

RISK ASSESSMENT OF PARASITES IN FISH IN THE BASQUE COUNTRY

Scientific Committee on Food Safety from the Basque Country

EFSA- WG on Parasites in fishery products
(EFSA-Q-2009-00516)
Madrid, 15th January 2010



ELIKA – Basque Foundation for Agro-Food Safety

Set up in 2001 as an initiative of the Dept. Agriculture, Fisheries & Food of the Basque Government, which aim is to provide Government with advice and support in **Agrofood safety**, with the following approaches:

- Preventive → Risk Assessment
- Fast Reaction → Agro-food alert Management
- Integrated → Safety in the Sector

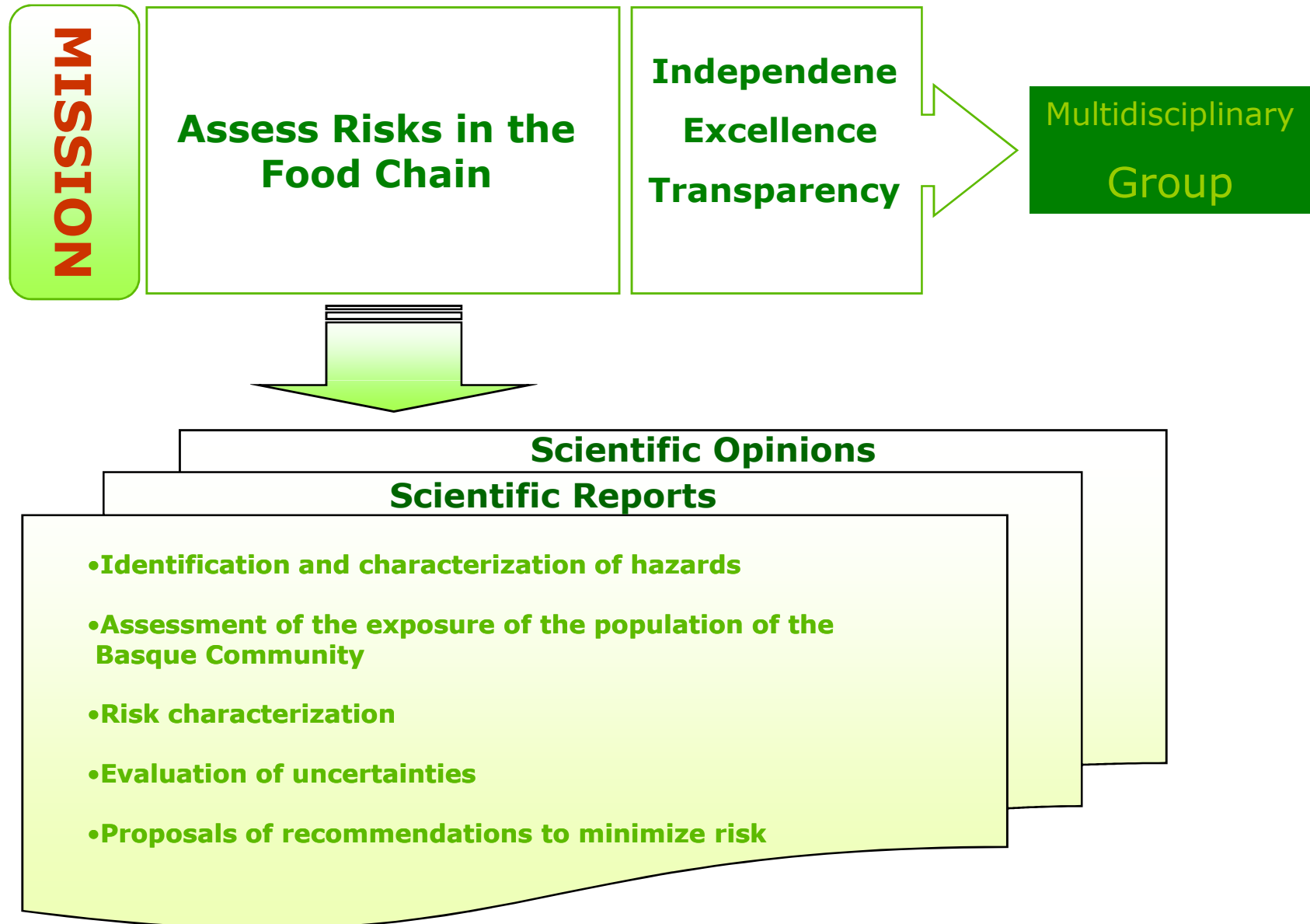
