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WATERSHEDS GENERALLY

- Watershed ecosystems may extend far beyond their geographic boundaries
    - E.g. Mono Lake – watershed's boundaries are limited by the Mono basin caldera, but because of its importance in migratory bird routes, the ecosystem extends at least as far as Russia
- Littoral zone
    - margin between stream and lake
    - most biologically productive zone of lakes
- *Headwaters* of a system are the most important
    - most of the nutrients come from here
    - nutrient cycling
    - limits outflow of phosphorus and nitrogen

DEFINING "WETLANDS" IN A SCIENTIFIC SENSE

- **Hydrology**
- **Hydric soil**
    - coloration – mottled
    - organic material in soil + lack of oxygen
- **Hydrophytes**
    - vegetation typically adapted for life in saturated soil conditions – adapted for germination in hydric soil

- **It's not the filling or excavating *per se* that's the problem; it's removing the buffers, the filtration functions, the erosion control, the flood control**
    - Removing the systems that prevent degradation of the water, rather than degrading the water directly
    - *Function* and *location* of landscape are critical to truly compensating losses caused by development
        - You can't just duplicate a bog elsewhere w/o thousands of years
        - Can't just relocate a spawning area
        - Track record of indiv. permit mitigation is miserable
            - lack of monitoring; poor provisions in the first place

  - We don’t want to destroy the capability of these systems to protect water quality.
    - This was never articulated or thought through, certainly not by Congress. If the whole program had been conceived and implemented as an ecosystem protection program, it wouldn’t have been so confusing and so difficult for courts to interpret and apply.
  - Courts think about these issues in the same way as they think about a pipe discharging chemicals from a factory. It just doesn’t work.

- **No way to draw a bright line in the watershed between, e.g., a wetland and more traditional navigable waters**
  - Science and fact do not admit of a clear distinction
  - Law demands delineation of state and federal powers
  - The cases we read are about line drawing
  - “Conservatives” worry about the aggrandization of federal power at the expense of states’

PUBLIC AND PRIVATE RIGHTS IN WATER

- **the Appropriation Doctrine (the Mono Lake case)**
  - **Appropriation doctrine**
    - **usufructuary –** right to use only, not ownership
    - can't protect the water; have to *physically convert it* in order to gain a right to its use
    - market economics
    - priority system: seniormost rights get water first
      - "first in time, first in right"
    - elements of valid appropriation
      - intend to apply water beneficially
      - actual diversion
      - water has to be applied to beneficial use w/in rsbl time

  - *National Audubon Society v. Superior Court*
    - concerns with over-diversion
      - salinity increase in lake → brine shrimp die, birds can't survive
        - birds die + economic impact on shrimpers
      - disturbs *deltaic formation*
      - loss of fisheries, loss of littoral zone
      - increased predation due to exposed land bridges to islands
    - public trust doctrine extended to nonnavigable tributaries to navigable waters
      - i.e., waters subject to diversion
      - expansive interpretation of pub. trust
      - rights previously granted subj. to reconsideration
      - only diversions **"reasonably required"** for a given use are permissible
    - pub. trust ≠ extended wholesale because of economic considerations

- **the Riparian Doctrine (the Shepaug River case)**
    - **“pure” Riparian doctrine**:
        - owner of land contiguous to watercourse has the right to **reasonable and beneficial uses** of water on his land
        - **No interbasin transfer** (no removal of water from watershed)
        - No giving water to non-riparian owners
        - *see natural flow doctrine*
    - “reasonable use” riparian
        - any and all reasonable uses of water OK, as long as they do not unreasonably interfere
            - Thompson v. Enz – off-tract use = per se unreasonable
            - weighing of factors to determine reasonableness
        - natural uses preferred over artificial (see *Nestle*)

    - *City of Waterbury v. Town of Washington* (WA) *(online)*
        - **Natural flow doctrine**
            - “[e]ach riparian owner on a waterbody is entitled to have the water flow across, or lie upon, the land in its natural condition, without alteration by others of the rate of flow or the quantity or quality of the water” (see also *Nestle* case)

        - Some facts
            - Residents of Shepaug River watershed had a claim against Waterbury for the taking of water
                - but they lost it via ***prescriptive easement***
                    - open/notorious/continuous: dam built 1933
                        - under riparian-rights doctrine, mere presence of the Shepaug dam satisfied open/visible reqmt for prescriptive easement
                        - damage need not be shown; just interruption to qty of flow
                    - adverse: operation began 1948
                    - 15 years: 1948
                    - hostile: w/o permission; claim of right
                - if diversions went beyond the scope of the prescrip. easement est’d, **π**s would have another claim

        - Qs:
            - is there an impairment?
            - is it unreasonable?
                - lower ct: *de minimis* std: any impairment unrsbl
                - sup ct: min-flow statute: not unreasonable

        - Court said:
            - When there is a leg/reg scheme, whether a use is "unreasonable" depends on whether the use comports with that scheme
            - Shepaug River is a stocked river
                - we care b/c minimum-flow statute applies to stocked rivers
                    - min-flow statute was only concerned with supporting fish, not other uses of the water
                - stocked river = fish stocked @ any point in watershed
                    - not in statute: read in by Conn. SCt

- **in Groundwater (the Nestle case)**
    - *Mich. Citizens for Water Conservation v. Nestle*
        - Facts
            - "This is a very connected system: nearly 1:1. You might as well be sticking your pump in the river. That's a remarkable response." In locations that meet fed reqs for spring water, the springs have a nearly direct connection to the streams.

