt and lemon zest and juice. Cool to room temperature.*

Clip fish salad; 500 gr clip fish, desalted, 2 bay leaves, 2 lemon, 1 lime, 50 gr parsley, 1 clove garlic, 1 apple

*Get a big pot of water to simmer (80°C) and put in 2 tbsp salt, garlic clove, lemon peel of 1 lemon and bay leaves. Poach clip fish for 10 min depending the size. Take out of water and cool down in fridge. Mix together chopped parsley, fine zest of 1 lemon and 1 lime, cut apple in brunois (small dice) and use juice from 1 lemon. Break clip fish up into small pieces and mix everything together.*

Lightly pickled carrots; 2 carrots; 50 ml apple cider vinegar; 50-100 gr sugar; 200 ml water; 1 bay leave; 2 peppercorns

*Heat up vinegar, sugar and water. Peel carrots into ribbons and pour hot liquid over and let stand for 1 hour.*

### **D2 Baked potato**

#### **Clip fish salat, bacon, parsley and butter**

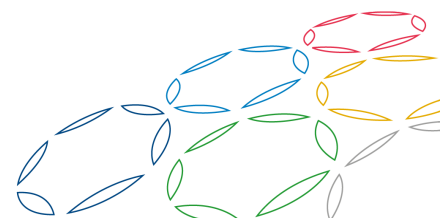
*Bake potatoes whole until ready. Scoop out 1 tsp of potato and keep aside. Fill with clip fish stew and warm up for 10 min. Garnish with pickled chilli and chives.*

Clip fish stew; 300 gr klippfisk belly; 50 gr butter; 2 tbsp oil; 200 ml cream; ½ onion, finely chopped  
1 garlic clove, handful of chives, 1 lemon, zest and juice, 100 gr bacon, finely chopped, 2 tbsp sour cream, 70 gr cheese, black pepper

*Warm up butter in a pan, fry bacon until crispy. Add onions and garlic and soften. Add cream and boil for 10 min until thickened. Add cheese and let melt. Set aside. Cut up clip fish in 5 cm pieces and fry in oil and butter until brown and cooked. Mix with baconmix, add potatomix from the whole potatoes, sourcream, lemon and chives. Season with lemon and black pepper. But mix into the baked potatoes and warm up before serving.*

Pickled chilli; 2 stk chilli, red, 20 ml apple cider vinegar, 40 gr sugar, 100 gr water

*Slice chilli very thin. Heat up vinegar, sugar and water in a pan and add chilli. Set aside for 1 hour.*



### Group 3 Led by Leif Sørensen

#### **A1 Bacalao skewers**

##### **Clip fish in tempura with three different mayonnaise (apple, bacon and garlic)**

Clip fish, grill sticks,

Orly dough; 125 flour, ¾ dl beer, 1 dl water, salt, 2 table spoons oil. 2 egg yolks whipped and added to other orly dough ingredients.

*boil the clip fish, chop to small pieces + onion, parsley and olive oil, - dough - fry*

#### **A2 Brucetta**

##### **Clip fish, aioli, pickled onion and tomato**

bread fried in oven 230°C/5 min

Mayonnaise1: with chopped garlic, tomato pure

Mayonnaise2: with chopped bacon and bacon fat

Concassed; chopped 10 tomatoes, chopped ½ onion, 1tbs olive oil, citron juice, salt

pickled onion; red onion chopped, cooked with 1/3 vinegar, 1/3 water, 1/3 sugar. salt.

### Group 4 Lead by Ronny Kolvik

#### **C1 Grilled and smoked clip fish**

##### **Creamy sauce with basil, Rutabaga**

Grilled clip fish with butter and burned juniper, served with smoked butter from the grill

pickled rutabaga, beer cooked onion. Sour cream with spinach, burned leeks oil

Pickled rutabaga: chop 1,5 mm, cook 1 dl sugar, 1 dl vinegar, 1 dl water and immerse the chopped rutabaga

Beer cooked onion: cook the onion in local dark beer, taste to with salt and acid.

Burned leek oil: heat the leek in oven at 270°C with a little oil.

Grill the clip fish and add juniper and straw.

The recipe was inspired by the Klippfisk academy surroundings, sea, juniper, cliffs. Hopes to create a fine dining experience and for the students, to inspire and do something different.

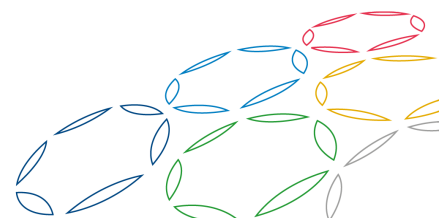
#### **C2 Potato pancake**

##### **Filled with potato, clip fish carrot and spinach**

Potato pancakes: eggs, rye flour, flour, milk, 5 cooked potatoes. The potatoes are boiled to soft and spread with a little milk. The pancake dough is made and from this, big pancakes are made.

