



# **Bethanie Carney Almroth**

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Dept Biology and Environmental Sciences

**2** ZERO  
HUNGER



**3** GOOD HEALTH  
AND WELL-BEING



**6** CLEAN WATER  
AND SANITATION



**11** SUSTAINABLE CITIES  
AND COMMUNITIES



**13** CLIMATE  
ACTION



**14** LIFE  
BELOW WATER



**15** LIFE  
ON LAND



**12** RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



A photograph of a massive pile of plastic waste, including discarded plastic bottles and other debris, washed up on a sandy beach. The debris is piled high against a large, dark rock formation on the left. In the background, the ocean is visible under a warm, orange and yellow sunset sky.

8300 miljoner ton plast har producerats.

9% har återvunnits.

12% har bränts.

Resten är kvar.

(Geyer et al, Science Advances)

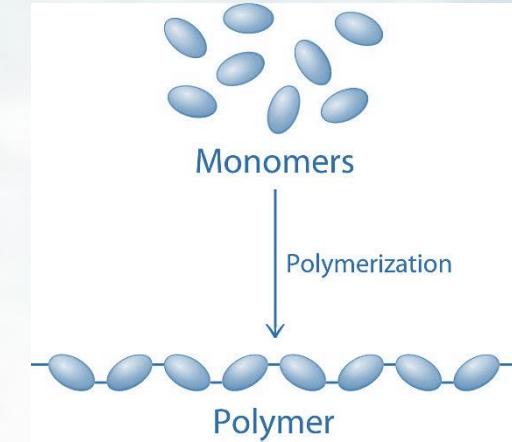
Foto: Annelie Pompe

20 miljoner ton plastförpackningar



# Plastic Materials

- Polymers and monomers
- Enzymes, catalysts, etc
- Non-intentionally added substances (NIAS)
- Additives
- ??? Other hydrophobic substances ???



# (FK om kemikalier)

- Det finns ca 100 000 olika kemiska substanser i dagens samhälle.
- Ca 30 000 används dagligen.
- (Vi ‘upptäcker’ ca 70 nya per timme).
- Ca 30 000 + är registrerade i REACH.
- 20 000 kemikalier kan hittas i plastförpackningar.
- Vi har toxicitets data på ca 1000 substanser.











Fler än 800 marina arter äter plast.



