

Review Questions **Chs 10, 12** & videos (“Nature’s Warning”, “Synthetic Sea”, “Future Conditional”)

## Ch 10

Central Case: **Lake Apopka alligators**

Louis Guillette, reproductive problems, *atrazine*, **endocrine disruptors**

What is **environmental health**? Four types of environmental hazards (*physical, chemical, biological, cultural*)

**disease** (*vector, DDT, malaria*); (*radon, lead, asbestos, PBDEs*)

**toxicology** (*why hard to be a toxicologist?*)

*synthetic* chemicals are **ubiquitous** (USGS 2002 stream study); 100,000 on the market (few tested); 1962 Rachel Carson’s *Silent Spring*;

different types of toxicants: *carcinogens, mutagens, teratogens, neurotoxins, allergens, endocrine disruptors*

**endocrine disruptors** -1996 Theo Colburn’s *Our Stolen Future* (website of same name!); Tyrone Hayes, *atrazine*, frogs  
(*atrazinelovers.com*); global sperm counts;

Research into hormone disruption (**debate**): bisphenol-A (“BPA”), phthalates

Toxicants may concentrate in **water**, travel widely in **air**, **persist**, **bioaccumulate**, **biomagnify**;

**determining health effects challenging** cuz of: **1. complex exposure**

Methods of study (subjects: people or animals): *epidemiological, dose-response* (ED<sub>50</sub> & LD<sub>50</sub>)

**2. Individuals may vary in responses** (genetics, current condition, sensitivity, age) – **acute** vs. **chronic exposure**

**3. Multiple hazards may interact** (**synergistic effects**)

## Policy

*risk / probability / risk assessment & management*

to determine safety: *innocent-until-proven-guilty* or *precautionary principle* (burden of proof?)

FDA, EPA (TSCA: Catch-22), OSHA... percent synthetic chemicals tested?

International regulations: *Stockholm Convention on Persistent Organic Pollutants* (POPs) – “dirty dozen”

2007: EU’s REACH Program

## Ch 12

Central Case: **Colorado River**: 1922 Colorado River Compact

Distribution of **fresh water** (vs. salt water) on the planet – how much of the fresh water is groundwater, ice?

Where does **LA** get its water (how do we convey it & who is the responsible agency)? What are the challenges we face with respect to those **four** sources? Depletion... overdraft... drought...

**Groundwater** – challenges (in terms of water quality and quantity). **Ogallala Aquifer** (*fossil water*).

How do we use our fresh water (use by %)? What is *consumptive* vs. *nonconsumptive* use? What are the pros and cons of **dams**?

Aral Sea, Salton Sea, Owens Lake

**desalination**

**oceans** (oil pollution, overfishing, by-catch)

“*fishing down the food chain*”, consumer choices, **marine reserves**