The clip fish is cooked at 130°C for 15 minutes, carrots cooked in salted water. make fresh salat with spinach and carrots.

bacon mayonnaise: 2 eggs, 1 tsp vinegar, 1 tsp water, 6dl sunflower oil, 150g bacon, fried crispy and dried, run in nicely with the mayonnaise. prepared with parsley on top.



### Group 5 Led by Ole Christian Skogen

#### **E1 Clip fish with thyme, fennel, carrot and root vegetables**

Sauce; 1,5 L clip fish broth, 1 small pot thyme, 1 small pot citric thyme, citron peel, citron juice, 2 pcs fennel, 3 dl cream

*Fennel is chopped and sizzled in pan together with citron peel and chopped herbs. Add broth and cream, reduced to good taste, stir. Maizenna for thicker sauce.*

*Clip fish; ca 150 g pieces baked in oven at 65°C /45-60 min or until flaky.*

*Served with fried root vegetables (celery, carrot, potato or whatever you want from vegetables).*

#### **E2 Oven baked clip fish with fried onion, mushrooms and spring onion**

##### **Covered with mashed potato**

500g Mushrooms, 2 pk spring onion, 1 tbsp frame onion, 1 kg potatoes, grated good white cheese, 3 dl milk, salt and pepper, butter, 600 g clip fish pieces

*Fry and brown mushrooms in frying pan with a little butter, pour into a bowl. Continue frying the spring onion until it becomes shiny and then add the onion. The clip fish pieces are lightly browned in the same pan. Everything is mixed together in the bowl.*

*Pour the cut fish mixture into an ovenproof dish, cover with mashed potatoes with grated cheese.*

*Fry at 180°C until the mashed potatoes are slightly brown at the edges*

### Tasting of the innovative dishes

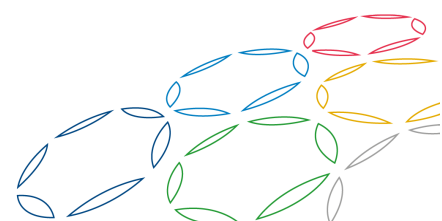
All the 10 dishes, two dishes per group, were finished at the same time. Each participant in the workshop tasted a small portion of each of the dishes and filled in the questionnaire in Survey Monkey.

**Overall liking scores:** The Michael Jackson tribute dish (B1) received the highest liking score (average score 7,5), followed by Grilled and smoked clip fish (C1) with average of 6,9 and then Smoked cigar (B2) with an average score of 6,7.



Figure 12. The winning team – Team Gutti

### Meal situation suitability (CATA)





Most participants considered the dishes suited for home cooking or fancy restaurants, but also fast food or cheaper restaurants (Table 3). However, some considered a few dishes relevant for ready meals. The winning dish was by most considered appropriate for fancy restaurant.

**Table 3. Suitability of use for the 10 clip fish dishes\* as evaluated by workshop participants (n = 20-25) using CATA (check all that apply)**

Suitability	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2
ready meals for home use	13%	17%	4%	0%	0%	13%	17%	0%	8%	21%
fast food	42%	29%	4%	13%	4%	25%	54%	33%	4%	8%
home cooking	21%	50%	21%	29%	13%	67%	50%	58%	38%	67%
cheaper restaurant	46%	33%	21%	33%	17%	33%	46%	29%	33%	33%
fancy restaurant	13%	29%	75%	42%	63%	8%	13%	21%	46%	4%
none of the above	0%	8%	0%	4%	13%	4%	8%	0%	13%	8%
Other	0%	8%	4%	0%	0%	0%	13%	4%	0%	0%

\*A1 = Bacalao skewers; A2 = Brucetta; B1 = Michael Jackson tribute; B2 = Smoked cigar; C1 = Grilled and smoked clip fish; C2 = Potato pancake; D1 = Pizza blanco; D2 = Baked potato ; E1 = Clip fish with thyme; E2 = Oven baked clip fish

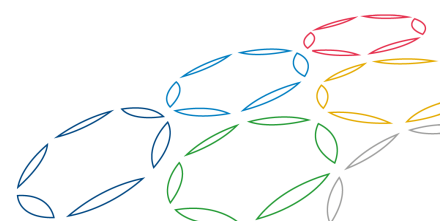
**Age group suitability:** One of the aims in the tasting survey, was to analyse if the dishes and recipes were suited for all age groups equally, or if any of the dishes were more suited for certain age groups. For most of the dishes, more than half of the respondents did not consider that it was more suited for one age group than the next. However, B2 and C1 (Smoked Cigar, Grilled and smoked clip fish) and especially B1 (Michael Jackson Tribute), were considered more suited for adult consumers, by some of the respondents.