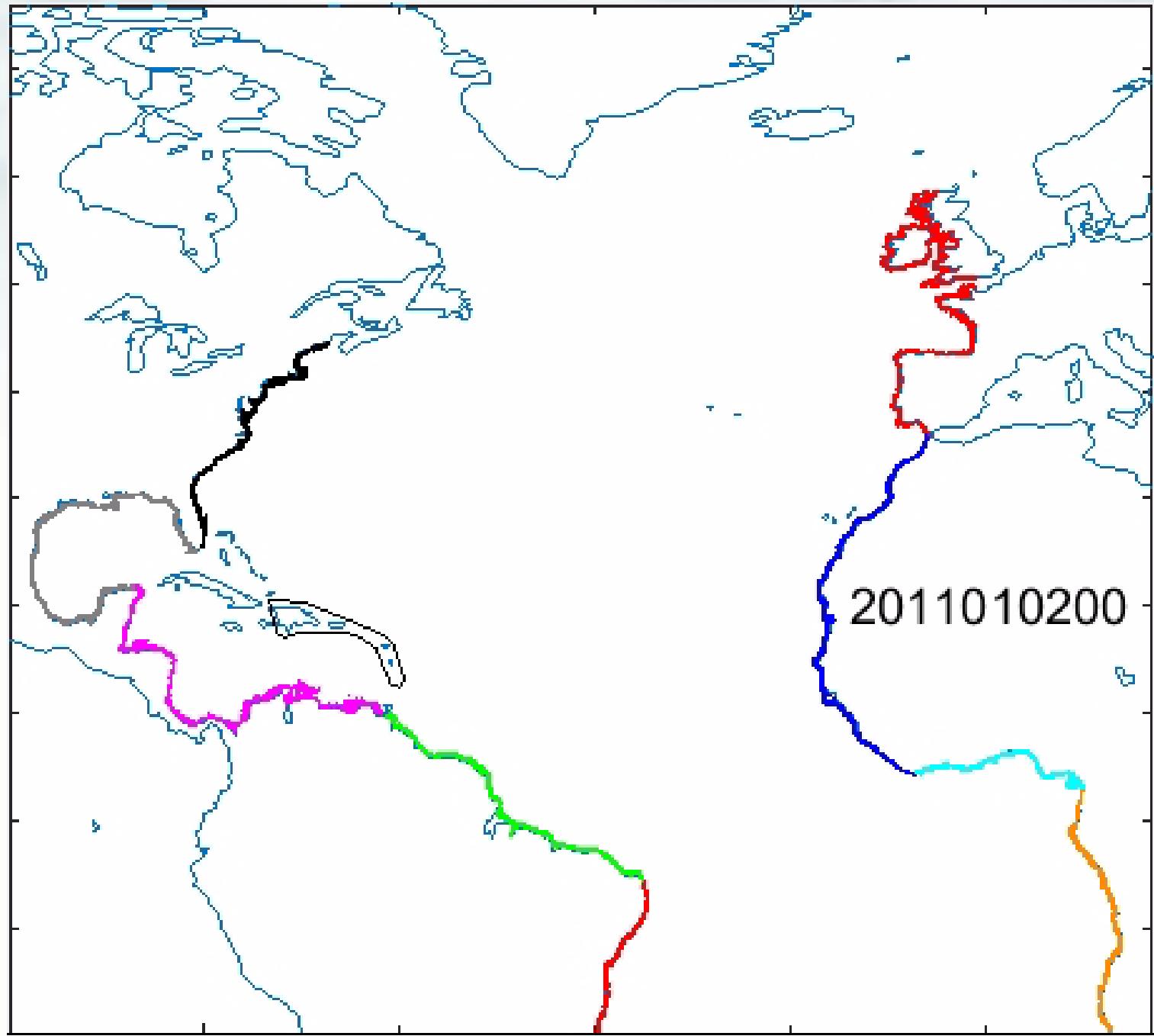
- Natural capital kostnader av plast är \$75 miljarder per år
- Kostnader till marina ecosystem är \$13 miljarder per år



# Packaging and Single Use Plastic

39.6% av Europas plast  
produktion används i  
förpackningar.