Technological surveillance

Risk Assessment

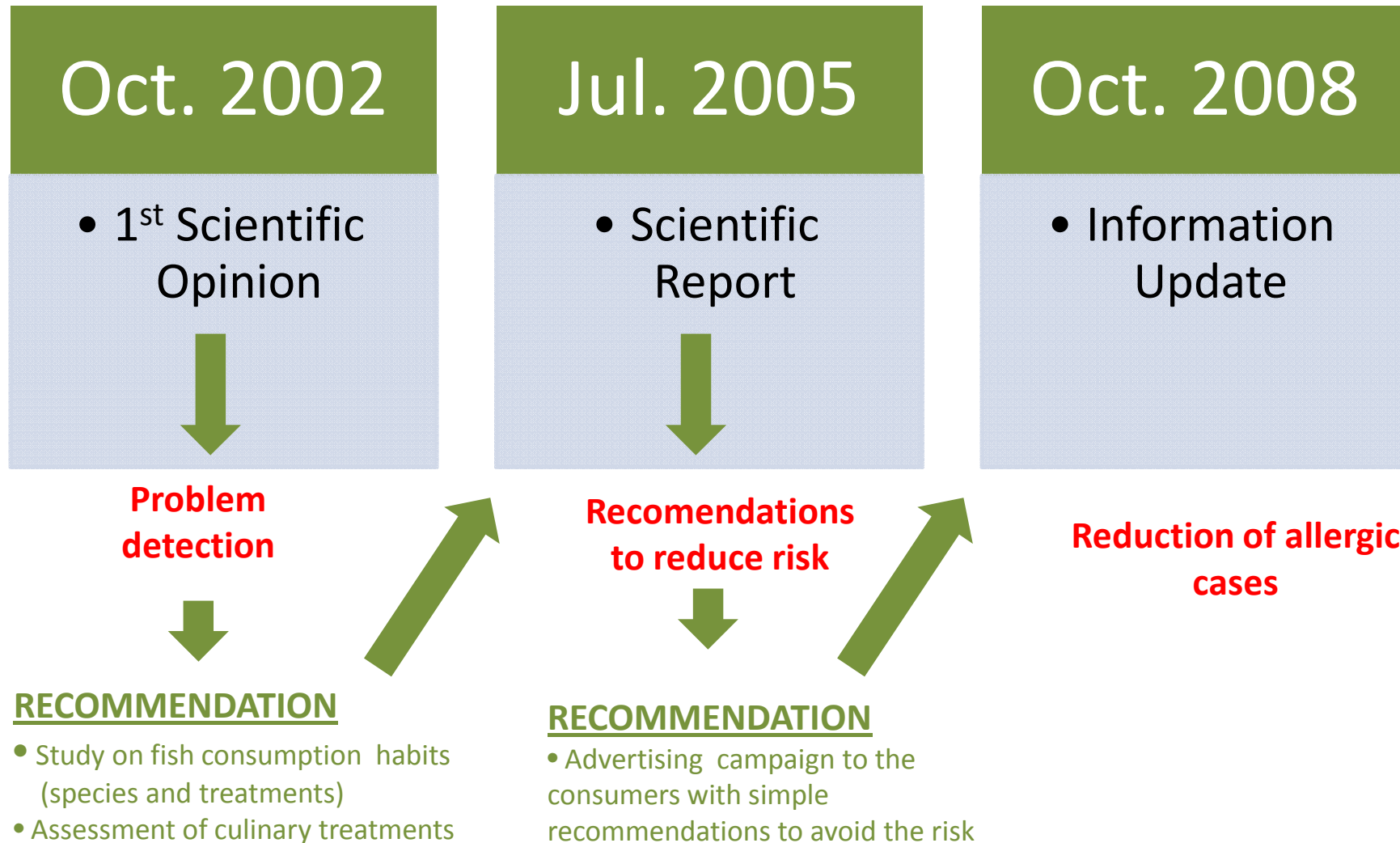
Aim: Advise the competent Authorities on the **development of strategies** to reduce Agro-food risks in the Basque Autonomous Community, based on the three stages of Risk Analysis



Scientific Committee – January 2002



Historical of our Risk Assessment of Parasites in Fish



October 2002: Scientific Opinion

Parasitisation

- Depends on the species and the capture zone

Risk practices

- Roasted fish: Insufficient and ununiform heat treatment
- Dishes based on raw fish: fresh anchovies, smoked fish, exotic dishes, etc.