**Would you prepare this dish for your friends?** The respondents were asked if it was likely or unlikely that they would prepare the dishes for their friends. A relatively small part of the participants would prepare the winning dishes (receiving the highest liking scores) for their friends (table 4). This is interesting, considering that most of the workshop participants were culinary students. However, the students were rather young, 16-18 years, and perhaps not used to dealing with complicated recipes. They would be more likely to prepare dishes that seemed to be more easily prepared at home, such as A1, A2 or D1.

**Table 4. Would you prepare this dish\* for your friends (n = 20-25)**

	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2
certainly not	0%	5%	0%	5%	19%	14%	10%	5%	25%	15%
probably not	5%	25%	32%	35%	24%	19%	30%	42%	25%	40%
maybe	32%	25%	47%	45%	38%	29%	20%	21%	20%	20%
yes, probably	26%	15%	21%	10%	5%	24%	20%	32%	10%	20%
yes, certainly	37%	30%	0%	5%	14%	14%	20%	0%	20%	5%

\*A1 = Bacalao skewers; A2 = Brucetta; B1 = Michael Jackson tribute; B2 = Smoked cigar; C1 = Grilled and smoked clip fish; C2 = Potato pancake; D1 = Pizza blanco; D2 = Baked potato ; E1 = Clip fish with thyme; E2 = Oven baked clip fish



## Workshop Conclusions and final remarks

One of the main targets within the workshop was to identify means to increase the consumption among young people. Overall, the workshop met its aims. The overview of the history, products, sensory characteristics and chefs experiences and inspirations set the scene for the group work to follow, that had the aim to inspire young chefs to create new, trendy recipes and dishes that they would like to serve and consume themselves.

The tasting session of different cod products (thawed, salted and desalted bacalao and clipfish) clearly demonstrated and educated the participants concerning the different sensory characteristics, in appearance, odour, flavour and texture of the different products.

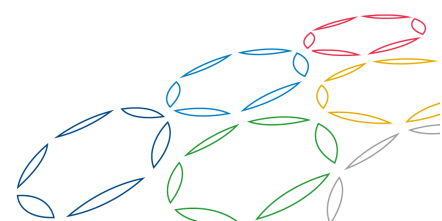
The group discussions shed light on the current status of the traditional Nordic salted products, and current strengths and weaknesses as well as opportunities and threats to be faced. Among the main strengths were traditions, but a weakness that it was a local tradition. A lack of ready to cook and ready to eat meals were also considered as weaknesses and changes in consumption habits a treat. This kind of information is important when setting the scene for the future of salted fish, which could for example be campaigns and education, not so different from what was done last autumn in Iceland with the "Saltfiskvika" (Bacalao week).

It was clear during the group discussions that the participants were familiar with salted fish, clip fish and it was not uncommon to prepare such dishes at home, and some variety was available in the supermarkets. For increase in product variety and increased consumption of traditional Nordic foods such as salted fish, it is important to work with kids, both at home and at schools. The health image is emphasised, as well as changed food environment, and emphasis on sustainability as well as trends from all over the world, such as pizza, kebab, taco, burrito or sushi to name a few in recent years. These trends could be used to inspire new innovative dishes made from traditional raw materials such as salted fish.

New food trends are turning attention towards local traditions and ingredients, as well as being as climate neutral as possible. In this respect, seafood in general, and salt-cured fish and clip fish in particular, suit ideally for these new trends as Nordic and traditional food, coming from our own raw materials in the sea. The history, traditions and possibilities for developing dishes from these products should be more in focus on a national and Nordic level. The Nordic countries potentially can learn a lot from Latin cuisine concerning how versatile and usable these fish products are for many kinds of dishes.

How consumers, and not the least young consumers, are to be educated and motivated to consume such dishes needs thorough consideration. Newer means of communication deserve attention, with focus on how the young people seek, find and receive information. Focus on salted fish, clip fish in competitions, such as Bocus d'or, could make a huge difference, and could be very influential.

