

MARKET ADVISORY COUNCIL, WG3: EU CONTROL AND SANITARY ISSUES, CONSUMER RULES

EUROPEAN SURVEY ON FISH AND OTHER SEAFOOD CONSUMPTION AND RELATED CONSUMER AWARENESS



Sofia Ioannidou
EFSA Integrated Data Unit

FISH & SEAFOOD CONSUMPTION & AWARENESS – CONTENT

1. Mandate overview

- EC request + ToR
- Two Point Survey
- Data and Methodology

2. Consumption frequency

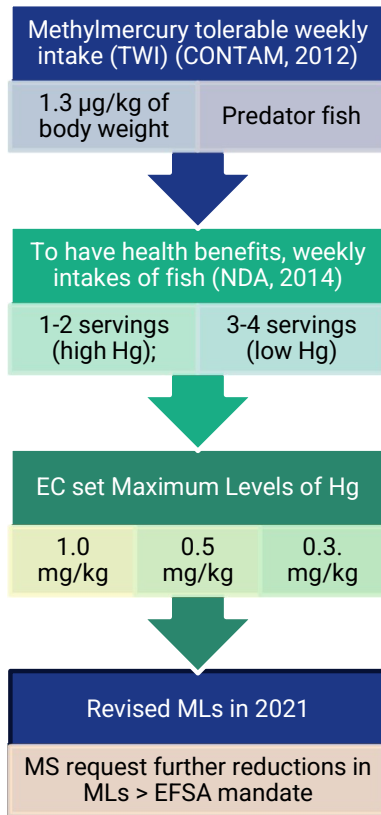
- Final results
- Influencing factors
- Comparison of consumption frequency with national advice

3. Awareness & communication

- Contaminants
- National advice (risks-benefits)
- Info sources
- Possible MS communication strategies

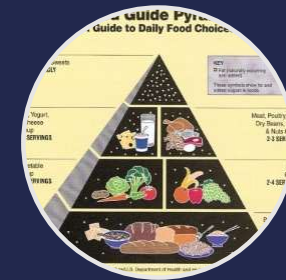


BACKGROUND TO EC REQUEST



Task 1 – fish/seafood consumption frequency

- To conduct a two-phase survey of consumption of certain fish species and other seafood (i.e. with Maximum Levels of mercury, [Reg. 2022/617](#)) before/after updating of national advice



Task 2 – awareness/impact of national advice and contaminants

- Awareness/knowledge of presence of contaminants in fish & seafood, national dietary advice (frequency, risks and benefits), particularly for pregnant women, impact of advice on consumption



PROJECT OVERVIEW AND TIMELINES

FPQ and Awareness
questionnaire development
Procurement project

Update of national advice
(not all MS)
2nd point survey fieldwork
(Nov-Dec) in 15 countries

Publication
News story, SoMe posts,
LTTs, support to MS
(factsheets, dashboards)

2022

2023

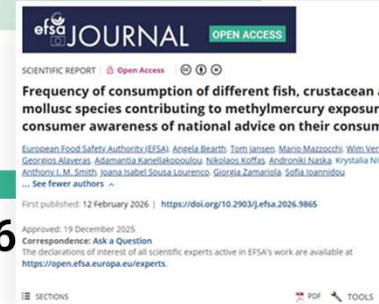
2024

2025

2026

1st point survey fieldwork
(May-July) 27MSs + IS & NO

Final analysis of results
EFSA Scientific report
development and approval



STUDY DESIGN AND METHODOLOGY

- **Target population:** adults (18-64y old), adolescents (10-17y old) and pregnant women
- **Survey sample:** 500 subject per country of which at least 240 adults, 130 adolescents and 130 pregnant women
- **Sampling frame:** Random Probability Sample (based on full coverage of mobile and landline sampling frames) in addition to boost sampling via Social Media (FB/Insta/TikTok) through targeted (banners) advertisements for adolescents and pregnant women
- **Sampling method:** representativeness of region (NUTS 1), age and gender, imbalances were managed by post weight stratification
- **Administration method:** CATI with video conference + picture book, questionnaire in native language
- **Overall response rate** was 10%



SPECIES INCLUDED IN SURVEYS



1.0 mg/kg (of fish or seafood wet weight)

- Bonito, Cusk-eel, Emperor, Orange Roughy, Rosy Soldierfish, Roundnose Grenadier, Halibut, Kingklip, Marlin, Megrin , Mullet, Pike, Cod, Sail fish, Scabbard fish, Seabream, Pandora, Shark, Snake mackerel, Oilfish, Butterfish, Sturgeon, Swordfish, Tuna

0.5 mg/kg

- Crustaceans (prawns, shrimps, lobsters etc.), Eels, Anglerfish, Rays, Redfish/Ocean perch

0.3 mg/kg

- Anchovy, Herring, Carp, Mackerel, European plaice , European sprat, Pollock , Saithe, Coalfish, Salmon, Trout, Sardine or Pilchard, Sole, Molluscs (mussel, squid, octopus etc.)



