PFAS in food - how does environmental contamination affect food production and human exposure?

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Webinar on PFAS in the Nordic Region 18 Sept 2023

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SWEDISH ENVIRONMENTAL PROTECTION AGENCY

Background & assignment

Background

- EFSA opinion 2020
  - Reduction of TWI →change in relevant exposure scenarios. Previously focus on drinking water and fish. Now potentially problematic exposure from other food items.
  - Majority of data left censored (both EFSA and nationally)

- Contaminated sites
  - Lack of information regarding if and when potentially problematic for food production.
  - Increasing no of reports from other countries on contaminated eggs, milk and meat.

- Proposal to the Government spring 2021 that we should get an assignment to increase knowledge.

Assignment

- A three year assignment from the Government 2022-2024:

  Improve knowledge regarding how environmental contamination affect PFAS concentrations in food and human exposure.

- In cooperation with Swedish Food Agency and Swedish Board of Agriculture.

What we do: PFAS in food from stores

Aim: To improve knowledge on exposure for the general population.

- Food basket survey
  - Sampes based on consumption statistics.
  - Composite samples from 17 different food categories.

- Analysis of individual food items from stores
  - Food items identified as relevant based on previous individual measurements, food baskets and the EFSA opinion (meat, fish, eggs, fruit and vegetables).

Assignment to Swedish Food Agency and Örebro University

What we do: PFAS in food produced close to contaminated sites

- Large no. of contaminated sites in Sweden, mainly due to fire training sites and airports.
- Many farms located close to these areas.

- Literature review of transfer factors to assess what concentrations in feed and water that may be problematic.
  - Support operators responsible for contaminated sites, inspectors working with contaminated sites, food control and farmers.

- Recruited farms (anonymously) situated close to six areas.
- Milk from tank, feed and drinking water sampled this spring.
- Sampling of meat and blood from cattle this autumn.

Assignment to Swedish University of Agricultural Sciences, VÄXA, Örebro University

What we do: Human exposure due to fish consumption

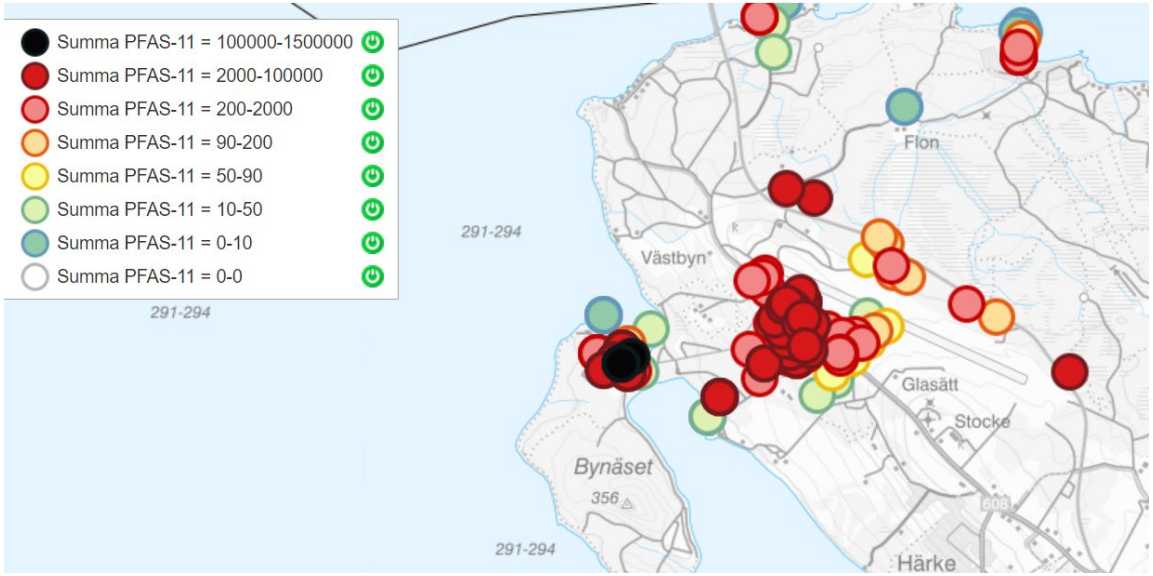
Cohort with survey data on locally sourced fish consumption

- Analysis of blood of high consumers (>1x/month for 20+ years) and low consumers (0-3x/year) of locally sourced fish.
- Analysis of fish (perch, pike, perchpike) from local rivers and lakes.
- Evaluate links to health outcomes:
  - Protein patterns in serum
  - Self reported information on health outcomes

Assignment to Linköping University, Linnaeus University & Örebro University

What we do: PFAS in fungi and berries from a contaminated recreational area

- High contamination of soil and water from airport and historic fire fighting training.
- Area now used for recreation.
- Wild mushrooms and berries collected autumn 2022.



PFAS in water (stormwater, groundwater, surface water, etc) ng/l
[PFAS – karta över vattenprover - Östersund.se (ostersund.se)]

Assignment to Swedish University of Agricultural Sciences

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