



Republic of Turkey
Ministry of Forestry and Water Affairs



**NEW APPROACHES ON HAZARDOUS
WATER POLLUTANTS**

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Outline



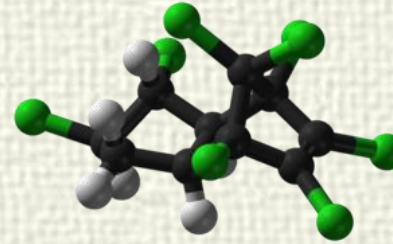
- **Information on Hazardous Substances**
- **Why to Control in Water ?**
- **Legal Framework**
- **Concept of Hazardous Substances**
 - **Priority Substances**
 - **Specific Pollutants**
- **How to Control in Water: Environmental Quality Standards ?**
- **Studies in Turkey**
- **Future Plan**
- **Conclusion**

Hazardous Substances

- Chemicals used in the industrial activities
- Personal care products
- Pesticides
- Pharmaceuticals
- Detergents
- Metals
- ...

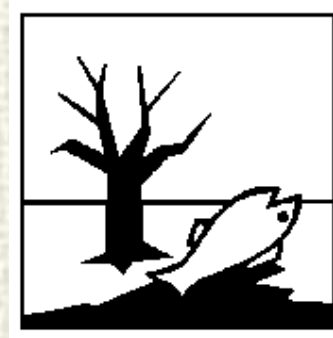
Arsenic
Aluminum
Endosulfan
Aldrin...

PCBs
PFOS
Triclosan...



Hazardous Substances

- **Toxic**
- **Persistent**
- **Bio-accumulative**
- **Carcinogenic**
- **Mutagenic**
- ..

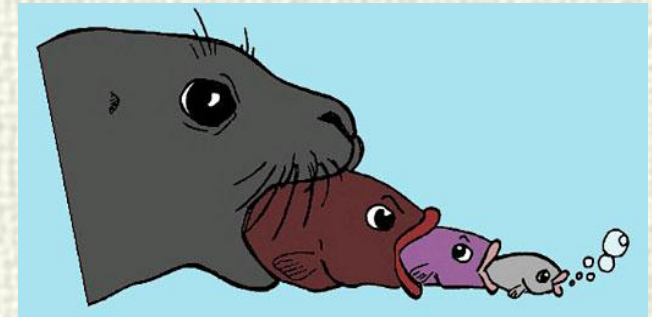


Why to Control in Water ?

- Toxic effects on aquatic organisms
- Bioaccumulation in the organisms through food chain
- Irreversible changes in ecosystem
- Accumulation on sediments
- Adverse effects on human health

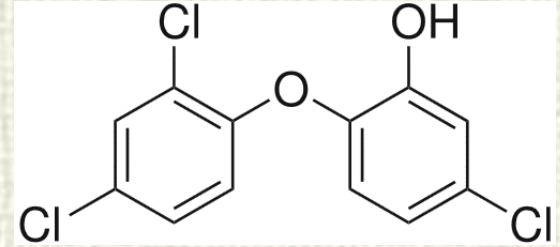


Decrease in number of water resources intended for human consumption and other uses !!!



Triclosan

- Chlorinated organic compound
- Produced since the year of 1965
- Commonly used biocide in daily life
- Ingredient of several pharmaceutical and personal care products



- soaps,
- toothpaste,
- shave gels,
- deodorants
- detergents.
- house cleaning agents,
- some other products like sportswear, shoes and textile products such as carpets ...



- As a preservative, as a disinfectant
- Substance of PBT properties
- Adverse effects on aquatic organisms