REACHED SAMPLE SIZE PER SURVEY POINT

Survey point	Adolescents (RDD + boost sample)	Adults (18-64) RDD sample	Pregnant women (RDD + boost sample)	Total sample size (RDD + boost sample)
1st	3701	8195	3565	14843
2nd	1989	3821	1972	7782

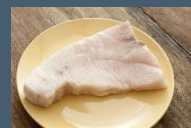
Participating countries

- 1st point survey : 27 MSs + Iceland and Norway
- 2nd point survey: Austria, Belgium, Cyprus, Czechia, Denmark, Finland, Lithuania, Portugal, Spain and Norway (having issued updated consumption advice) + France, Germany, Greece, Sweden and Iceland (selected as control countries based on high consumption as retrieved from the EFSA Comprehensive database)





[This Photo](#) by Unknown Author is licensed under [CC BY-SA-NC](#)



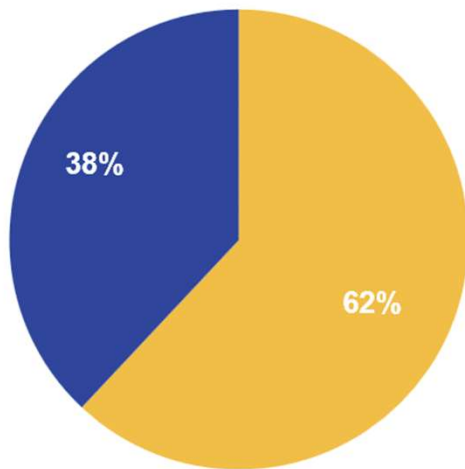
Fish &
seafood
report

Results on fish & seafood consumption frequency, comparison to national advice

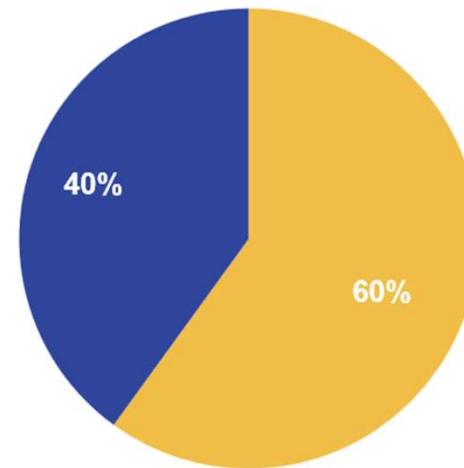


FISH AND OTHER SEAFOOD CONSUMERS IN EUROPE

10+ POPULATION



PREGNANT WOMEN



■ Yes

■ No

Frequency: Never / less than once per week / once per week / Twice per week / 3 or more times per week/Don't know

Only respondents who generally consume fish or seafood were included and for each ML of mercury category consumption was measured over the past 12 months

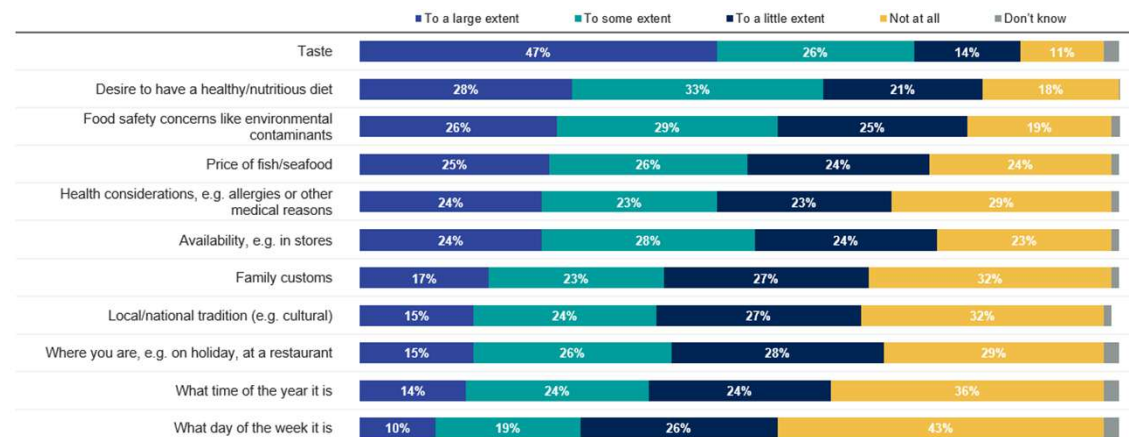
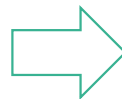