        - Groundwater vs. riparian owners
            - "overlying owner" holds groundwater rights
            - riparian owners held land bordering the Dead Stream, whose water levels were allegedly affected by Nestle's proposed extraction

        - **Natural flow doctrine**
            - riparian owners have right to unimpaired flow of water, subj only to other riparian owners' limited use
                - as much water as needed for domestic purposes
                - "reasonable" artificial/comm'l uses OK, but no substantial or material diminishment of water
                - no transport of water beyond riparian land

- **Groundwater doctrine**
    - English rule: rule of capture: absolute ownership
        - any amt of water for any reason
        - no legal remedy
    - American rule: reasonable use/correlative rights
        - used in Michigan
        - "reasonable" use OK; no malicious use or waste
        - transport of water usu. unreasonable; sometimes permitted
        - use of *Dumont* balancing test (see top of p. 14)
    - California rule: correlative rights
        - owners of land w/in an aquifer have equal rights
        - use outside aquifer: OK only if "overlying owners have been fully supplied"

- Reasonable-use balancing test
    - Three purposes
        - Ensure "fair participation" in the use of water for the greatest # of users
            - "anthropocentric doctrine" (vs. public trust: ecocentric/biocentric)
        - Law protects only reasonable uses
        - Law redresses only those harms that are unreasonable
    - Factors
        - (1) purpose of the use
            - is the use artificial or natural?
            - natural = necessary for existence of user, e.g., household needs & drinking water
            - artificial = commercial profit & recreation
            - natural uses preferred
        - (2) suitability of use to location
            - nature of water source & attributes
            - large streams can handle more diversion than small streams
            - use must cause "as little disruption as possible"
        - (3) extent and amount of harm
            - economic benefit & harm to parties
            - social benefits and costs of use (fishing, navigation, conservation . . .)
            - protex of existing uses = impt consid

- (4) benefits of the use
  - see (3)
- (5) necessity of the amount and manner of use
  - extent, duration, necessity, application
  - effect on qty, qual, level of water
  - use excessive/unnecessary & harms other's use → unreasonable
  - harm mitigable but not → poss. unreasonable
- (6) any other relevant factors

"TRADITIONAL NAVIGABLE WATERS" UNDER THE RIVERS AND HARBORS ACT OF 1899

- "Waters of the United States" = Clean Water Act
- "Traditional navigable waters" = Rivers and Harbors Act
  - Narrower geographically
  - broader in terms of activities
  - no monitoring provisions, unlike CWA

complementary, alternative enforcement mechanisms

- *Statutes*
  - **33 U.S.C. § 403 –** Rivers and Harbors Act of 1899 § 10
    - (1) building an obstruction
    - (2) in navigable water
      - as defined by federal law (murky)
    - (3) outside established harbor lines
    - (4) without plans recommended by Chief of Engineers
    - (5) and without authority from the Secretary of the Army

    or

    - (1) Excavating or filling *or* otherwise modifying
      - course,
      - location,
      - condition,
        - what about algal blooms? (probably not)
        - plain meaning referring to quality of water? (sure)
      - *or* capacity
    - (2) Without Corps authoriziation.

- **33 U.S.C. § 407 –** Rivers and Harbors Act of 1899 § 13 (Refuse Act)
    - (1) throw, discharge, or deposit *or* cause, suffer, or procure to be deposited
        - (provision to catch agents and contractors of those actually in control)
    - (2) any refuse of any kind
        - except sewage, or other liquid stuff from streets or sewers
    - (3) into navigable waters
        - *or* their tributaries if it "shall float or be washed" into navigable water

    or

    - (4) on the banks of any navigable water *or* its tributaries if it "shall be liable" to be washed into the water
    - (5) if it "shall" or "may" impede or obstruct navigation

    exception!

    - when Sec'y of Army, following judgment of Chief of Engineers, grants a permit
        - condition for grant: discharge won't hamper anchorage and navigation

- *Cases*
    - Scow No. 36 (1st Cir. 1906) (308)
        - Procedural posture
            - Libel in rem[1] action by U.S. against Scow No. 36, seeking statutory damages under Refuse Act, for unlawful discharge of refuse into navigable waters[2]
        - Facts
            - Scowmen discharged dredged material into navigable waters without orders from or knowledge of the owner; discharge was contrary to general instructions not to discharge without orders
        - Holding
            - Owner of Scow No. 36 held strictly liable for the discharge

[1] Maritime – basically arrest on a vessel, only resolvable by an admiralty court
[2] Civil liability only

- Reasoning
  - Analogized to scrict-liability criminal laws
    - Strict liability encourages stringent control over employees' activitiy
      - if owner knows he'll be liable even if violations are without owner's knowledge, he'll take greater precautionary measures
    - prevents owner from hiding behind a shield of ignorance
    - easier enforceability in court
- **"The power of the federal government over the navigable waters of its ocean harbors is absolute, general, and without limitation."**
  - aside, of course, from Constitutional limits

- *U.S. v. American Cyanamid* (2d Cir. 1953) *(338)*
  - Procedural posture
    - Action by U.S. against Am. Cyanamid Co. for violation of the Refuse Act in discharging refuse into a tributary of a navigable water
    - Dist. Ct. had held that it was **enough to have shown that it was *likely* that a discharge would reach a navigable river**
  - Facts
    - Cyanamid located one mile upstream of confluence of a tributary with the (navigable) Hudson River
      - half-mile downstream from Cyanamid, Dickey Brook widened into an inlet-cove: tidal marshes, mud flats; road built across
    - Discharge
      - 8/12/72: Cyanamid employee left a water valve open; storage tank in basement overflowed
        - Titanium dioxide and $CaCO_2$ released through storm drain into Dickey Brook
        - didn't matter that neither chemical was toxic
      - 8/14/72: passers-by noticed that Dickey Brook was "milky white"
        - Cyanamid closed valve, plugged drain, flushed drain into brook
        - total discharge: ~4 ft3 of chemical solids