Legal Framework

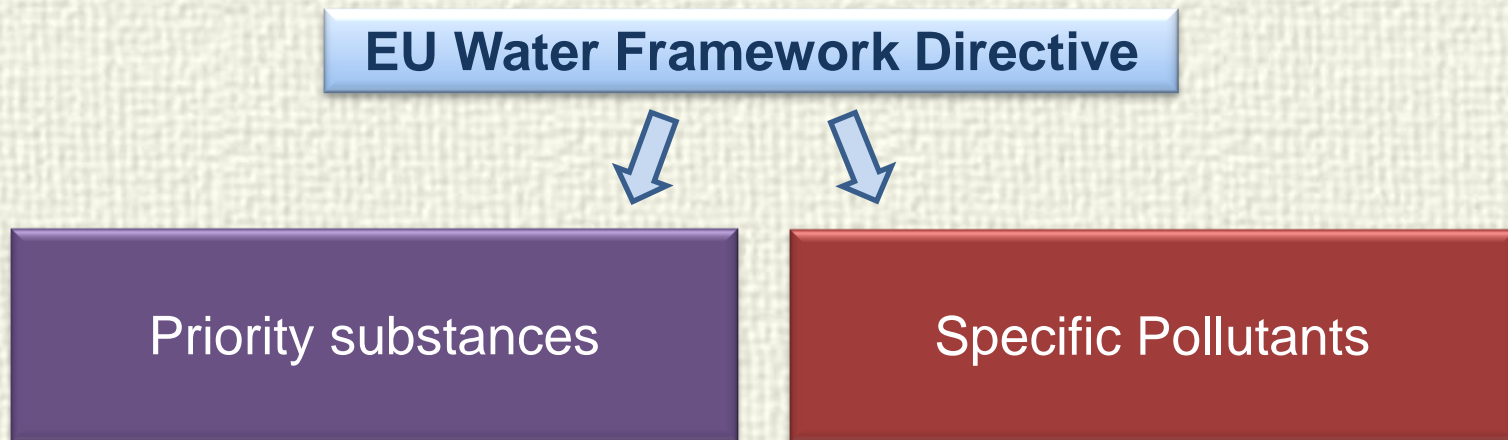


EU Legislation

- Directive on Dangerous Substances in Water Environment (76/464/EEC)
- Water Framework Directive (2000/60/EC)
- Environmental Quality Standards Directive (2008/105/EC)
- Priority Substances Directive (2013/39/EU)
(amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy)

Concept of Hazardous Substance

Hazardous substances in water resources ??



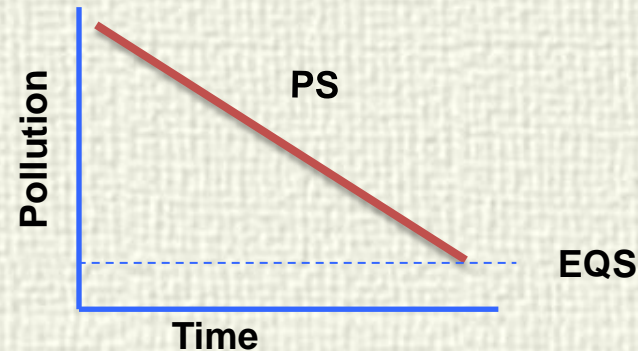
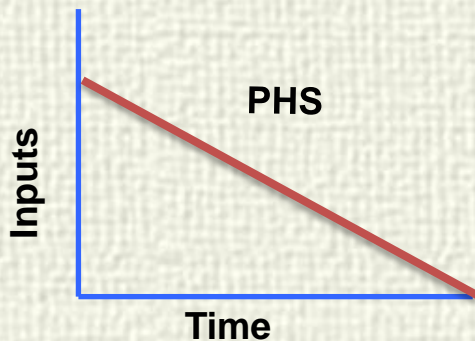
Priority Substances

Priority Substances (PS)

- Substances posing a significant risk for water environment
- Determined by EU Directives and elaborated on EU level
- Ultimate aim of reaching “good chemical status”
- Progressively reducing emissions, discharges and losses

Priority Hazardous Substances (PHS)

- Subset of PS
- Substances having PBT property
- Ceasing or phasing out emissions, discharges and losses until 2020



Specific Pollutants

- Substances posing a risk on national or river basin level due to being discharged in serious amount
- Determined by Member States on a country basis
- Establishing standards and measures on national and river basin level
- Ultimate aim of achieving "good ecological status"



How to Control in Water ?

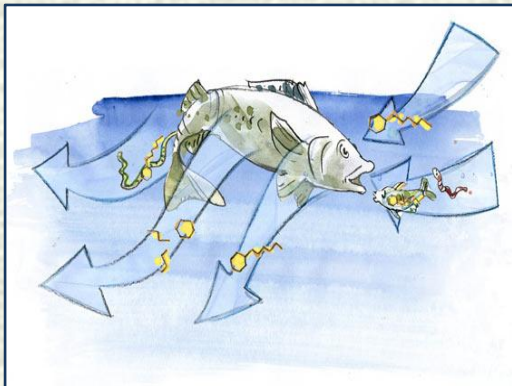
EU: Implementation of environmental quality standards for water management of priority substances and specific pollutants !