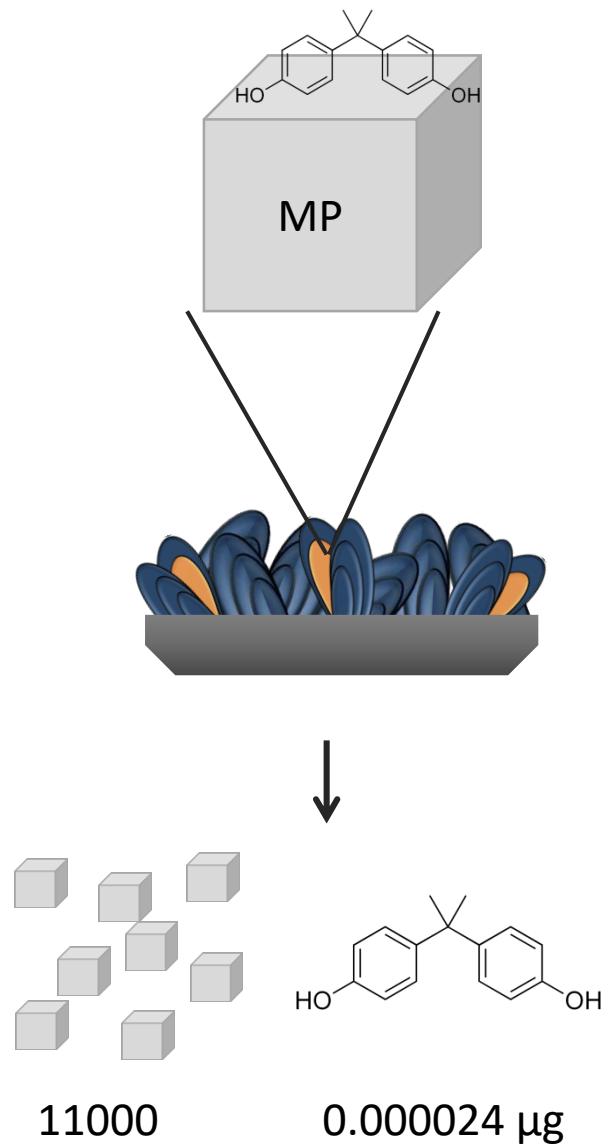




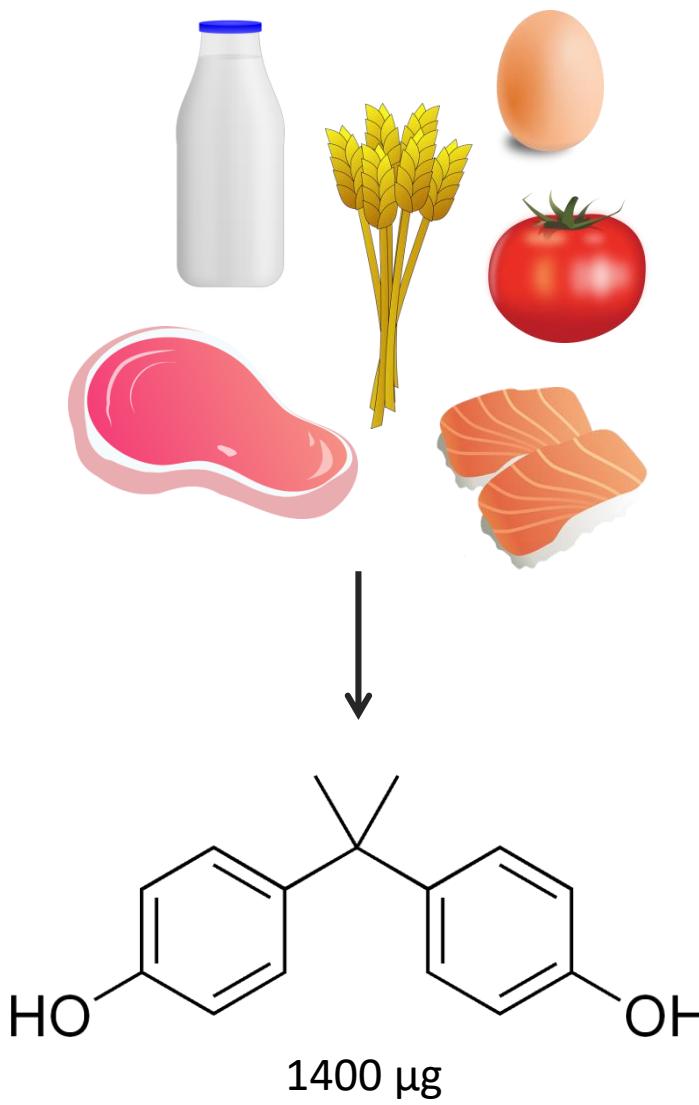
# Var hamnar plasten?