Symptoms

- Gastric Anisakiasis and hypersensitivity to Anisakis – diagnosis not easy
- 1st case: 1995 - 10% anaphylaxia cases

Prevention

- Avoid the consumption of raw or undercooked fish

Recommendations

- Publicity campaign informing consumers about preventive measures
- Previous steps:
 - Analysis of fish consumption habits in the Basque Community – PROJECT 1
 - Study of the effectiveness of culinary treatments to inactivate Anisakis – PROJECT 2

STUDY ON FISH CONSUMPTION HABITS IN THE BASQUE COMMUNITY. 2002 (I)

Consumption

- 95,9% of the population are regular consumers
- Average: 2.78 times/week (5.3% daily).
- 86,7% consumption at home

Purchasing and Cooking

- 96,1% purchase fresh fish
- 9,8% consume undercooked
- 67,4% mainly loin

Raw fish consumption

- 16,4% consume raw fish “sometimes”
- 11,3% consume raw fish while cooking
- 0,5% habitually

STUDY ON FISH CONSUMPTION HABITS IN THE BASQUE COMMUNITY. 2002 (II)

FISH SPECIES	CONSUMERS %	CULINARY TREATMENT					
		In sauce	Fried	Roast	Grilled	Cocked	Microwave
Albacore/tuna	94,8	83,6	7,9	6,4	9,2	2,5	
Anchovy	94,3	4,1	96,9		1,4		
Hake	92,4	60,3	65,4	13,7	8,4	3,8	1,2
Cod	86,9	74,6	29,9	3,2	2,3	2,5	
Horse mackerel(Trachurus trachurus)	83,1	2,6	32,5	72,3	5,0		
Sardine	74,7		78,9	11,1	8,4		
Megrin (Lepidorhombus whiffiagonis)	(73,6		90,5	4,3	7,5		
Young hake	67,9	35,3	84,2	9,7	6,8	4,9	1,3
Salmon	55,4	2,7	16,7	23	49,2	1,6	1,5
Sole (Solea solea)	51,3	9,4	63,1	14,6	15,8		1,1
Monkfish	49,9	29,8	17,0	32,6	12,8	7,8	
Trout	45,3	2,2	71,9	24,2	5,7		
Blue whiting (Micromesistius poutassou)	44,3	0,9	99,7	2,6		0,9	
Gilthead	38,9	4,7	20,1	73,4	8,4		
Mackerel (Scomber scombrus)	38,7	4,5	44,1	54,7	6,3	2,9	
Sea bass	38,5	4,2	6,8	85,5	7,1		

ASSESSMENT OF CULINARY TREATMENTS USED IN FISH SPECIES WITH ANISAKIS. 2003-2004 (I)

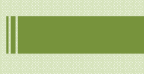
Aim

- Determine the appropriate time and temperature conditions to inactivate the parasite in the different customary culinary treatments of fish
- Offer consumers a number of simple recommendations

Methodology

- Species chosen: hake, pieces of different weight and thickness (whole, neck, tail, fillet/loin, slice)
- Treatments: Grilled, baked, cooked, fried and microwave
- Measurement of internal temperature during treatment (60°C/int)

Results

- Table with treatment times for different parts and weights of fish
 - Recommendations for each treatment
- 

ASSESSMENT OF CULINARY TREATMENTS USED IN FISH SPECIES WITH ANISAKIS. 2003-2004(II)

Fish clasification according to size

QUARTERING	SMALL	MEDIUM	LARGE
Whole	< 500	500-1200	> 1200
Tail	< 300	300-600	> 600
Neck	< 300	300-500	> 500
Fillet	< 200	200-350	> 350
Slice	< 100	100-200	> 200