Environmental Quality Standards

Environmental quality standard (EQS);

- not a discharge standard
- standard not to be exceeded in receiving bodies
- for priority substances and specific pollutants

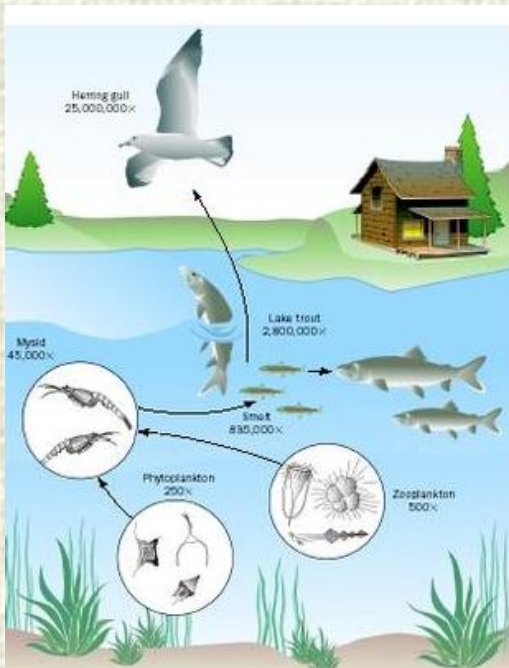
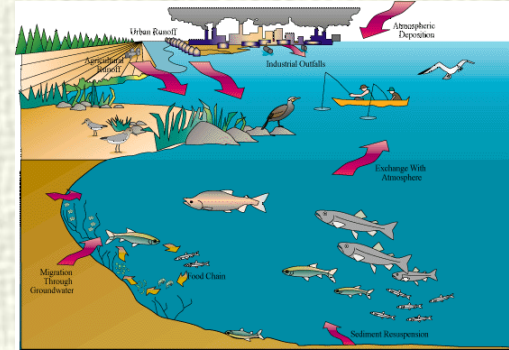


- For the control of acute effects:
Maximum allowable standards (MAC-EQS)
- For the control of chronic effects:
Annual average standards (AA-EQS)

Environmental Quality Standards

EQS sediment

To protect benthic species against pollutants
(mainly hydrophobic)



EQS biota

To protect humans from the effects of foods contaminated with chemicals

To protect predators against secondary poisoning risk



Responsibilities of MoFWA



- Determination of specific pollutants discharged to water resources
- Monitoring of specific pollutants and priority substances
 - inland waters
 - coastal waters
 - transitional waters
- Setting freshwater and saline waters EQSs for specific pollutants
- Making regulations in order to provide the proper implementation of EQSs
- Designating the program of measures for the substances whose EOSs are exceeded
- Ultimate aim: Protection and improvement of ecological and chemical quality of water resources

Studies in Turkey

**Legislative actions
(to harmonize EU legislation)**

**Projects
(Hazardous substances??)**

**Revision of legislations
(Specific pollutants and EQSs)**



Projects in Turkey

TMKK (2011-2013)



Pollution from point
sources in inland
waters

Ergene River Basin
Susurluk River Basin
Konya River Basin

KIYITEMA (2012-2014)



Pollution from point
sources in coastal and
transitional waters

İzmit Gulf
İzmir-Nemrut & Aliaga
Gulfs
İskenderun Gulf
Samsun Port

BIKOP (2012-2014)



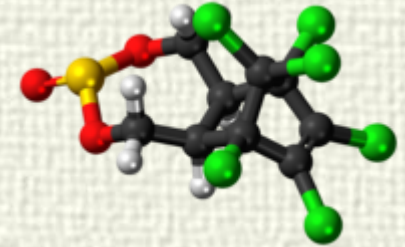
Pollution from diffuse
sources in inland, coastal
and transitional waters

Büyük Menderes River Basin
Euphrates-Tigris River Basin
Seyhan-Ceyhan River Basin
Provinces of Amasya, Manisa
and Sakarya