## BPA från MPs i havsmat



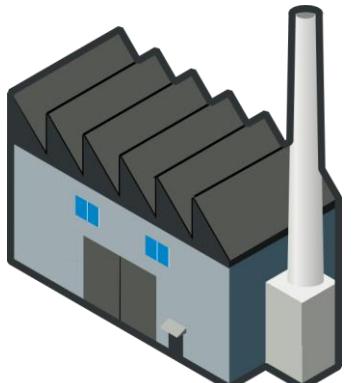
## BPA från mat



# Hur mycket exponeras vi för?



Indoor environments  
355 fibers/m<sup>2</sup>/day



Textile factory  
700 000 fibers/m<sup>3</sup>



Tap water  
4.3 fibers/L



Control water  
1.7 fibers/L



Air exposed water  
15 fibers/L





Produktion

Varor

Avfall



PET



PE-HD



PVC



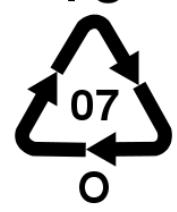
PE-LD



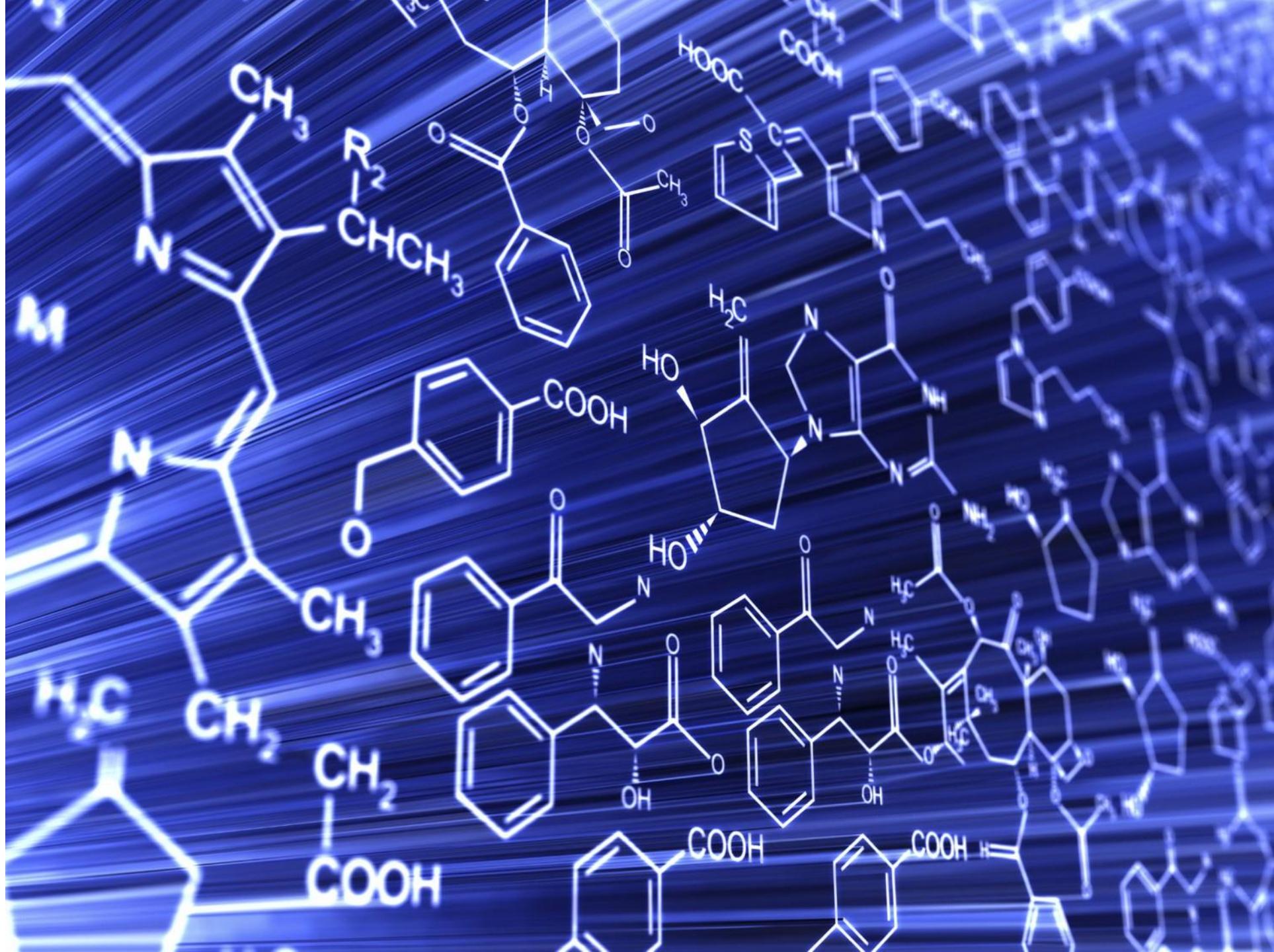
PP