    - Holding
        - Upheld the Dist. Ct.'s interp of Refuse Act § 13
    - Reasoning
        - Court had a choice: to read § 13 as prohibiting discharge directly into navigable waters, or as prohibiting discharge into tributaries as well
            - took the broader view
            - US SCt had mandated that § 13 be read "charitably"
            - **"Conservation of our once formidable natural resources is a matter of profound national concern."**
            - quoting Learned Hand, emphasized the purpose of the statute, not just the plain text
        - Crucial language: "shall float or be washed"
            - "the language 'shall float' . . . anticipates a future occurrence"
            - if Congress wanted the statute enforceable only retrospectively, would have said "shall have floated or washed"
        - Common sense
            - § 13 cl. 2 says piling refuse on a tributary's bank is unlawful if the refuse "shall be liable to be washed"
                - indicates that the possibility of washing to a navigable stream is enough for liability
                - would "serve[] no discernible purpose" to suppose that Congress had a higher standard of proof for material that had *actually* been placed in a river than for material "liable to be washed"

- *Zabel v. Tabb* (5th Cir. 1970) *(402)*
    - "It is the destiny of the Fifth Circuit to be in the middle of great, oftentimes explosive issues of spectacular public importance."

    - Question Presented
        - Can the Secretary of the Army refuse to authorize a dredge-and-fill project in navigable water for factually considered ecological reasons even if the project does not interfere with navigation, flood control, or the production of power?
            - (Yes)
    - Facts
        - Landowners own land riparian to Boca Ciega Bay in Florida, plus land underlying the bay
            - "an arm of the Gulf of Mexico"
            - no question of navigability; it's a bay
        - Wanted to dredge and fill on the property in the Bay to build a trailer park, connected to land by bridge or culvert

- Procedural Posture
    - Action by landowners against Sec'y of Army to compel issuance of permit to dredge and fill navigable waters of bay for trailer park
- Procedural History
    - Opposition from numerous state & local groups & FWS
    - After public h'g, District Engineer recommended denial: counter to public interest
        - Concerrence from Div. Engr. & Chief of Engrs.
    - Sec'y of Army denied application: harmful effect on fish & wildlife; contrary to purposes of Fish & Wildlife Coord. Act of 1958; counter to public interest
    - Dist. Ct. had granted SJ to landowners
- Holding
    - 5th Cir. inverted the SJs
        - ecological reasons sufficient for denial
    - **"In this time of awakening to the reality that we cannot continue to despoil our environment and yet exist, the nation knows, if Courts do not, that the destruction of fish and wildlife in our estuarine waters does have a substantial, and in some areas a devastating, effect on interstate commerce."**
- Reasoning
    - Purpose of the Act
    - § 1314(a): fed gov't retains all powers to regulate commerce
    - No barrier to federal jurisdiction in Submerged Lands Act
        - *U.S. v. Rands*, interpreting SLA: "left congressional power over commerce . . . precisely where it found them"
    - SCt interpretations of Rivers & Harbors Act
        - *Greathouse v. Dern:* ". . . the Corps of Engineers does not have to wear navigational blinders when it considers a permit request"—other reasons may be relevant
        - *Citizens Committee v. Volpe:* Corps has a duty to consider factors other than navigational
            - In that case: considering permit for fill; fill was base for part of an expwy; if fill granted, equity would demand permit for expwy; thus Corps could not consider only the effects of the fill, but the effects of the entire expwy

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"WATERS OF THE UNITED STATES" UNDER THE CLEAN WATER ACT

- *Statutes*
  - 33 U.S.C. § 1362(7): "The term 'navigable waters' means the waters of the United States, including the territorial seas."
- *Cases*
  - *Riverside Bayview v. Army Corps of Engineers* (U.S. 1985) *(288)*
    - Considered extent of Corps' § 404 permitting authority
    - Does § 404 apply to wetlands **adjacent** to navigable bodies of water and their tributaries?
      - Here, yes
      - *Chevron* deference to EPA regs

    - Corps regulation: 33 C.F.R. § 323.2(c) (1978) *(288)*
      - **Defining a wetland**:
        - inundation or saturation by groundwater or surface water
        - support vegetation adapted for life in saturated soil

      - "[T]he regulation could hardly state more clearly that saturation by either surface or ground water is sufficient to bring an area within the category of wetlands, provided that the saturation is sufficient to and does support wetland vegetation"

    - recognition that water travels in "hydrologic circles"

    - **"Although the Act prohibits discharges into 'navigable waters,' the Act's definition of 'navigable waters' as 'the waters of the United States' makes it clear that the term 'navigable' as used in the Act is of limited import."**
      - discussion of legislative history: House suggested limited def of "waters," but defeated in Senate and broader def retained
      - Unusual thing about this case: reference to subsequent legislative history—looking at what Congress meant in 1972 by looking at what Congress said in 1977[3]
      - these were 33 C.F.R. § 328.3**(a)(7)** waters abutting **(a)(1)** waters *(see p. 495)*