Finally, young people look to other young people, and during the workshop in Aalesund, NRK local channel followed the procedure, with young reporters. The resulting news item can be seen here: [https://www.nrk.no/video/PS\\*4c1d759c-6e69-4aef-a124-17c8c9832a9c](https://www.nrk.no/video/PS*4c1d759c-6e69-4aef-a124-17c8c9832a9c)



Trendy fish with Nordic flavours  
Workshop in Ålesund, Norway 29-30 October 2019



## Workshop - "Trendy fish with Nordic flavours"

Date: 29<sup>th</sup> and 30<sup>th</sup> of October 2019  
Location: Klippfiskakademiet, Ålesund

### Organised by:

Ingebrigt Bjørkevoll, Møreforskning, Norway ([ingebrigt.bjorkevoll@moreforsk.no](mailto:ingebrigt.bjorkevoll@moreforsk.no))  
Wenche Emblem Larssen, Møreforskning, Norway ([wenche.emblem.larssen@moreforsk.n](mailto:wenche.emblem.larssen@moreforsk.n))  
Kolbrún Sveinsdóttir, Mátis Iceland ([kolbrun@matis.is](mailto:kolbrun@matis.is))  
Aðalheiður Ólafsdóttir, Mátis Iceland ([alheiduro@matis.is](mailto:alheiduro@matis.is))

### Day 1: 0830 – 1630 at Klippfiskakademiet

0830-0840 Welcome and presentation of participants. Background and aim for the workshop.  
(Ingebrigt Bjørkevoll, Møreforskning)

0840-0850 History, traditions and products of salted and dried fish in Norway (Ingebrigt Bjørkevoll, Møreforskning)

0850-0900 Icelandic history, traditions and products of salted fish (Kolbrún Sveinsdóttir, Matis)

0900-0910 Production and sensory characteristics of salted and dried salted fish (Ingebrigt Bjørkevoll, Møreforskning)

0910-0930 Coffe break

0930-1030 Nordic chefs experiences - Inspirational ideas and recepies of traditional salted and dried fish with local, nordic ingredients

- Ronny Kolvik, Head Chef Bro 0930-0945

- Fanny Dóra Sigurjónsdóttir, Chef and Culinary instructor 0945-1000

1000 – 1015 Coffe break

- Gutti Winther, Chef 1015-1030

- Leif Sørensen, Chef 1030-1045

- Ole Christian Skogen, Head Chef og Mette Marie Scott-Dahl, Communication Leader Children and Youth Klippfiskakademiet 1045-1100

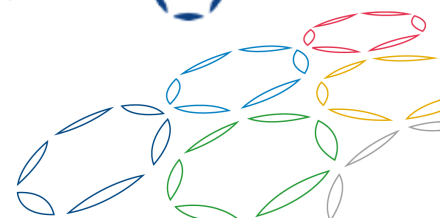
1100-1140 Sensory characteristics of different cod products (Aðalheiður Ólafsdóttir, Matis) On-line survey (CATA) carried out during the tasting. Four products of cod: (Fresh, lightly salted, desalted pickle salted and desalted dried pickle salted). Discussion of the results.

1140-1230 Lunch

1230-1340 Group work, split into 3 groups (Kolbrún Sveinsdóttir, Matis)



Ny sjømat på bordet – inspirert af traditioner 185-2019  
supported by AG-Fisk, Iceland and The Norwegian Ministry of Trade, Industry and Fisheries



Trendy fish with Nordic flavours  
Workshop in Ålesund, Norway 29-30 October 2019



Group 1: Opportunities and barriers regarding young people and consumption of traditional dishes (SWOT) 20 minutes (Wenche Larssen, Møreforsking)

Group 2: Status today for salted and dried fish/food (participants experience with these products, availability, value chain, customers perception) 20 minutes (Ingebrigt Bjørkevoll, Møreforsking)

Group 3: Ideas of dishes, local ingredients from Nordic regions 20 minutes (Kolbrun Sveinsdottir, Matis)

1340-1410 Presentation and discussion of results from group work (10 minutes per group) (Kolbrún Sveinsdóttir, Matis)

1410-1420 Coffee break

1420-1500 Preparation for next day concerning plans for choice of recipes and ingredients etc) for each group, split into 5 groups (Klippfiskakademiet)

1500-1530 Summary of the day (Ingebrigt Bjørkevoll, Møreforsking)

**Day 2: 900-1600 at Klippfiskakademiet**

0900-1200 Student preparation (Herøy VGS) of new dishes in groups under the guidance of the chefs. Introduction of the dishes to the other 5 groups and participants

1200-1300 Lunch – Tasting of the prepared dishes. Reporting of results in on-line survey (Aðalheiður Ólafsdóttir, Matis)

1300-1345 Discussion of dishes and results from the tasting (Aðalheiður Ólafsdóttir, Matis)

1345-1430 End discussion and summary of the workshop and of the Icelandic workshop – identify further actions (Ingebrigt Bjørkevoll, Møreforsking and Kolbrun Sveinsdottir, Matis)

