

# PFASs and seafood consumption: Lessons from the ACE Project



The [Asian/Pacific Islander Community Exposures \(ACE\) Project](#) measured levels of chemicals in Chinese and Vietnamese adults living in the San Francisco Bay area in 2016-2017. Prior studies have reported higher levels of [perfluoroalkyl and polyfluoroalkyl substances \(PFASs\)](#) in blood samples of Asian/Pacific Islanders (API) compared with people from other race and ethnic groups.

PFAS levels for ACE participants are **higher** than levels seen in the US population (National Health and Nutrition Examination Survey 2015-2016).

Since fish and shellfish consumption is more common among API communities, we used questionnaire data from ACE to look at the association between seafood consumption and levels of 6 different blood serum PFASs: PFDA, PFHxS, PFNA, PFOA, PFOS, and PFUnDA.

## What are PFASs?

PFASs can be harmful to human health. This large group of synthetic chemicals is used in industrial processes and in consumer products to make them resistant to oil, stains, grease, and water. These chemicals are often referred to as “forever chemicals”. They have spread throughout the environment and have been detected in food and drinking water. PFASs can build up in fish and shellfish, which can be a concern for people who commonly eat seafood.

## Key findings

**Overall, seafood consumption was associated with increased blood serum PFAS levels in ACE participants.**



ACE participants who **ate more than 3 fish meals** per week had **38% higher PFOS** and **42% higher PFUnDA** levels compared with participants who ate less than the USDA recommendation of 2 fish meals per week.



When looking at seafood consumption over the past 30 days, serum levels for 4 PFASs **increased 6-10%** for **every 5 additional meals of any seafood consumed.**



Participants who ate **3 or more meals of fish they caught** per week had **66-125% higher** levels of 4 PFASs compared with participants who ate less than 1 meal of caught fish.



Participants who ate **non-fillet fish parts** (including organs, skin, head, and eyes) had up to **124% higher** PFAS levels compared with participants who did not eat non-fillet fish parts.



Read the full article: [Associations Between Seafood Consumption and Serum PFAS Levels Among Asian/Pacific Islanders in the San Francisco Bay Area, California](#)

## How do PFASs affect health?

Researchers are still studying the health effects of PFASs, but exposures to some PFASs:

- Can increase cancer risk
- Can affect the immune system and liver function
- May harm the fetus and child, including effects on growth and development
- May increase the risk of thyroid disease
- May interfere with the body's natural hormones

## What can you do?

The **US EPA and FDA recommend eating seafood** as an important part of a healthy, well-balanced diet. However, harmful chemicals, like PFASs, can build up in seafood over time, especially in non-fillet fish parts. **Eating a variety of foods and following advice from US [EPA](#) and [FDA](#) can help lower the risk of exposure to harmful chemicals from seafood.**

### Tips for eating seafood:

- Vary the types of fish and shellfish you eat
- Eat fish and shellfish from a variety of water bodies
- Limit consumption of non-fillet fish parts, where PFASs have been found to be higher



To learn more about chemicals in locally caught fish and what is safe to eat, visit the [Office of Environmental Health Hazard Assessment's fish advisory webpage](#).

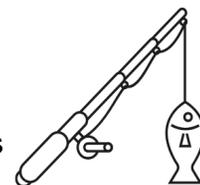
## Limit PFAS exposures from other sources



- Review your water supplier's annual water quality report. If PFASs have been detected, consider using a [water filter certified to remove PFASs](#).
- Check product labels. Avoid anything labeled as stain- or water-resistant or made with "fluoro" ingredients.
- If you use stain- or water-repellent sprays, sealants, or similar products, make sure you have plenty of ventilation, follow safety precautions, and wash your hands after use.
- To learn more about reducing PFAS exposures, see our [PFAS factsheet](#).

## Beyond human biomonitoring

The ACE Project highlights the importance of continued research on PFASs and seafood. Biomonitoring provides important information about PFAS exposures in people, but that is only part of the story. Additional research on PFASs measured in seafood, especially seafood caught in California, can improve our understanding of how Californians are exposed to PFASs. Fish consumption advisories have already been developed for PFASs in some states. California is collecting data on PFAS levels in fish to help inform the development of fish consumption advisories for local water bodies in the state.



## Who participated in ACE?



**195** adults provided blood samples for PFAS analysis



Average age: **45 years**



**54%**

identified as female



**88%**

spoke a language other than English at home



**88%**

were born outside the U.S.