Brief recommendations for each culinary treatment



FRIED

- ✓ Do not fry pieces bigger than 700 gr
- ✓ Throw into the pan when oil is hot (>160 °C)
- ✓ Turn over at least once

FRIED			
PIECE	Small	Medium	Large
Tail	8 min	25 min	30 min
Neck	7 min	10 min	15 min
Fillet	6 min	9 min	12 min
Slice	5 min	8 min	10 min

CONVENTIONAL AND MICROWAVE OVEN

- ✓ Put into the oven preheated (200 °C)
- ✓ For small pieces (< 500g) microwave oven is recommended
- ✓ In microwave, cover the pieces with a plate (2-5 min, ac. size)

CONVENTIONAL OVEN			
PIECE	Small	Medium	Large
Whole	15 min	20 min	30 min
Tail	13 min	18 min	25 min
Neck	12 min	16 min	25 min
Fillet	10 min	13 min	15 min
Slice	10 min	13 min	15 min

ASSESSMENT OF CULINARY TREATMENTS USED IN FISH SPECIES WITH ANISAKIS. 2003-2004(III)

COOKED

- ✓ Recommended for small pieces (< 500g)
- ✓ Start time counting when water is boiling

COOKED			
PIECE	Small	Medium	Large
Neck	7 min	10 min	--
Fillet	6 min	8 min	10 min
Slice	4 min	6 min	8 min

IN SAUCE

- ✓ Recommended for fillets and slices
- ✓ Be careful with clay-pot (mud), irregular T^a distribution
- ✓ Turn over the pieces and change position

IN SAUCE			
PIECE	Small	Medium	Large
Neck	8 min	15 min	--
Fillet	15 min	20 min	25 min
Slices	12 min	18 min	20 min

GRILLED AND CHARCOAL-GRILLED

- ✓ Put into the grill when is very hot (charcoal is ready)
- ✓ Turn over the pieces at least once

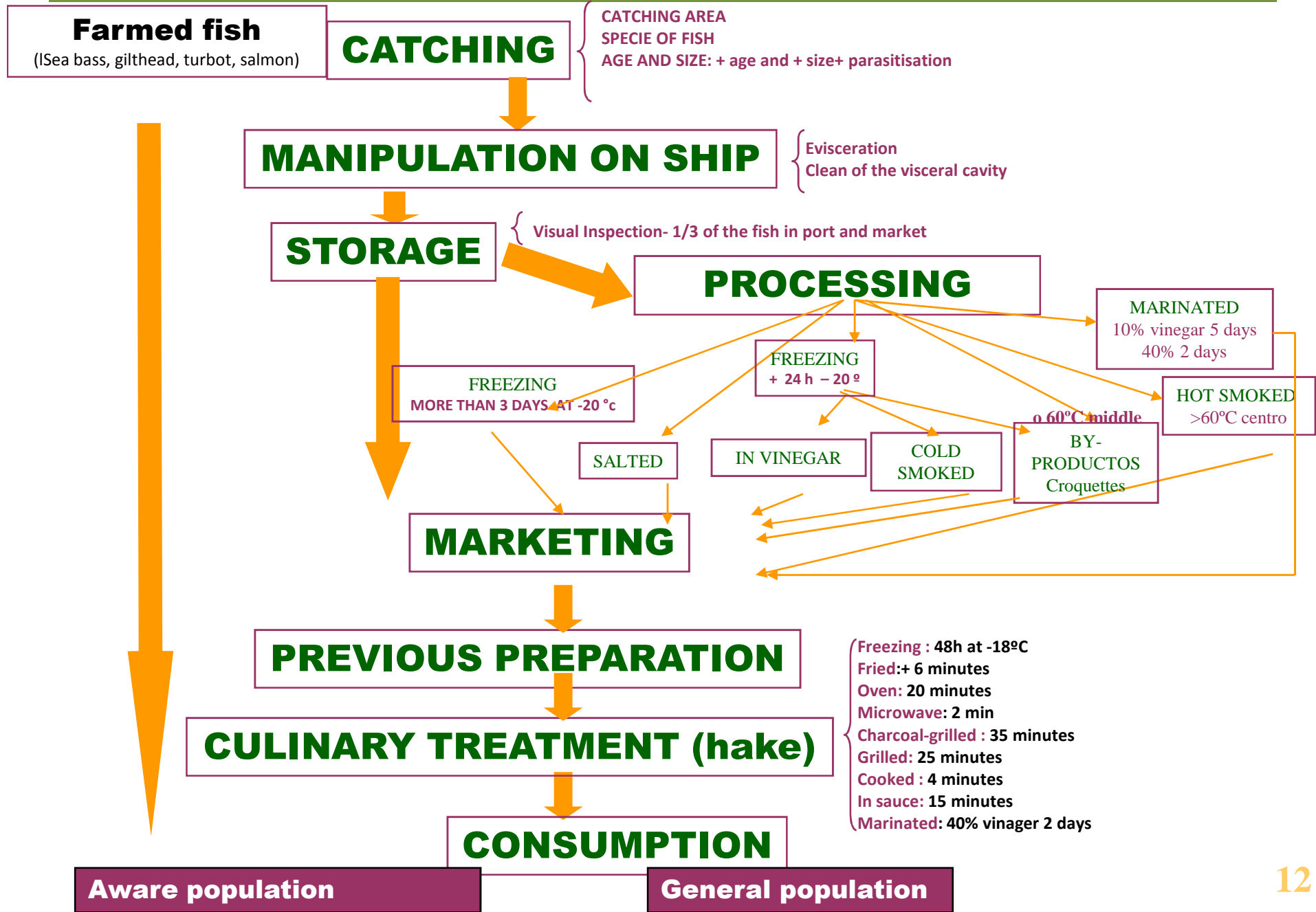
CHARCOAL-GRILLED			
PIECE	Small	Medium	Large
Whole	22 min	35 min	45 min
Tail	15 min	25 min	30 min
Neck	15 min	25 min	30 min
Fillet	5 min	8 min	12 min
Slice	5 min	10 min	13 min