[3] We came within one vote in the Senate, in 1977, of losing § 404 of the CWA

- *SWANCC v. Corps* (U.S. 2001) *(319)*
  - Struck down "migratory bird rule," which said that § 404(a) extends to intrastate waters that are or would be used by migratory birds or as habitat for other endangered species
    - 33 C.F.R. § 328.3(a)(3) waters: "all other waters" *(495)*
    - MBR was for administrative convenience; Corps makes thousands of jurisdictional decisions a year; MBR is simple, clear, easy, rationally connected to commerce-clause rationale.
  - Waters at issue were gravel pits left over from an old mine, overlying an aquifer that provided the water supply for one million people.
    - waters were nonnavigable.
    - waters were intrastate (otherwise would have been (a)(2) waters).
    - waters were **geographically isolated** (only hydrologically connected by groundwater)
    - Corps denied permit b/c of water-supply issue + gravel pits provided habitat for migratory birds.
  - Court invented the "significant nexus" idea *(322)*
    - Said that *Riverside Bayview* was predicated on the sig. nexus between the wetlands at issue and "navigable waters"
  - A clear statement of Congressional purpose is required when an "administrative interpretation of a statute invokes the outer limits of Congress' power." *(324)*
  - Court refused to read "navigable" out of the statute *(325)*
    - "We find nothing approaching a clear statement from Congress that it intended § 404(a) to reach an abandoned sand and gravel pit such as we have here."

- From a strictly legal standpoint:
    - the pits in question aren't waters of the U.S. *c'est tout.*
    - didn't strike down regulations
    - didn't say that some other rationale wouldn't provide jurisdiction
    - just that the MBR wouldn't.

- Impact
    - getting rid of a convenient and simple rule for the Corps has significantly complicated the regulatory process

- *Rapanos v. United States* (U.S. 2006) *(568)*
    - Does the CWA cover nonnavigable tributaries and their adjacent wetlands?

    - Scalia's test
        - Wetlands must be **adjacent to a navigable water**
            - trad'l navigable waters, i.e., under the Rivers and Harbors Act
            - wetlands that are isolated are presumptively not jurisdictional
        - Must be a **continuous surface connection** to relatively permanent water
            - "relatively permanent, standing or continuously flowing bodies of water"
            - must be "difficult to determine where the 'water' ends and the 'wetland' begins"
            - "intermittent" is out, but may include "seasonal" rivers or "streams, rivers, or lakes that might dry up in extraordinary circumstances"
        - EPA said "we've been doing it this way for 30 years, don't change it now"—but Scalia said "you can't coopt the law by adverse possession"

    - Kennedy's test
        - A "significant nexus" to traditional navigable waters
            - they, "either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable'"
        - Seeks proof—quantitative if possible, expert qualitative judgments if not—that all the ecological effects of wetlands are significant
            - functions in the aggregate must be significant

- Kennedy's test creates major administrative burdens
    - How do you quantify the functionality of a wetland? How can you determine what is the reabsorption rate of phosphorus in this part of a watershed?
    - Corps/EPA used to make wetlands determinations by looking at aerial photos; no more.
    - Agencies have seized on stream-order reach to determine whether the nexus exists/effect is significant (I think)

- Developers
    - would howl in protest if EPA/Corps tried to saddle them with the expenses of scientific analysis
    - tend to do whatever the hell they're gonna do and hope that they don't get caught, counting on EPA/Corps lack of resources or will to actually enforce the law

- Real effect of *Rapanos*: cripple agency enforcement on CWA matters

- But what's actually binding in this fractured decision?
    - Several circuit courts have said:
        - If it meets Kennedy's test, or Scalia's, or even part of the dissent → wetland
    - 1st Circuit:
        - If you can line up five votes for it, it's a wetland
    - 7th & 9th Circuits:
        - Start with Kennedy
    - 11th Circuit:
        - *Has* to satisfy Kennedy

THE § 404 WETLANDS PERMIT PROGRAM (DREDGING AND FILLING)

- *Statutes & Regulations*
  - 33 U.S.C. § 1344 (§ 404) (dredge/fill permits)
    - § 1344(a)
      - permit needed for **discharge**
        - § 1362(16): "discharge" = "discharge of a pollutant(s)"
        - § 1362(12): "discharge of a pollutant(s)" = "any addition of any pollutant to navigable waters from any point source"
      - permits after pub. hearing; specified disposal sites only
    - § 1344(b)
      - disposal sites specified according to guidelines developed by Administrator & Secretary; *or if not enough alone,* also consider economic impact of the site on navigation and anchorage
    - § 1344(c)
      - Administrator may prohibit/withdraw specification of an area as a disposal site *if* after pub. h'g, he determines:
        - discharge into the area would have an "**unacceptable adverse effect** on municipal water supplies, shellfish beds and fishery areas . . . , wildlife, or recreational areas"
        - "unacceptable adverse effect" incl. "sig. loss of or damage to . . . wildlife habitat" (§ 231.2(e))
      - "veto power" (EPA vetoes Corps)—rarely used
    - § 1344(e)
      - (1): general permitting power on State, regional, nationwide basis
      - (2): five-year limit on general permits
    - § 1344(f) *(467)*
      - (1) exceptions
        - (A) farming activities *(examples given)*
        - (B) maintenance activities
        - (C) farm/stock ponds & irrigation ditches
        - (D) temporary sedimentation basis during construx
        - (E) farm roads, temp roads (reqs BMP)
        - (F) …
      - (2) not excepted
        - "Any discharge of dredged or fill material into the navigable waters incidental to any activity having as its purpose bringing an area of the navigable waters into a use to which it was not previously subject, where the flow or circulation of navigable waters may be impaired or the reach of such waters be reduced"