INFLUENCING FACTORS FOR FISH AND SEAFOOD CONSUMPTION



10+ population sample

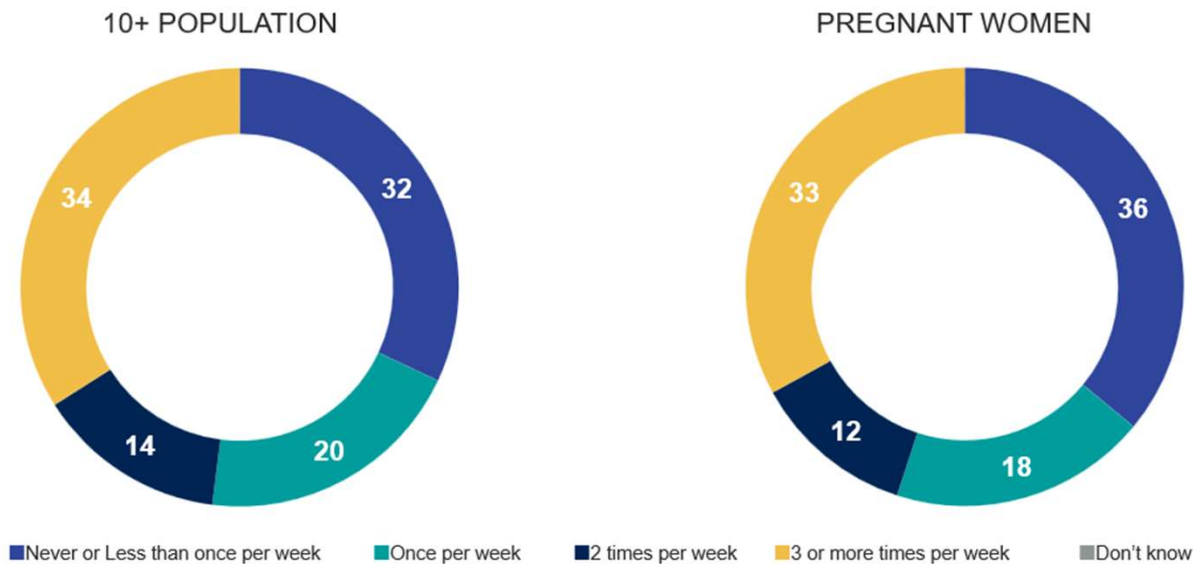
Pregnant women sample



CONSUMPTION FREQUENCIES

Increase in fish and seafood consumption frequency was noted between the two survey points in both countries with and without updated consumption advice and among both the general population (10+) and pregnant women samples

Overall, when considering consumers only and combining all countries and both survey points, roughly one-third of both the general population (34%) and pregnant women (33%) samples reported consuming fish with a mercury ML of 1.0 mg/kg three or more times per week



COMPARISON OF CONSUMPTION FREQUENCY TO NATIONAL ADVICE

- Before launching the 2nd point survey, EFSA reached out to all 27 MSs, IS and NO to enquire about communication actions carries out
 - Ten countries replied positively
 - Most of the national advice targeted children and pregnant women
 - Predatory fish, like shark, swordfish, tuna, etc., were proposed to be avoided or consumed in limited amounts
 - Fish with low mercury ML such as anchovies, sardines, salmon etc., were suggested to be consumed more often
 - A reference to contamination with methylmercury was almost always made
 - Portion size recommendation given
-
- Although a decrease in consumption of fish and seafood may have been expected, all European fish and seafood consumers reported an increase in all mercury ML categories
 - This suggests that factors other than awareness of consumption advice are driving changes in dietary habits





Fish &
seafood
report

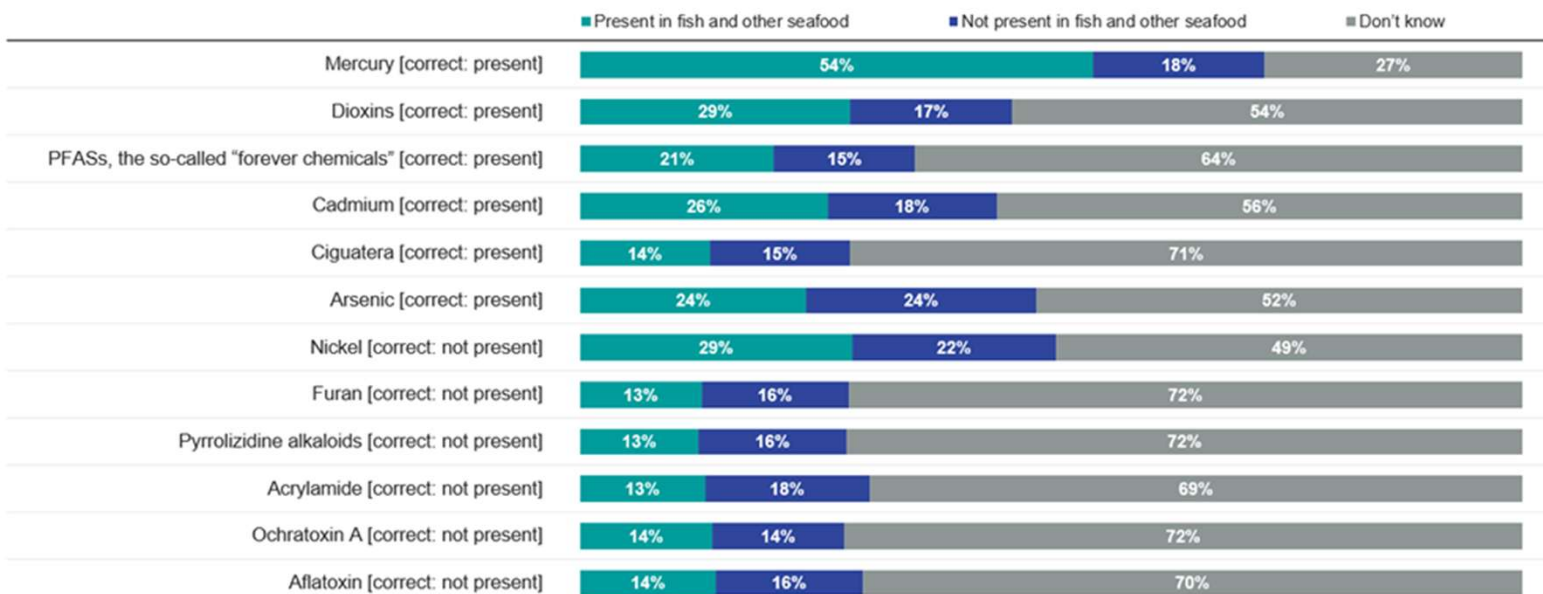
Results on awareness of contaminants in fish and other seafood

[This Photo](#) by Unknown Author is licensed under [CC BY](#)



AWARENESS LEVELS OF PRESENCE OF CONTAMINANTS (1)

- Results of the current survey revealed low awareness of chemical contaminants in seafood among European consumers
- The best-known contaminant was mercury (54% of respondents) followed by dioxins (29%)



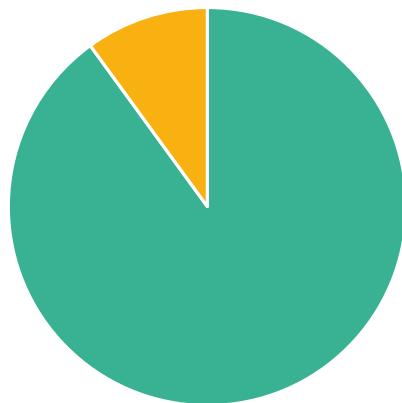
Q12: For each of the following chemical contaminants, do you think they are present or not present in fish and other seafood?



