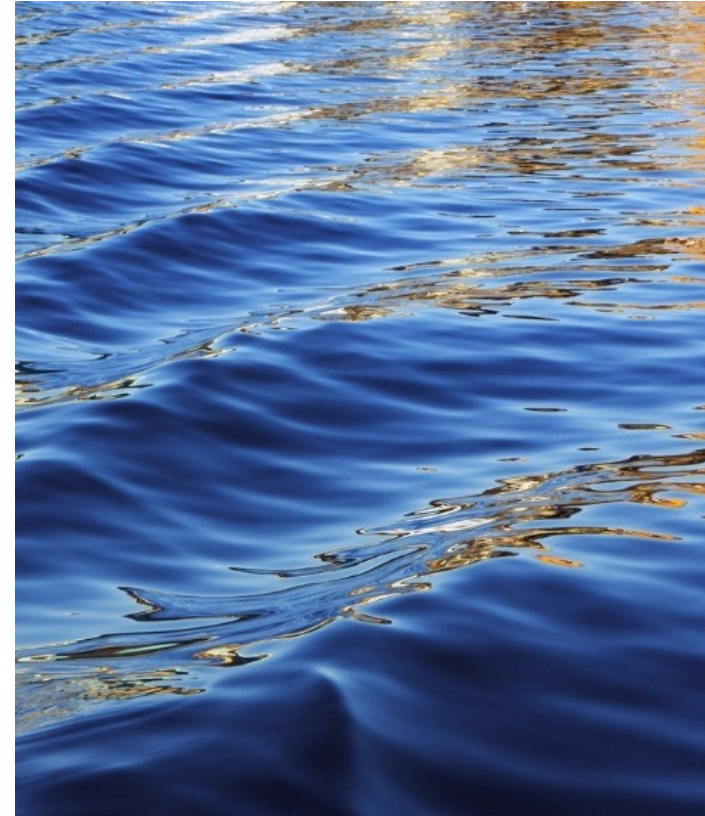




Challenges & Opportunities for PFAS Fish Consumption Advisories

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PFAS, Fish, & Shellfish

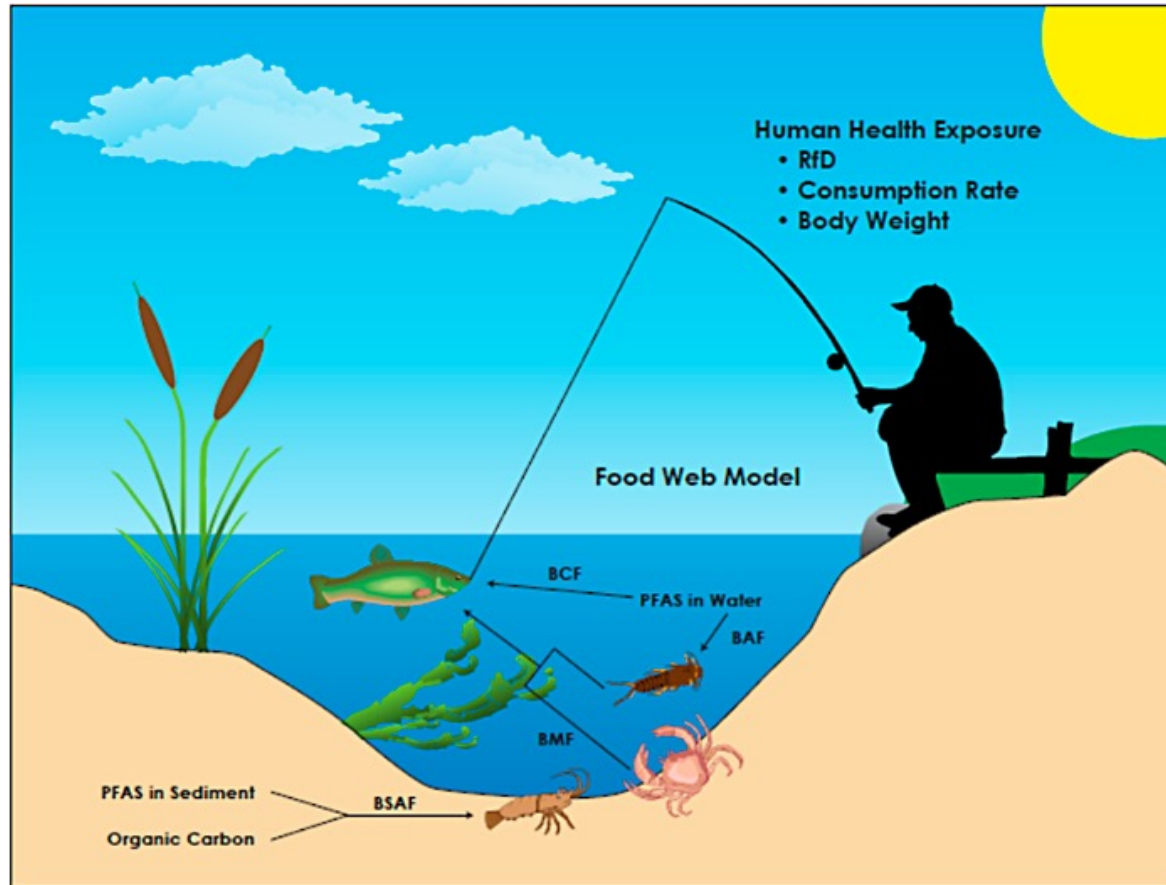


Diagram Source: Interstate Technology & Regulatory Council's PFAS Technical & Regulatory Guidance Document (Figure 17-1; <https://pfas-1.itrcweb.org/>)