GRILLED			
PIECE	Small	Medium	Large
Whole	22 min	35 min	--
Tail	18 min	25 min	30 min
Neck	15 min	25 min	30 min
Fillet	9 min	12 min	15 min
Slice	8 min	10 min	13 min

FREEZING

- ✓ To inactivate the parasite, freeze at least 24 hours
- ✓ For home-made preparations (in vinegar, salted, marinated, smoked) freeze at least 24 hours before treatment

July 2005 – Scientific Report – Risk Reduction Measures



RECOMENDATIONS (general population)

Due to the health benefits involved, maintain fish consumption, taking the following precautions:

- ✓ Purchase fish preferably gutted, otherwise gut as soon as possible making sure to clean out the intestinal cavity.
- ✓ Remove the belly, preferably consume the tails and fillets.
- ✓ Consume well cooked fish. In the case of roasting (baking or grilling) cut open the fish to guarantee that a temperature of 60°C is reached in the middle of the piece.
- ✓ In the case of raw and marinated fish prepared at home, freeze these previously for a minimum of 48 hours. If the preparation procedure is unknown, avoid consumption.



Advertising campaign to the consumers with simple recommendations to avoid the risk

ADVERTISING CAMPAIGN

“GUIDE TO BE HEALTHY EATING FISH”

December 2006

- Small fish shops: retailers
- Supermarkets and hipermarkets
(Ercoreca, Carrefour, El Corte Ingles, BM, Sabeco and Eroski)

POSTERS



GUIDE (6000 copies)



Recommendations for a safe consumption

October 2008: Information update

Aim: Analyse whether there have been significant changes in the variables used in the aforementioned evaluation implying any reassessment of the risk.

Parasitisation:

- ✓ The Parasitisation maintains the same levels.

Consumption:

- ✓ Updated data on fish consumption



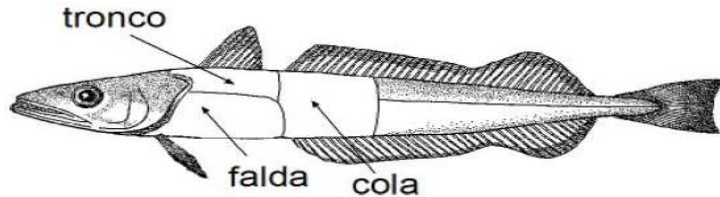
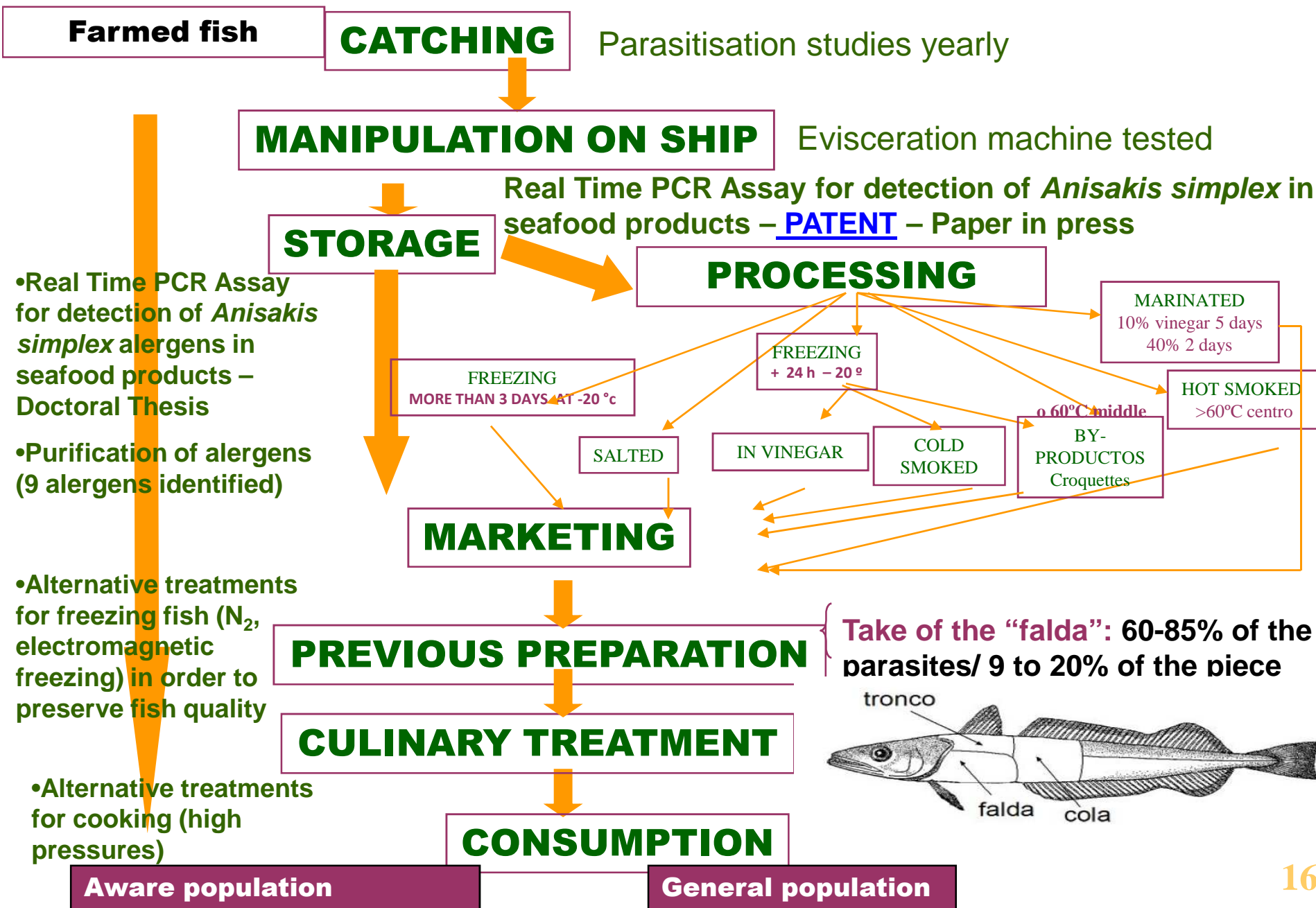
Alergy:

- ✓ Allergy symptoms have been maintained and anaphylaxia symptoms have fallen

CONCLUSIONS

- ✓ **A risk assessment is not required**
- ✓ **The measures being taken are having a positive impact**

RISK REDUCTION INVESTIGATIONS – AZTI/TECNALIA



**Thank you very much
for your attention!**

**from the
beginning of the
food chain,
with everyone's
help,
guaranteeing our
agrofood
production**

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