- 33 C.F.R. § 325.2 (Corps application process for permits) *(486)*

- 40 C.F.R. § 230.10 (EPA "protection of env't" guidelines) *(508)*
  - § 230.10(a) – "no practicable alternative" requirement
    - (1) examples of practicable alts
    - (2) "practicable" = "available and capable of being done"
      - includes consids of costs, technology, and logistics
    - (3) a "proposed discharge into a special aquatic site" is presumed to have practicable alternatives "unless clearly demonstrated otherwise" *(26)*
      - **burden on applicant to show absence of practicable alternatives for non-water-dependent activities**: must rebut both (i) availability and (ii) less adverse impact
      - burden on EPA for water-specific activities

- *Cases*
  - Avoyelles Sportmen's League v. Alexander (5th Cir. 1983) (13)
    - Citizens' suit against Corps/EPA officials & private landowners, alleging § 301(a), § 404 violation
    - Facts
      - 20,000 forested acres, mostly wetlands
      - half of it was cleared of vegetation and flattened

    - "addition"
      - "addition" can be read to include "redeposit"
        - redepositing vegetation = discharge
          - *but not* "mere removal"
      - was this dredged material?
        - it was "fill" material if not "dredged" material
        - material dug up and put back, causing leveling
      - changing elevation, "replac[ing] the aquatic area with dry land" triggers § 404 jurisdiction *(20)*
    - "pollutant"
      - loose vegetation and soil
    - "point source"
      - bulldozers and backhoes
    - "navigable waters"
      - bottomwood hardland wetlands
    - "person"
      - Corps (failing to designate the land as a wetland and order private **Δ**s to stop tearing shit up without a permit)
    - "w/o or in violation of permit"
      - § 404

- "normal farming activities" exception?
    - no: the clearing activities preceded any actual farming activity & was not an "ongoing" agricultural activity
    - also, this was definitely a change in use (forest → soybean field) (§ 1344(f)(2)))

- National Mining Ass'n v. Army Corps (D.C. Cir. 1998) (186)
  - Corps' rule ("Tulloch rule") asserting jurisdiction over "any redeposit," including incidental fallback, was overbroad
    - noted that Rivers and Harbors Act of 1899 covers an "excavate or fill" activity *(189)*
      - some forms of redeposit are regulable
  - Court enjoined further use of the rule; said to look to Congress to get such a rule reinstated

- *Bersani v. Deland* (2d Cir. 1988) *(24)*
  - Issue
    - 40 C.F.R. § 230.10(a)'s "no practicable alternative" reqmt & EPA's § 404(c) veto
    - Is the availability of alternative sites measured by when a developer *entered the market* or when the developer *applied for a § 404 permit?*

  - Holding
    - EPA's "market entry" theory OK b/c reasonable.
      - S.J. granted for EPA

  - Facts (overview)
    - Pyramid wanted to build a shopping mall on a "high-quality" red maple swamp in Massachusetts

    - Mass. Dept. of Env. Q. Engr'ing (DEQE) approved permit
    - New England Corps issued § 404(a) permit

    - EPA issued § 404(c) veto because there was an alternative site available at the time that Pyramid entered the market to look for a site *(full reasons p. 29)*

    - In Pyramid's application, they called the alt. site *not feasible* rather than *unavailable*

- Reasoning
  - Why uphold market-entry theory?
    - regulations are silent on issue of timing *(31)*
    - stat. purp. = protect "special value" of wetlands
    - market-entry theory provides incentive to avoid choosing wetlands
    - EPA's reading = "common sense"

- EPA regs
  - water-dependent uses: burden on EPA to show practicable alternative.
  - non-water-dependent uses: burden on applicant.

THE NPDES PERMIT PROGRAM (DISCHARGES INTO WATER)[4]

- 33 U.S.C § 1251(a): "The objective of this chapter is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

- **Under the CWA, the first question is: where's the conveyance?**

- *Statutes*
    - 33 U.S.C. § 1311(a) (§ 301): permitting requirement & effluent lims
        - **Except by permit, "the discharge of any pollutant by any person shall be unlawful."**
            - Need NPDES permit, each of which includes all applicable effluent limitations *(Waterkeeper, 378)*
                - § 301 incorporates § 303 by reference *(PUD No. 1, p. 283)*

            - EPA promulgates ELGs (effluent limitations guidelines) *(366)*
                - ELGs are tech-based restrictions *(367)*
                - ELGs dictate the terms of individual NPDES permits *(Waterkeeper, 387)*

            - Start with § 301 TBELs → § 302(a) WQBELs → WQLS → § 303 TMDL

            - States must also issue water quality stds *(§ 1311(b)(1)(C))*
                - WQSs consist of *designated uses* and the *water quality criteria* based on such uses *(§ 1313(c)(2)(A); see PUD No. 1, pp. 277, 282–83)*
                    - fed stds provide a *floor* for WQS, "but it's never enough"
                    - which is why the state standards are necessary

            - If TBELs not enough to meet WQS, promulgate WQBELs (not-tech based)
                - WQBELs via EPA (§ 1312(a)) or the states (§ 1314(1))
                - WQBELs b/c "[t]he limitations necessary to achieve a given level of water quality in one reach of a waterway may require more control of effluents than that attainable through application of the best available technology" *(Waterkeeper, 398)*
                - WQBELs are enforceable emissions limitations that get built into NPDES permits

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[4] There's high compliance with NPDES permits nationwide (~80–90%), but that's not enough; ~40% of waters still not meeting WQS.