Image Source: Petali, JM (2021)

Fish Consumption Advisories & Seafood

- **Fish/Shellfish Consumption Advisories (FCAs)** are recommended consumption limits of fish/shellfish.
- Expressed as a meal size (4-8 ounces) and in terms of frequency (e.g., daily, weekly, monthly).
- Often ***waterbody-specific*** and applied to certain species based on available data.
- FCAs are not synonymous with Water Quality Criteria (enforceable or regulatory standards).

$$\frac{\text{RfD} \times \text{BW}}{\text{MS}} = \text{DTC}$$

RfD – Reference Dose (ng/kg/day)

BW – Body Weight (kg)

MS – Meal Size (g/day)

DTC – trigger concentration for daily consumption (ng/g)

1 ng/g = 1 part-per-billion (ppb)

Risk Assessment for Fish Consumption Advisories

- Fish Consumption Advisories are developed using EPA methodology.
- Often generated for Children, Women of Child-Bearing Age and Other Adults.
- Interstate Technology & Regulatory Council (2022), <https://pfas-1.itrcweb.org/>

Analytical Challenges & Opportunities

Can we measure it and is it really there?

- The list of PFAS analytes is grow, along with replacement products in the global market.
- Methods Differ: Drinking water \neq Fish Tissue \neq Shellfish Tissue
 - Detection limits and “interferent” problems
- Lack of lab capacity and/or capability in several regions.

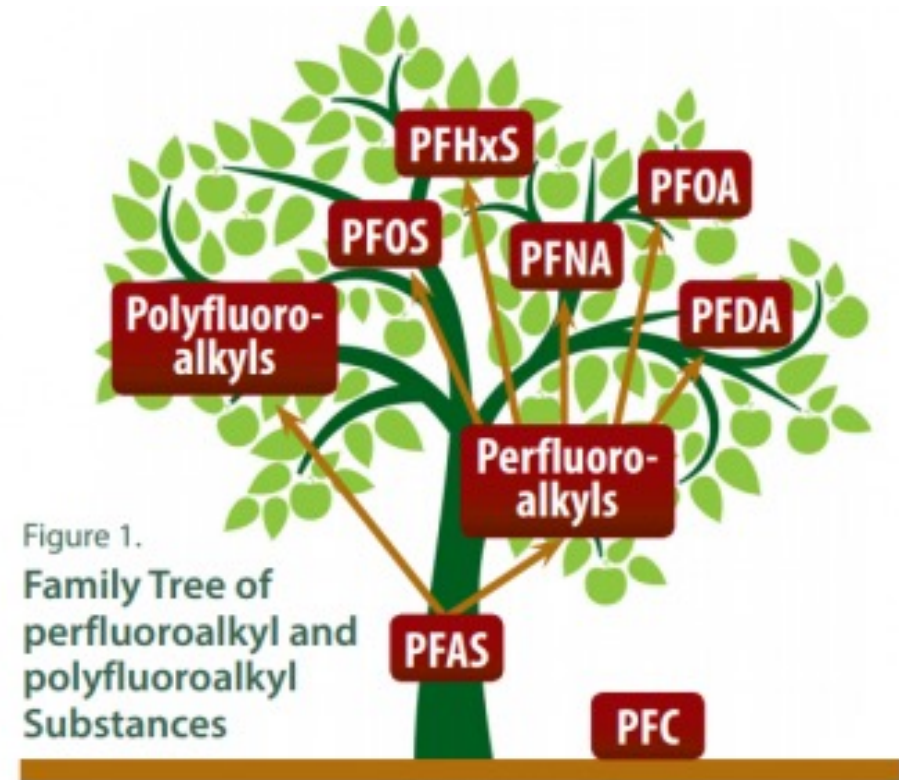


Image Source: ATSDR (2019)

Exposure Assumption Challenges & Opportunities

Who are we protecting with FCAs?

- Current methods rely on EPA default assumptions.
 - 80 kg body weight
 - 8 oz. meal size
 - X grams/day fish consumption rates
- Need to learn about our communities and their goals.
 - Survey local communities to understand fish consumption patterns.
- Special need to consider vulnerable populations, especially those with cultural ties to fish consumption.

Estimated Fish Consumption Rates for the U.S.
Population and Selected Subpopulations
(NHANES 2003-2010)

Final Report

April 2014
EPA-820-R-14-002



“We don’t talk about... risk versus benefits?”



Image Source: BuzzFeed.com (2022): <https://www.buzzfeed.com/amphml/andriamoore/lin-manuel-miranda-encanto-oscar-song>

An evolving issue.

- Current approach does not quantitatively weigh risks and benefits of fish consumption.
- What is the impact to health?
- Are there unique impacts for specific groups?

$$\frac{RfD \times BW}{MS} = DTC$$

Summary

Fish consumption advisories are:

- *Public health tools for reducing exposure* to harmful contaminants.
- *Expected to evolve with changing PFAS knowledge* occurrence and toxicity.
- *Limited by data availability*, both about chemical toxicity, occurrence and knowledge about communities.





Image Source: Petali, JM (2021)

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