CONSUMPTION CHANGE DUE TO MERCURY/CONTAMINANTS

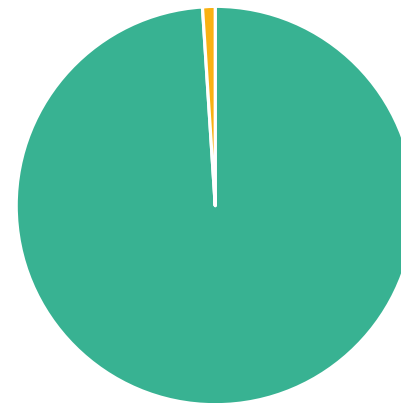
- 9 in 10 (90%) of the 10+ population and almost all pregnant women (96%) who said they had decreased their consumption of fish/other seafood in the last year, reported that they specifically decreased their consumption of fish/other seafood contaminated with mercury or other contaminants.

10+ population



■ Mercury/contaminants ■ Other factors

Pregnant women



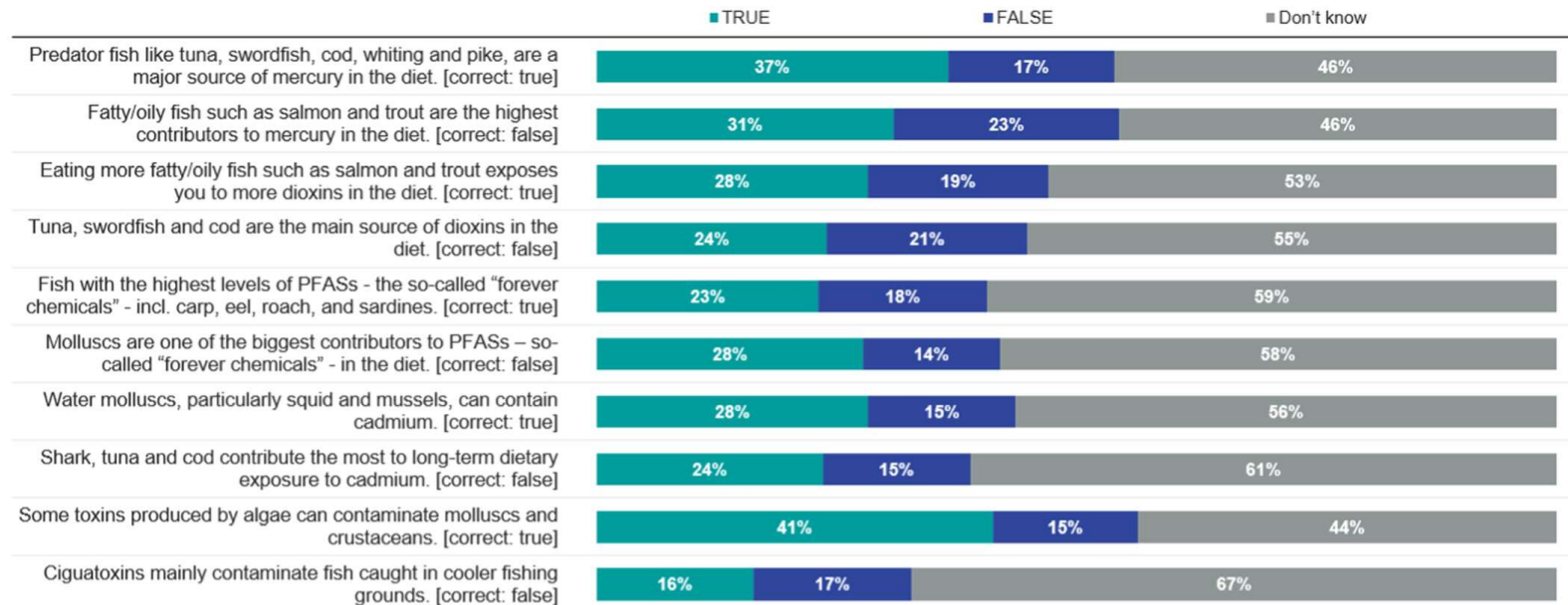
■ Mercury/contaminants ■ Other factors

- No differences were found between countries with updated advice and countries without updated advice.



AWARENESS LEVELS OF PRESENCE OF CONTAMINANTS (2)

The highest levels of knowledge were recorded for the statement “Some toxins produced by algae can contaminate molluscs and crustaceans” (41% of correct answers) and “Predator fish like tuna, swordfish, cod, whiting and pike, are a major source of mercury in the diet” (37% of correct answers).



Q13: Which of the following statements about chemical contaminants in fish and/or other seafood do you think are correct?