Projects in Turkey

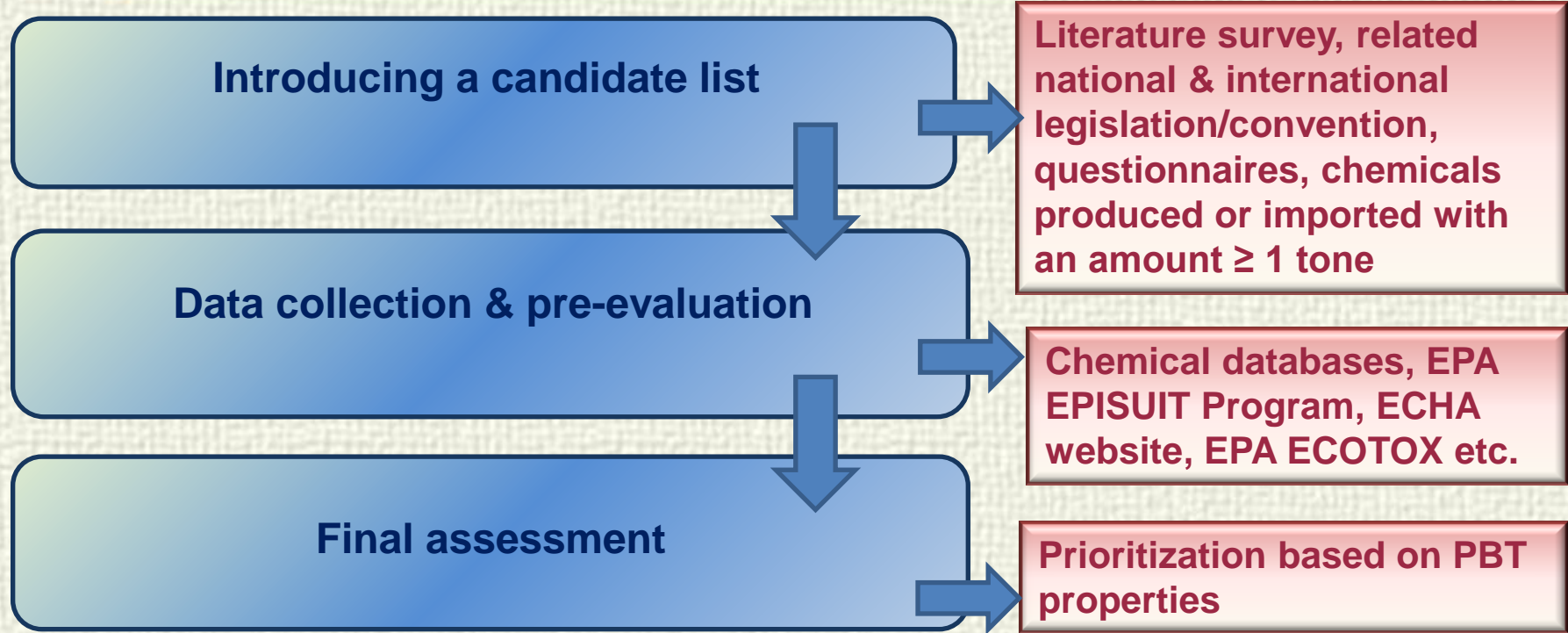
TMKK-KIYITEMA-BIKOP

- Hazardous substances present in surface waters due to industrial and agricultural activities were identified.
- For point sources, sectoral inventory of hazardous substances was prepared.
- Surface waters and effluents of industrial plants were monitored during 1 year.
- National specific pollutant list was constituted.
- EQSs of specific pollutants were developed.
- Hazardous Substance Information System was established.



117 specific pollutants from point sources
160 specific pollutants from diffuse sources

Selection of Specific Pollutants

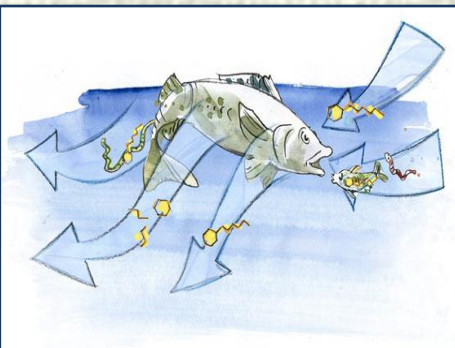


Specific Pollutant List



Considerations:

- Is chemical being used or still in use in Turkey?
- What are the processes of chemical use? (closed system, potential to pass into wastewater, etc.)
- Is chemical being detected in surface waters during monitoring studies?
- Is it possible to analyze the chemical? If so, are the detection and quantification limits (LOD and LOQ) low enough?
- Does chemical have PBT properties?
- Are the EQSs applicable or not?



Future Plan

In future;

- Specific pollutants and priority substances will be adapted to national legislation.
- Sectoral profile and crop pattern of river basin districts will be set out.
- Detailed monitoring program including the monitoring stations, period and frequency will be prepared for the designated specific pollutants at basin scale.
- Priority substances and specific pollutants will be monitored in surface waters.
- Necessary measures will be taken for the polluted areas in collaboration with interested parties.



Conclusion



Every day;

- We are faced with new pollutants.
- We encounter new effects of these pollutants.
- Application of cleaner production techniques in industries has gained a great importance.
- There is a growing concern on removal of these chemicals in wastewater treatment plants.
- New analytical methods are needed for the monitoring of these chemicals.
- Therefore, these chemicals should be controlled on source in order to protect our water resources for next generation...

TEŞEKKÜR EDERİM

THANK YOU

감사합니다