PS

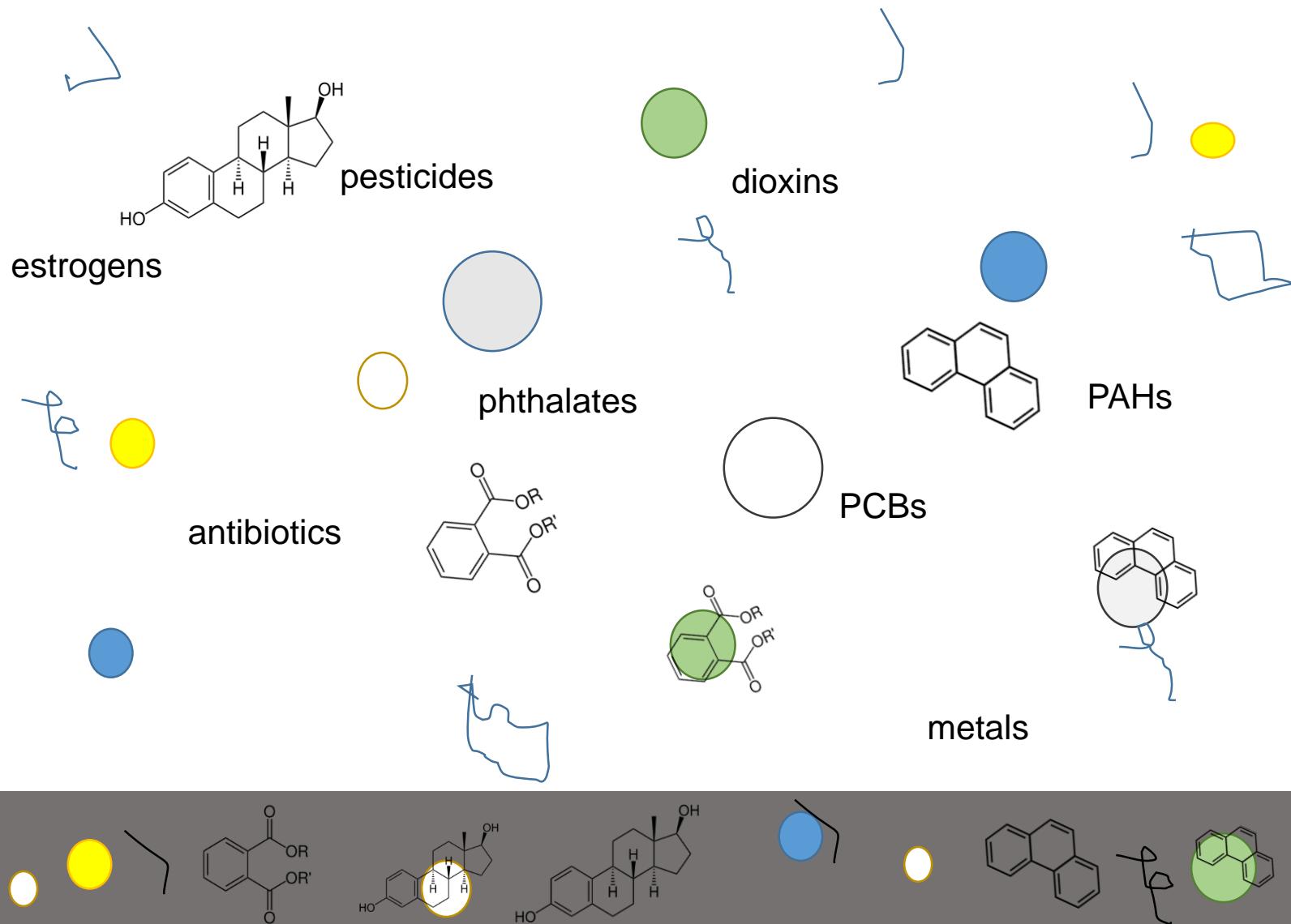


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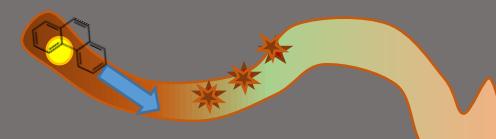
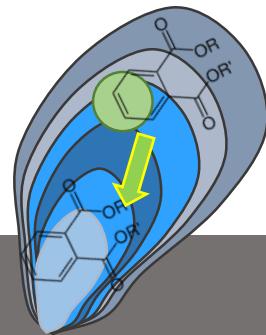
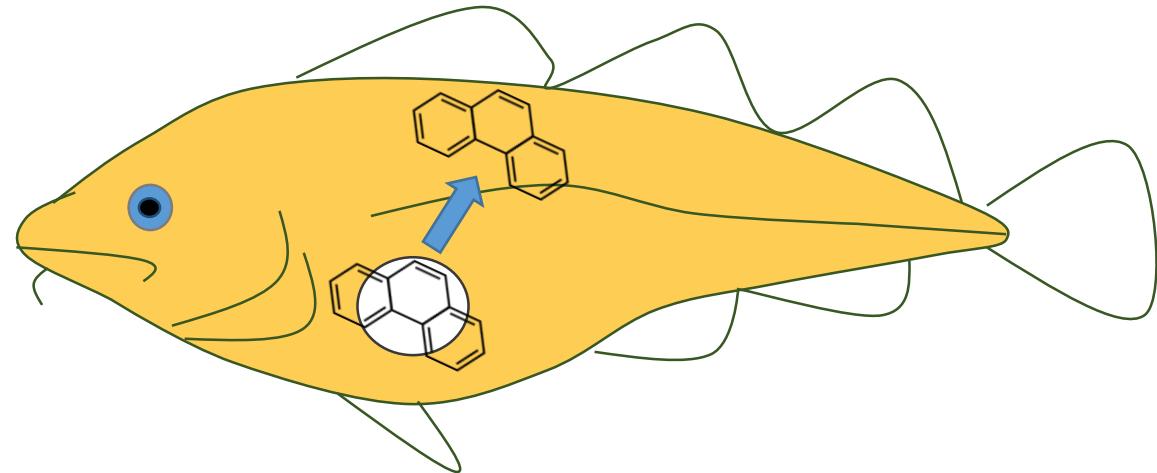
# Effekter?