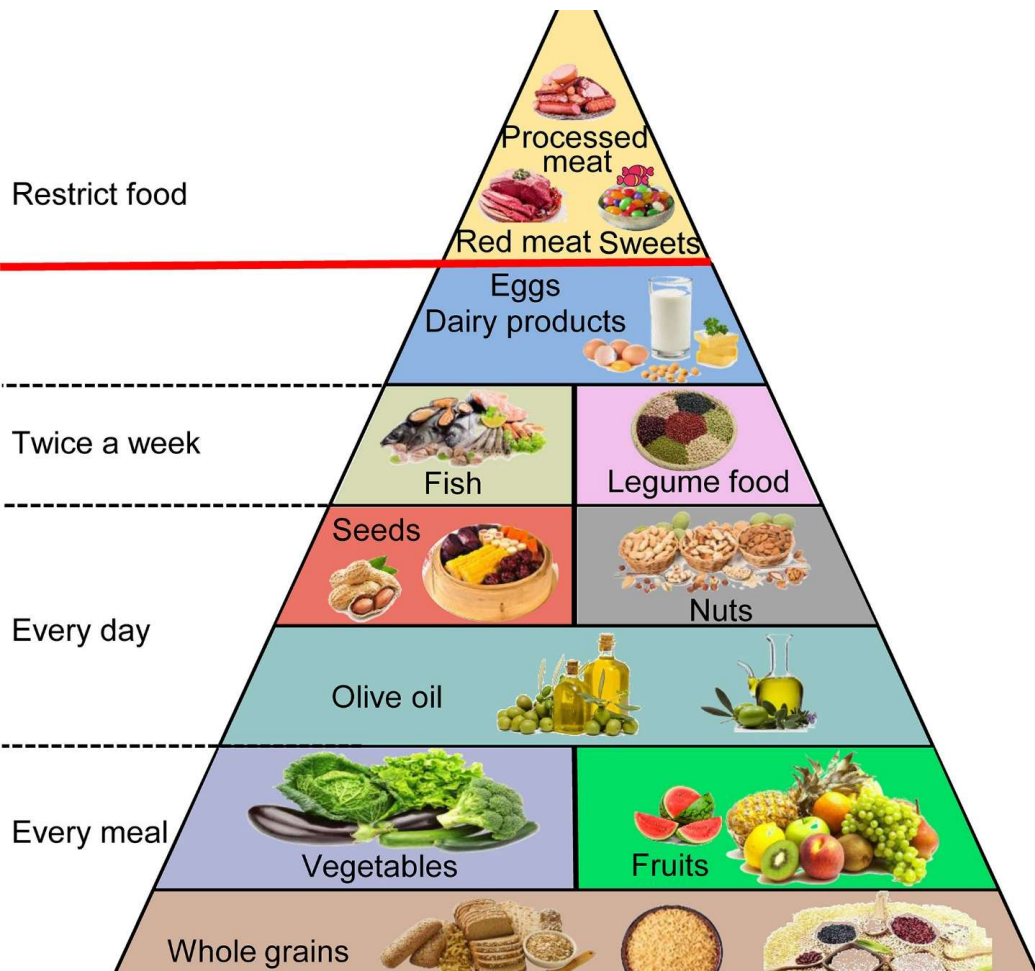
CONCLUSIONS ON AWARENESS OF CONTAMINANTS

European consumers generally have low awareness of contaminants in fish, crustaceans and molluscs

Within EFSA's survey and studies that explored awareness of various contaminants, mercury and methylmercury are the most recognised among consumers, particularly pregnant women

The findings from EFSA's survey reveal lack of differences in consumption and awareness between countries with updated advice and those without updated advice, while some cross-country differences emerge





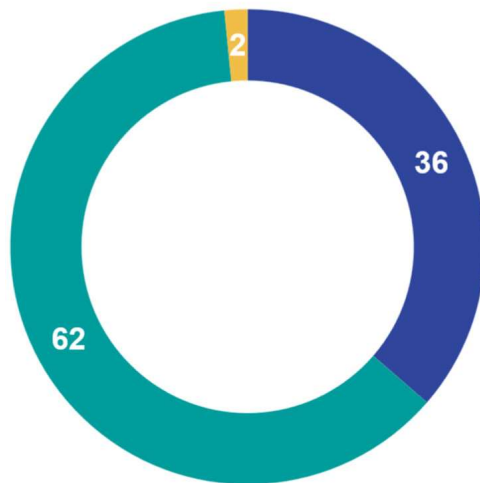
Fish & seafood report

Results on awareness of national advice, health risks and benefits and information sources



AWARENESS OF NATIONAL ADVICE

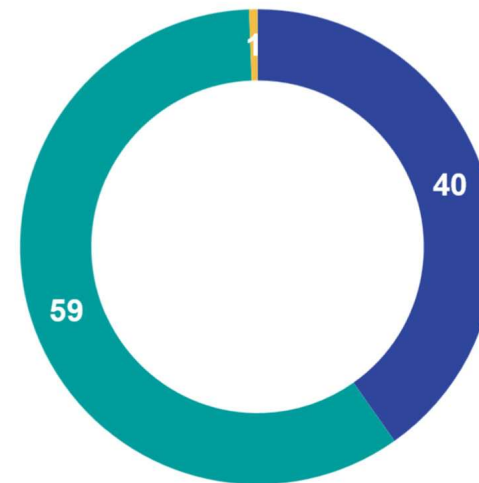
UPDATED ADVICE - 10+ POPULATION
Second Point Survey