                - *cf.* TMDLs, which are targets not directly enforceable (merely inform permit conditions)

        - States must also have antidegradation policies to protect existing uses *(40 C.F.R. § 131.12; see PUD No. 1, p. 278)*

- **(1) discharge**
    - § 1342(16) [§ 501(16)]: includes "discharge of a pollutant" and "discharge of pollutants"
        - implies that "discharge" is broader than "discharge of pollutants"
    - "discharge of pollutant(s)"
        - (A) Any *addition* of any pollutant to *navigable waters* from any *point source*
            - what was there vs. what was intended
            - "navigable waters" = "waters of the U.S."
        - (B) any addition of any pollutant to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft
    - **(a) addition**
    - **(b) to navigable waters**
    - **(c) from point source**
- **(2) pollutant**
    - pollutant need not cause harm *(USPIRG v. Atlantic Salmon, 348)*
- **(3) person**
- **(4) without permit**
    - if there is a permit, just take the discharge monitoring report and compare with the permit; if DMR # is higher, that's a violation *per se*
    - can get companies for falsifying DMR reports
        - "garden-variety felony"

- § 1311(b): **effluent limits** & timetable for objectives
  - § 301(b) requirements in a nutshell
    - BAT: best available tech economically achievable
      - toxics, conventional pollutants
    - BPT: nonconventional
    - BPJ: best professional judgment (case-by-case; when there is no BAT/BPT)
    - TBELs & WQBELs

  - (1)(A): effluent limitations for point souces (BPT)
  - (1)(B): POTWs—secondary treatment stds
  - (1)(C): "any more stringent limitation" necessary

  - (2)(A): BAT for toxic pollutants; effluent limits for "categories and classes of point sources"

- § 1311(d): review of (b)(2) effluent-limit standards every 5 years

- § 1311(n): "fundamentally different factors"
  - some flexibility in effluent limits/other reqs for facilities that are "fundamentally different"

- 33 U.S.C. § 1342 (CWA § 402: NPDES & State permit programs)
  - § 1342(a)(1): permits issued after
    - opportunity for public hearing; *and*
    - the discharge will:
      - meet requirements of §§ 1311 (301), 1312, 1316, 1317, 1318, 1343; *or*
      - meet other conditions the Administrator requires for compliance w/ CWA.
  - § 1342(a)(2): conditions to assure compliance
    - e.g., data and info. collection; reporting
  - § 1342(a)(3): (a)(1) permits are subject to sub§ (b) requirements

- 33 U.S.C. § 1362 (§ 502) *(470)*
  - § 1362(5): "person" defined as 'most everything
  - § 1362(6): "pollutant"
    - "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, head, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water"
      - *except* sewage from Armed Forces' vessels & injected materials used in underground oil and gas recovery
  - § 1362(12): "discharge of pollutants" (see *supra*)
  - § 1362(14): "point source"
    - "any discernible, confined, and discrete conveyance"
      - except ag. stormwater discharges & return flows from irrigated ag.
  - § 1362(16): "discharge" (see *supra*)
  - § 1362(19): "pollution"
    - "man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of the water"

- *Cases*
  - *NWF v. Gorsuch* (D.C. Cir. 1982) *(197)*
    - Summary
      - Citizen suit against EPA to force them to require NPDES permits for dam discharges under § 402
    - "addition"
      - Dams don't add anything because they/reservoirs are part of the water system. EPA says pollutants must come from the "outside world."
      - decision w/in EPA's discretion. narrow interp OK, even if interp'd broadly elsewhere.
    - "pollutant"
      - Congress didn't:
        - include dam discharges in §1362(6) list of pollutants.
        - equate "pollution" with "pollutant," thus "discharge of pollutants" doesn't nec. cover everything that counts as "pollution"—*see* § 1362(12), 19 *(210)*
        -
      - low oxygen content in water ≠ pollutant.
      - low temperature ≠ pollutant.
      - supersaturated water (high oxygen) ≠ pollutant
      - dissolved minerals and nutrients & sediments = nonpoint pollution → outside § 402 scope

- “point source”
    - EPA says dams are not point sources.
    - decision w/in EPA’s discretion. EPA doesn’t have to explain itself.
        - “[W]e are not at liberty to conclude that its position, although incompletely explained, was not in fact carefully considered.” *(206)*

- D.C. Cir’s futher reasoning
    - chastized Dist. Ct. for relying too much on the “broad stated purposes of the Act” *(216)*
    - prominence of § 402 NPDES program in CWA scheme doesn’t compel EPA to regulate dams under § 402. *(213)*
    - policy waffling *(220–22)*

- technological solutions to dams’ problems all come at some cost; affects economic viability of dams, esp. as they get older

- Speaking of the “purposes” section of the CWA, Senator Muskie, “the Senate sponsor and principal force behind the bill,” said:
    - “These [goals] are not merely the pious declarations that Congress so often makes in passing its laws; this is literally a life or death proposition for the Nation.” *(217–18)*
    - (but the court didn’t care)
    - Although “Congress wanted to eliminate pollution if practicable, it realized that it might have to settle for something less.” *(219)*

- Catskills Trout Unltd. v. City of New York (2d Cir. 2001) (43)
    - The movement of water from one watershed to another held to constitute an addition of a pollutant

    - Court gave less deference than in *Gorsuch (46)*
        - EPA’s position on “addition” had not gone through notice & comment → ≠ “deserve broad deference”