- Partikel effekt
- Kemikalier effekt



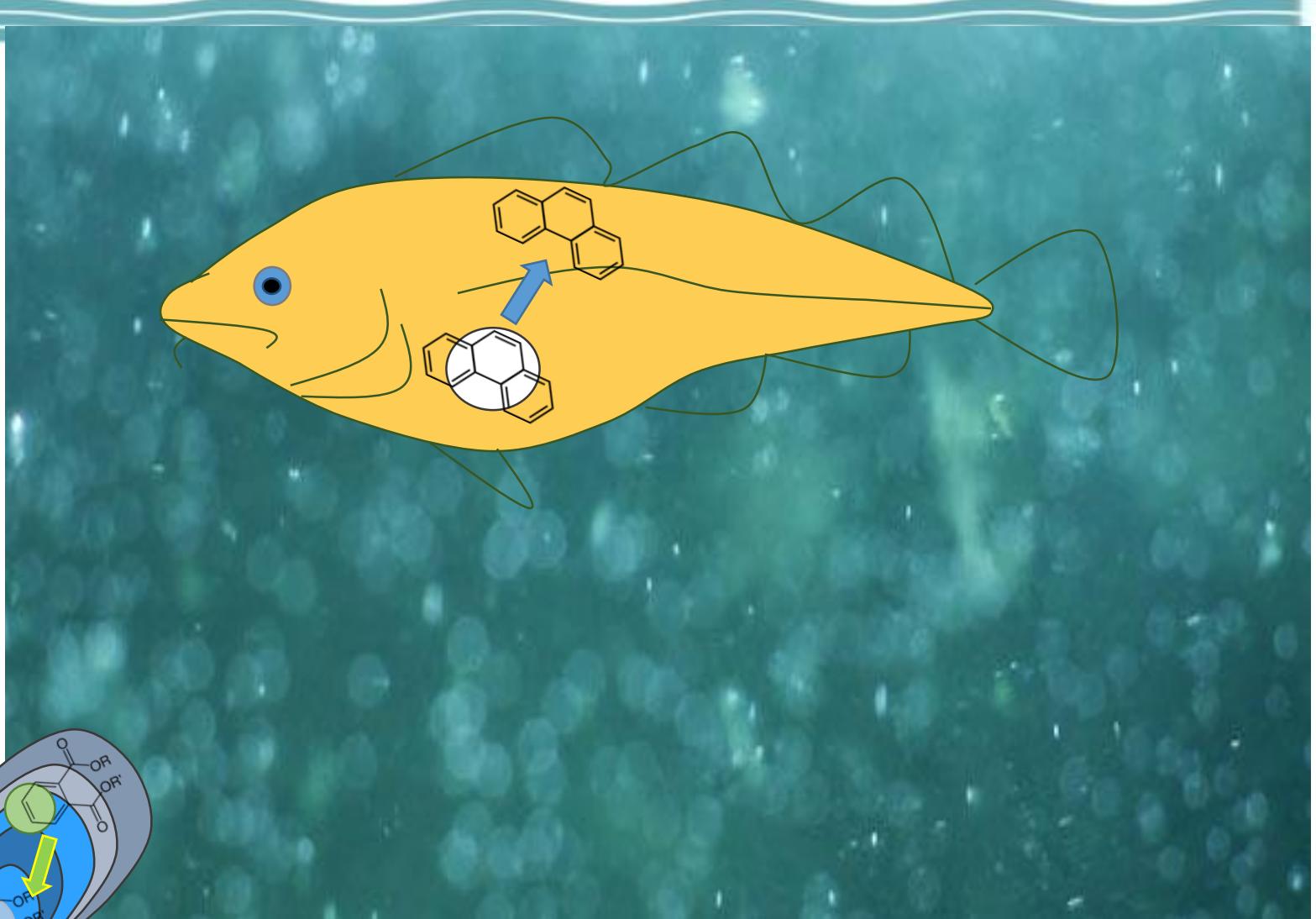
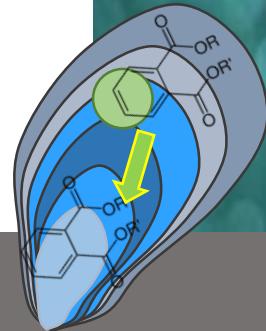
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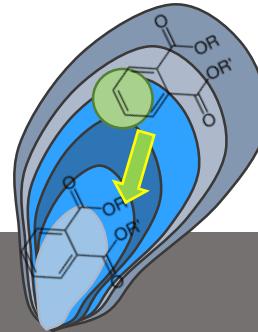
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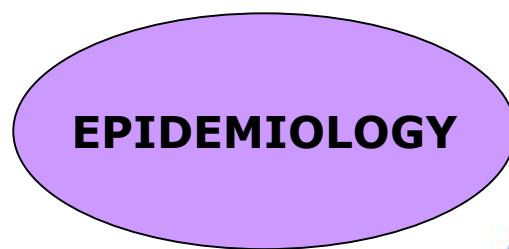
# Effekter?