■ Yes

■ No

UPDATED ADVICE – PREGNANT WOMEN
Second Point Survey

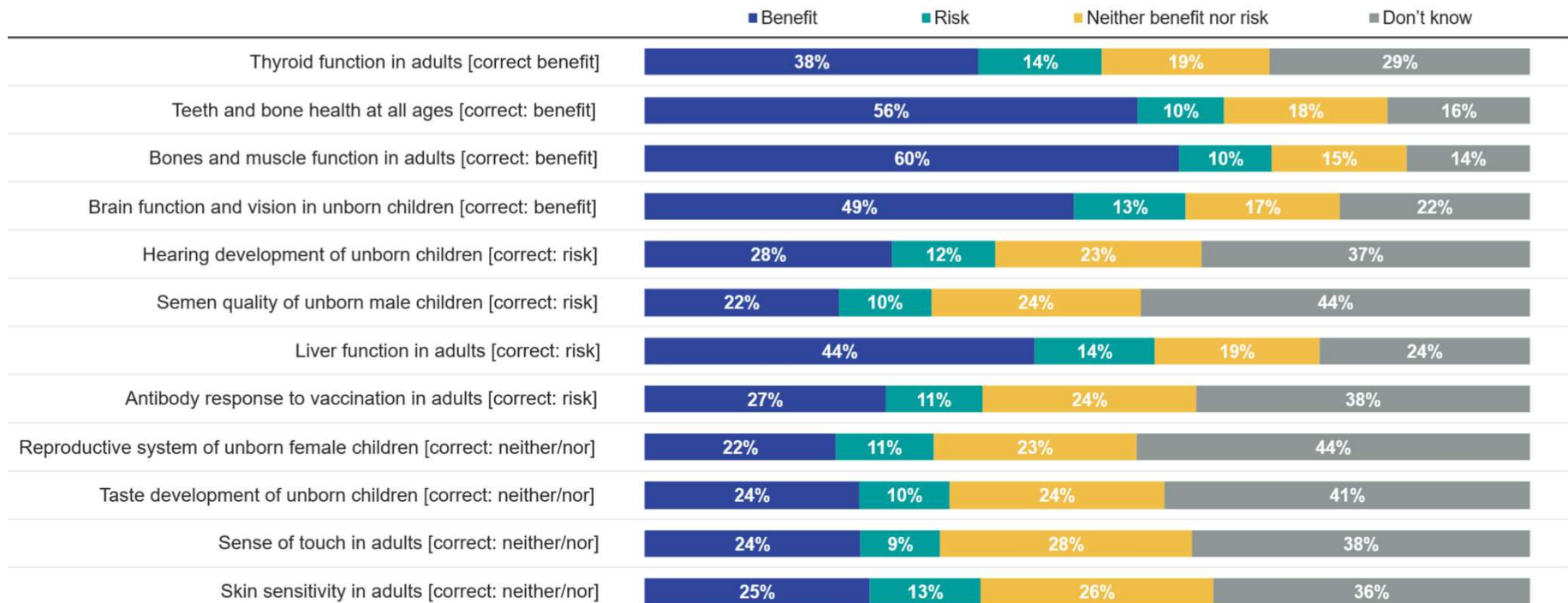


■ Spontaneous 'don't know'

Q10.1. The public health authority in your country has recently updated its advice on the health benefits and/or risks of eating fish and seafood consumption. Have you heard of it?



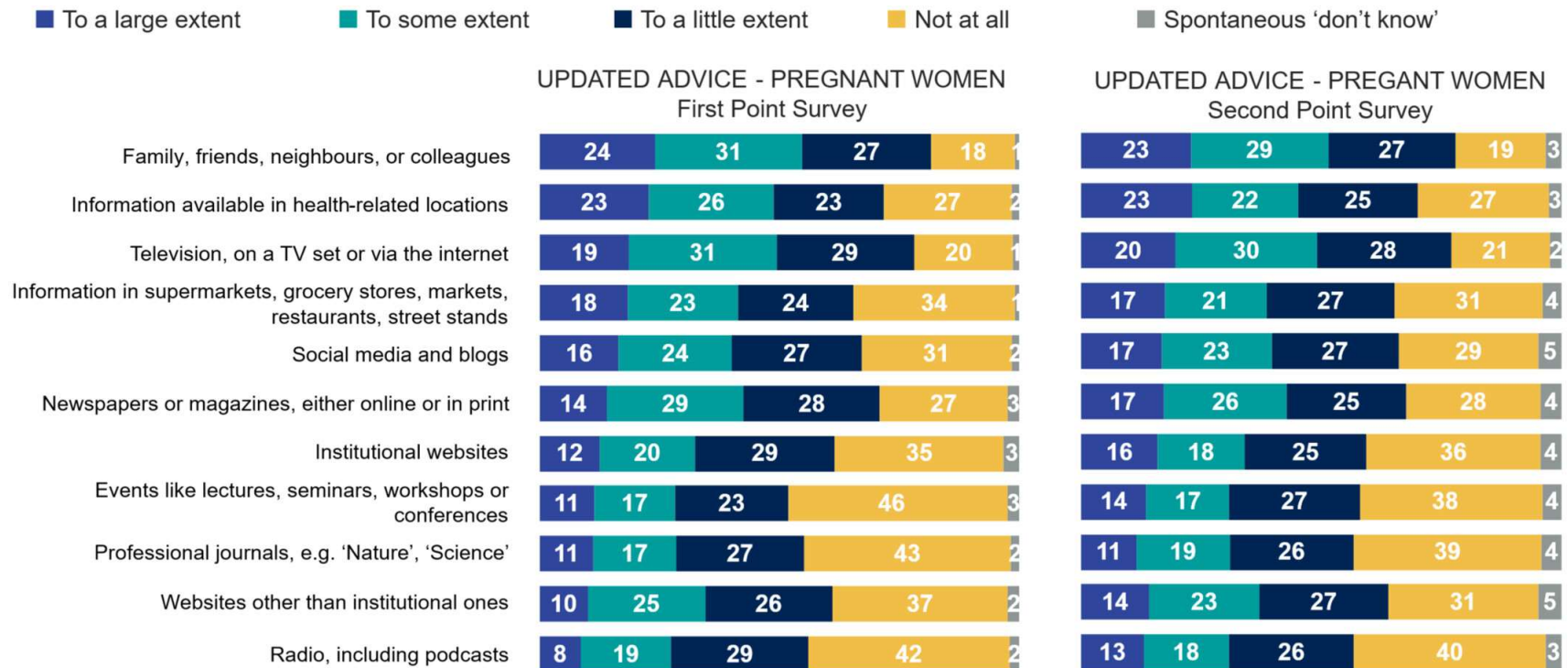
AWARENESS OF HEALTH RISKS AND HEALTH BENEFITS



