



# "FINDING NEMO" WITH SPF?



## THE CONSEQUENCES OF SUNSCREEN

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### WHAT ARE WE APPLYING TO OUR SKIN?

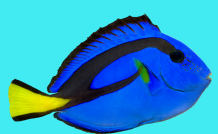
**SYNTHETIC INORGANIC UV FILTERS** → UV FILTERS HARMFUL TO MARINE LIFE!  
FOR EXAMPLE: **OXYBENZONE**

**SYNTHETIC ORGANIC UV FILTERS** → HARMFUL TO MARINE LIFE! FOR EXAMPLE: **ZNO, TNO<sub>2</sub>**

### DISTRIBUTION OF SUNSCREEN

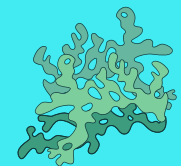
- 25 % OF SUNSCREEN IS WASHED OFF → RESIDUES RELEASED IN WASTE WATER
- WASTEWATER TREATMENT PLANTS → MAIN PATHWAY FOR UV FILTERS INTO MARINE ECOSYSTEMS

### DAMAGE TO MARINE LIFE



#### AQUATIC LIFE

- PROMOTES FEMINIZATION IN FISH DUE TO HIGH VITELLOGENIN LEVELS
- HIGH STEROIDOGENESIS CAUSING ABNORMAL HORMONE ACTIVITY IN ADULT ZEBRAFISH



#### ALGAE PHOTOSYNTHESIS

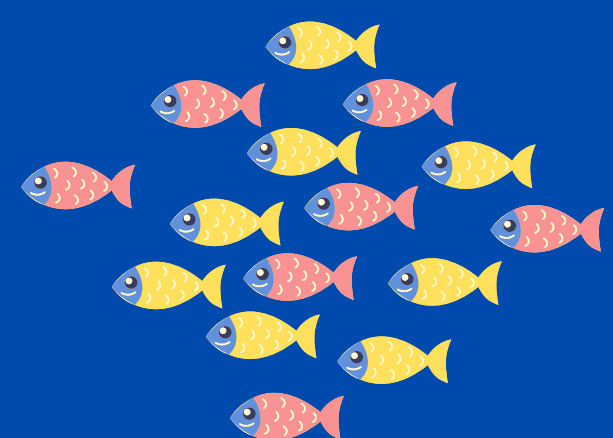
- INHIBITED GROWTH
- INHIBITED CHLOROPHYLL SYNTHESIS
- REACTIVE OXYGEN SPECIES
- LIMITED SYNTHESIS OF BIOMACROMOLECULES



#### CORAL REEF

- ACTIVATION OF CORAL VIRUSES
  - KILLING OF ZOOXANTHELLAE
  - LOSS OF PHOTOSYNTHESIS
  - CORAL BLEACHING
- JUVENILE CORAL ARE MORE SENSITIVE

### LEGISLATION



2019: US VIRGIN ISLANDS BANS  
SUNSCREEN WITH HARMFUL  
INGREDIENTS

2021: THE EU  
PROPOSES DECREASE  
OF OXYBENZONE IN  
SUNSCREEN



2018: HAWAII BANS  
OXYBENZONE IN SUNSCREEN

2020: PALAU BANS SUNSCREENS  
WITH HARMFUL INGREDIENTS

### PREVENTION

- WEARING PHOTOPROTECTIVE CLOTHES
- SEEK SHADE WHEN OUTDOORS
- ALGAE BASED SUNSCREEN
- ONLY USE SUNSCREEN ON THE REMAINING EXPOSED AREAS

### REFERENCES

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