    - “addition” (crucial element in this case)
        - “addition” is not defined in the statute
        - water with various chemical and temperature components comes from tunnel into reservoir
        - absent tunnel, water from Schoharie Res. would never reach Esopus Creek
        - difference btw waters; “discharge” *(48, 49)*

- "pollutant"
  - § 1342(6) includes "heat"
    - stat. def. somewhat misleading b/c EPA has read in a number of substances as it sees fit
      - e.g., statutory chemical wastes, which is "a whole universe in a term," don't include everything that might be included in that term
      - things become pollutants when they surpass the carrying/absorptive capacity of the stream
    - suspended solids
      - aka turbidity/sediment
- "point source"
  - § 1362(14): "any discernible, discrete, or confined conveyance" = Shandaken Tunnel
- "navigable waters"
  - Esopus Creek: tributary of Hudson
- "person"
  - § 1362(5): mentions "municipality": New York
- "w/o or in violation of permit"
  - § 1342 NPDES

- South Fla. Water Mgt. Dist. v. Miccosukee Tribe (U.S. 2004) (311)
  - Facts
    - Corps built system of levees and canals to channelize Everglades and drain land for cultivation
      - "fundamentally altered the hydrology of the Everglades, changing the natural sheet flow of ground and surface water" *(312)*
    - C-11: canal collecting groundwater and rainwater
      - contains phosphorus from runoff → causes algal blooms & cattails when runoff pumped elsewhere (cattails destroy the ecosystem)
    - S-9: pump station taking water out of C-11 and conveying into WCA-3, an undeveloped wetland area
    - L-33 & L-37: levees separating C-11 from WCA-3
    - without the artificial impoundments, the two areas would be "covered in an undifferentiated body of surface and ground water flowing slowly southward"

    - When the Dist. Ct. enjoined use of S-9, C-11 flooded & Dist. Ct. had to provide emergency relief from its own injunction

- Question
  - Is S-9 a point source that discharges a pollutant?
    - PUNTED!!
- Reasoning, sorta
  - Court discussed EPA's "unitary" argument, that all navigable waters should be viewed as one body → movement between parts ≠ adding anything *(314–16)*
    - but did not resolve the issue *(316)*

IMPAIRED WATERS & TMDLS

- *Statutes & Regulations*
  - **33 U.S.C. § 1313 (§ 303)**: WQS & state implementation *(439)*
    - § 1313(a): preservation of State standards
      - (a)(1): Administrator must deem St stds appropriate
      - (a)(2): procedure for subm. to Administrator of existing stds
      - (a)(3): procedure for creating new State stds
    - § 1313(b): Administrator proposes St stds if Sts do not
    - § 1313(c): **WQS to be reviewed and revised as appropriate at least every three years**
      - WQLS reviewed every two

    - § 1313(d): **TMDL & WQLS**
      - (d)(1)(A): Identification of impaired waters
        - impaired = § 1311(b)(1) stds ≠ "stringent enough to implement any water quality standard applicable" including WQBELs
          - "applicable water quality standards": includes "numeric criteria, narrative criteria, waterbody uses, and antidegradation requirements" (40 C.F.R. § 130.7(b)(3)); TMDLS can be any of thes
          - **WQLS**: "Any segment" known or expected not to meet applicable WQS even after § 301(b) tech-based effluent limitations (40 C.F.R. § 130.2(j))[5]
        - priority ranking based on (i) severity of pollution & (ii) designated uses

[5] *See also Pronsolino v. Nastri (p. 267)*

- (d)(1)(B): Waters impaired by thermal discharges
  - applies to waters "or parts thereof" (WQLS)
  - insuff. to "assure protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife"
- (d)(1)(C): TMDLs
  - account for seasonal variations
  - margin of safety based on limits of knowledge
- (d)(1)(D): tot. max. daily thermal load
  - normal temps, flow rates, seasonal variations, sources of heat input, dissipative capacity
  - margin of safety

- (d)(2): submission of impaired waters & TMDLs to Administrator
  - approval → states incorporate into §303(e) plan
  - disapproval → Administrator preempts

- (d)(3): TMDLs for non-impaired waters

- (d)(4)(A): Revisions to yet-unattained stds OK only if:
  - revisions will, in aggregate, attain WQS
  - removal of a designated use accords with § 1313 gen'ly
- (d)(4)(B): antidegradation policy for attainment areas

- § 1313(e): continuing planning process

- **TMDLs generally**
  - Establishing
    - For pollutants: *pollutant budget* not to be exceeded
      - first: point sources (not so bad)
        - pt srcs closely and daily monitored
        - well-understood regulatory system
        - "we call it command and control for a very good reason, and it works spectacularly"
          - but only catches the smaller part of the problem
      - second: non-point sources (much worse)
        - relies on complex modeling
        - "all over the place"

- third: background
    - "*really* difficult"
    - e.g., how much of the phosphorus in a system is naturally occurring?
    - background levels fluctuate
    - we don't even know what the natural background levels are, because of hundreds of years of ag + runoff
    - if you have a large *legacy* of phosphorus in the system, it's going to take decades to cycle out
        - e.g., in Lake Champlain
- law says, look at one pollutant at a time
- but science says, that's silly.
    - synergies are important
    - e.g., temperature affects DO (dissolved oxygen)
- for protection of wildlife