Question: Q11. Consumption of fish and other seafood can be beneficial for some aspects of our health but can also have health risks. For each of the following health aspects, can you each time say whether you think fish and other seafood consumption is a benefit, a risk or neither of those?



INFORMATION SOURCES USED ON HEALTH RISKS AND BENEFITS



Q9.1. To what extent, if at all, did any of the following sources or types of information lead you to change your consumption of fish and other seafood?



CONCLUSIONS ON AWARENESS OF ADVICE, RISKS & BENEFITS

Around 4 in 10 of the 10+ population consumers and of the pregnant women consumers in the 10 countries that had issued updated advice said they had heard of the advice.

Objective knowledge of health benefits is significantly higher (38%-60% correct responses for 4 health benefits tested) than knowledge of health risks (10%-14% correct responses for the 4 health risks tested)

Family & friends, TV and information in health-related locations are key sources of information. Official websites have less direct impact on changes in consumption but are still important, i.e., for one-third of consumers who changed their consumption.





Fish &
seafood
report

Impact of national advice & Communication advice for national authorities



IMPACT OF ADVICE

- In most countries with updated national advice the consumption of species with a mercury ML of 1.0 mg/kg three or more times per week was either the same or higher among those who had heard the advice than those who had not
- In the countries with updated advice pregnant women are more likely to be aware of the national advice and also more likely to indicate that they take the advice into account than the 10+ population
- Pregnant women's consumption of species with a mercury ML of 1.0 mg/kg three or more times per week was higher among those who had heard the advice than among those who had not
- Overall, the long-term promotion of national advice, particularly on the health benefits of fish and other seafood consumption, may encourage consumers to eat more fish generally, however, other factors are important mitigating factors such as the existing consumption and personal preferences



COMMUNICATION ADVICE FOR MEMBER STATES

Promote benefits of fish/other seafood consumption for **low consumers with low awareness**, especially pregnant women

- Continue or reinforce health promotion
- Focus on trade-offs leading to non-beneficial or suboptimal choices, highlight healthier options
- Informative about health benefits and safety, be prescriptive on choices: what to eat and how often (but localised)

Diversifying fish/other seafood species for **high consumers**, especially among pregnant women

- Challenging with low risk awareness of contaminants or perceived divergence from prior beliefs (e.g. high perceived health benefits, highly embedded in culture)
- Repeat messages that focus on diversifying consumption habits more relevant strategy
- Encourage use of tools such as FishChoice

Strategies for accessing **trusted sources** of information (e.g. work with amplifiers, explore TV)

- Regular and news media (TV, social networks) and social contact (family, friends) more regularly source of food risk information than institutional websites
- Collaborations with amplifiers (journalists, science communicators, influential communicators) should be evaluated
- Further creative solutions in an ever more competitive information environment, e.g. inclusion of food-and-health-based narratives in TV shows