- Partikel effekter
- Kemikalier effekt



- Effekter i lipid metabolismen
  - Effekter i tillväxt
  - Reproduktiva effekter
  - Beteendeförändringar
  - Immunotoxiska effekter
  - Förändringar i detoxifieringsmekanismer
  - Endokrina effekter
  - Thyroid effekter
  - Cancerogena effekter
  - Neurotoxiska effekter
- 
- 
- A schematic diagram of a neuron. It features a brown capsule-shaped molecule on the left. A blue arrow points from the text 'Kemikalier effekt' to this capsule. To the right, there is a large blue cell body containing a green nucleus. An orange wavy line representing a nerve fiber extends from the cell body towards the bottom right. Several red starburst symbols are placed along the nerve fiber, suggesting an effect or signal transmission.

# Påverkas vår hälsa av dessa ämnen?



Congenital malformations



Impaired semen quality



Prostate cancer



Testicular cancer



Neurobehavioral disorders  
(e.g. attention deficit hyperactivity disorder)



Diabetes



Obesity



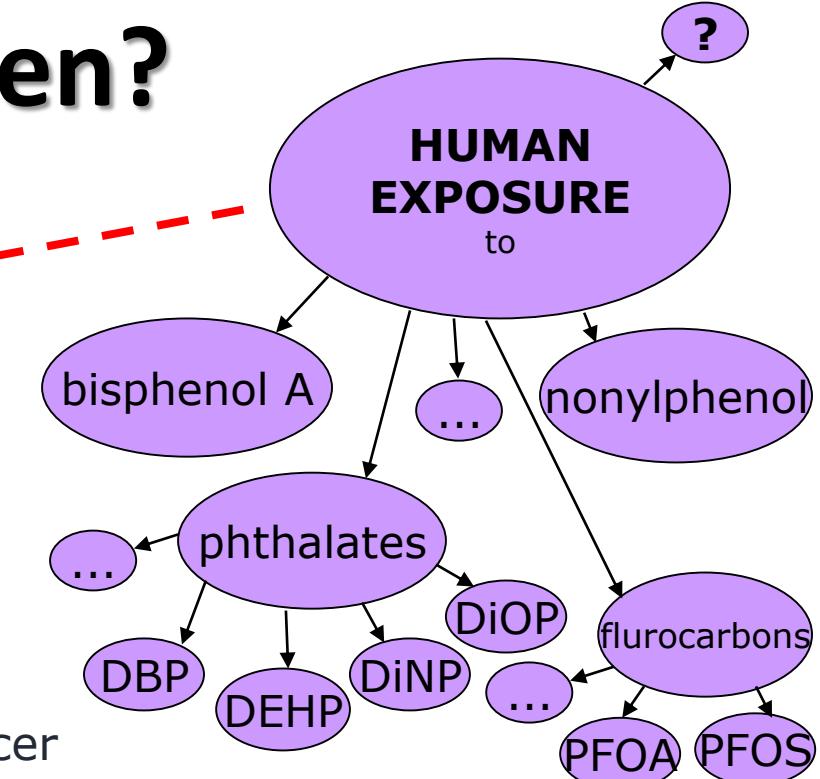
Breast cancer



Adverse pregnancy outcomes  
(e.g. preterm birth and low birth weight)



Endometrial cancer



<http://www.cdc.gov/exposurereport/>  
<http://www.eu-hbm.info/cophes>  
Pouech et al. 2015 J.Chromatography A



Tack så mycket!

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