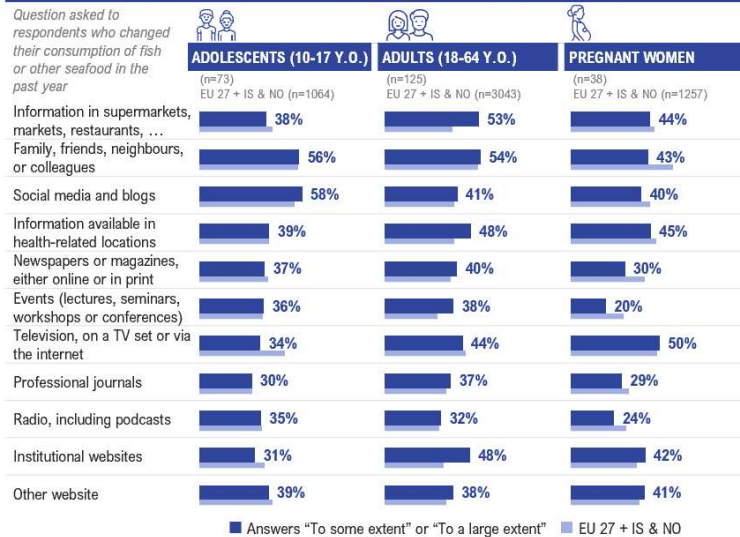


FISH AND OTHER SEAFOOD CONSUMPTION AND AWARENESS



AWARENESS OF RISKS AND BENEFITS

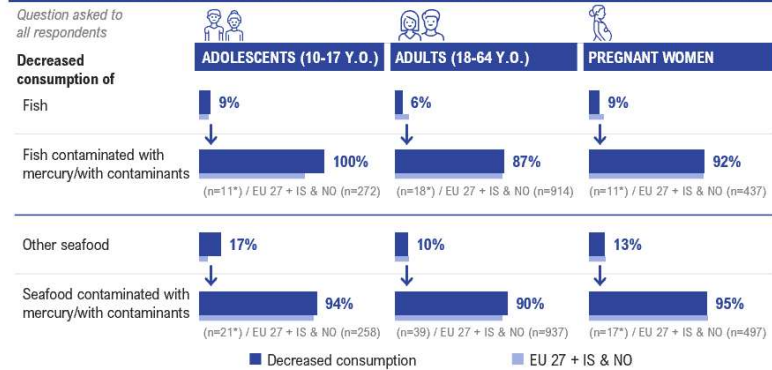
SOURCES OF INFORMATION THAT LED TO CHANGE IN CONSUMPTION



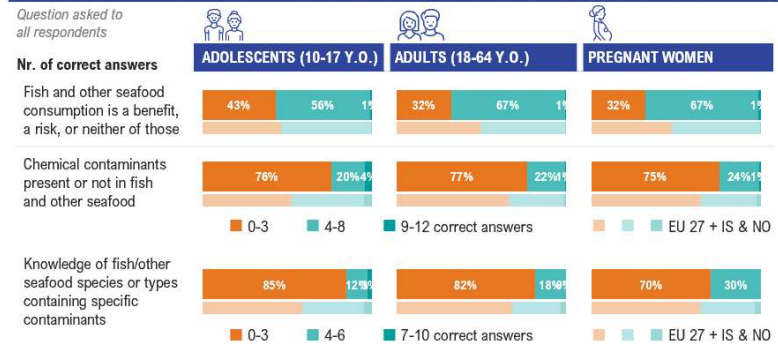
UPDATED ADVICE



DECREASE IN CONSUMPTION OF FISH OR OTHER SEAFOOD



RISK BENEFIT STATEMENTS & AWARENESS OF CONTAMINANTS



*Low base size!

ADVICE IS AVAILABLE – Published on the website of The Economic and Food Safety Authority (ASAE).



Sample size:	PORTUGAL	EU 27 + IS & NO
ADOLESCENTS (10-17 y.o.):	117	3570
ADULTS (18-64 y.o.):	288	8195
PREGNANT WOMEN:	126	3565



FISH & SEAFOOD SURVEY – MAIN CONCLUSIONS

2023 to 2024 trends

- For species with a mercury ML of 1.0 mg/kg, high-frequency consumption (three or more times per week) nearly doubled, from 26% to about 50% in both country groups.
- Similar for other species
- Why? Season, other factors...

Consumption frequency

Across both surveys **60% of respondents** eat fish and seafood. **Of those** about **one-third** of adolescents/adults (34%) & pregnant women (33%) reported consuming fish with a mercury ML of 1.0 mg/kg **3+ times per week.**

Awareness of contaminants in fish & seafood

- **low** among European consumers
- **Mercury** most recognised contaminant, but overall, still low
- Some **country differences**

Awareness of national advice on the health benefits/risks moderate:

- 38% of 10+ population / 37% of pregnant women reported hearing of advice
- 6 in 10 of those who changed consumption (decreased) reported that this advice led them to change their consumption habits

Risks and Benefits

- Objective knowledge of human health benefits is 4-5 times higher among consumers than objective knowledge of risks.
- Some country differences

When consumers are aware of updated advice, it **influences** their consumption habits **to some extent.**

Data suggest that **factors other than awareness** of consumption advice are driving changes in dietary habits, e.g. taste, cost, healthy eating (possibly also seasonality)

UNCERTAINTIES

- FPQs collect data on frequency of consumption only and not associated quantity
- Respondents often experience recall errors when trying to remember food consumed over extended periods
- The two surveys were run in different periods of the year - comparison of the results may reflect seasonal shifts rather than actual changes in dietary behaviour
- Other influences (e.g., advertising campaigns for fish, seafood substitute, food price inflation) may have induced changes in fish and seafood consumption
- The sample size per country was ~500 participants – 60% consumers. A small percentage drove the results for high-frequency consumption, not necessarily country representative
- The sampling used (RDD + boost sampling) introduced biases that affect representativeness and data validity

Scientific report available at: <https://www.efsa.europa.eu/en/efsajournal/pub/9865>



STAY CONNECTED

SUBSCRIBE TO

efsa.europa.eu/en/news/newsletters
efsa.europa.eu/en/rss
[Careers.efsa.europa.eu](https://careers.efsa.europa.eu) – job alerts



LISTEN TO OUR PODCAST

Science on the Menu – Spotify, Apple Podcast and YouTube



FOLLOW US ON BLUESKY

[@efsa.bsky.social](https://bsky.app/profile/efsa.social)
[@efsa-animals.bsky.social](https://bsky.app/profile/efsa-animals.social) [@efsa-plants.bsky.social](https://bsky.app/profile/efsa-plants.social)



FOLLOW US ON LINKEDIN

[Linkedin.com/company/efsa](https://www.linkedin.com/company/efsa)



FOLLOW US ON INSTAGRAM

[@onehealth_eu](https://www.instagram.com/onehealth_eu)



CONTACT US

efsa.europa.eu/en/contact/askefsa