- **Total**
    - numeric standard ("this is parts-per-million time, folks")
- **Maximum**
    - *assimilative capacity*—ability of the water body to absorb a given substance (cleanse itself) without creating adverse conditions *(Everglades' TMDL for phosphorus is 5 ppb)*
    - point + non-point sources
- **Daily**
    - this was an issue for a long time; initially, 2d Cir upheld EPA's discretion in saying "you can use averages sometimes"
        - e.g, mass loading over time (phosphorus: cumulative effect is more significant)
    - D.C. Cir. said no, daily means daily.[6]
    - *However*, many TMDLs don't have strict daily limits
- **Loads**
    - Pollutants (may be point or non-point sources)

- LA (load allocation): non-point source allocation
    - 40 C.F.R. § 130.2(g)
    - non-point sources require best management practices
        - 33 U.S.C. § 1288 (§ 208)
- WLA (waste load allocation): amt that a given pt source may discharge
    - 40 C.F.R. § 130.2(h)
- TMDL = WLAs + LAs + natural background
    - 40 C.F.R. § 130.2(i)

- In any impaired water, the TMDL is lower than the actual pollutant load in the river (by definition)

[6] "It may be stupid. It may be insane. It may not be what Congress really meant, but that's what they said, and that's the end of the matter."

- *Cases*
  - Sierra Club v. Hankinson (N.D. Ga. 1996) (301)
    - **States must include any nonattainment segment of a water body in the § 303(d) impaired waters/WQLS list**
    - Citizen suit against EPA, seeking enforcement of § 1313 provisions requiring EPA to promulgate TMDLs b/c GA's were inadequate

    - **Basically a handy review of TMDL process**
      - "Point source pollution is subject to technology-based controls imposed by the NPDES permit process, which sets quantitative limits on the amount of pollutants released from each point source." *(302)*
      - "Where these controls are insufficient to clean up water bodies, the CWA mandates use of a water quality based approach." *(citing § 1313(d))*
      - Water quality standards are based on the uses of the waters and the amounts of pollution that would impair the uses. *(citing § 1313(a)–(c))*
      - Identify the waters for which pollutants impair the designated uses *(§ 1313(d)(1)(A))*
        - these waters are called "Water Quality Limited Segments" and must be prioritized based on severity of pollution and uses *(id.)*
        - states must use "all existing readily available water quality-related data and information," 40 C.F.R. § 130.7(b)(5) *(305)*
      - Develop, in order of priority ranking, a "total maximum daily load" for each pollutant impairing each WQLS *(§ 1313(d)(1)(C)) (302)*

      - system is entirely dependent on the states; EPA can't do anything if states fail to repair the WQLSs

    - "Congress says ignorance is no excuse for inaction. Just add a margin of safety to compensate for the lack of knowledge and keep moving."

- Pronsolino v. Nastri (9th Cir. 2002) (261)
  - Question: do water segments impaired only by nonpoint sources of pollution need to be in the § 303(d) list of impaired waters?
    - Yes *(267)*

    - EPA reg warranted both *Chevron* & *Skidmore* deference *(266, 268)*

    - States' management plans must include, inter alia, TMDLs, effluent limitations, and "nonpoint source management and control" (40 C.F.R. § 130.6) *(268)*
      - look to broad purpose of statutory scheme *(271)*
      - discussion of "not stringent enough" *(271–72)*

    - CWA ≠ bifurcated into non-point & point source provisions

  - **Gen'l review of TMDL-setting process** *(263)*

- Friends of Pinto Creek v. EPA (9th Cir. 2007) (542)
  - EPA issued permit for a copper mine that would impact Pinto Creek, AZ, which was already on the § 303(d) impaired waters list but had no TMDLs set. Envt'l group appealed.

  - Holding: upheld EPA reg saying no new NPDES permits if the permit would contribute to a violation of WQS.

  - Facts
    - Pinto Creek is in Tonto National Forest
    - Pinto Creek is a Wild & Scenic River
      - WTF is EPA doin' givin' away rights to a W&SR?
    - Mine was to add more copper to a copper-polluted river
    - Mining co. wanted to:
      - move the creek
      - dewater the mine

  - Envt'l group said that TMDL must be set before permit issued & permit should reflect the TMDL. Court agreed.
    - Reg. basis: 40 C.F.R. § 122.4(i) *(545)*
    - TMDL must be completed first; then discharge subject to compliance schedules *(546)*

- Disposition: vacate and remand

- Court said that there's a moratorium on new permits unless and until there's a comprehensive plan to bring all dischargers into compliance
    - Probably wouldn't survive the en banc review that the EPA has requested
    - Probably wouldn't survive SCt

CAFOs AND CAAPFs

- "CAFOs are large-scale industrial operations that raise extraordinary numbers of livestock" *(Waterkeeper Alliance, 368)*

- *Statutes & Regulations*
    - 33 U.S.C. § 1362(14): "point source"
        - "any discernible, discrete, and confined conveyance"
        - includes "concentrated animal feeding operation"
            - examples
                - poultry, dairy, pork, beef, fish, shellfish
                - pork farm discharges
                    - ammonia, methane, hydrogen sulfide
                    - decomposition of feed itself causes "very exotic, very hazardous substances with names this long"
                    - odors
                    - bacteria
                    - pathogens
                    - cryptosporidium
                    - pfesteria: a nasty flesh-eating bacteria
            - EPA's list of principal CAFO pollutants *(Waterkeeper, 369)*
                - nutrients (e.g., nitrogen, phosophorus)
                - organic matter
                - solids: manure, spilled feed, bedding & litter materials, hair, feathers, animal corpses
                - salts
                - trace elements (e.g., arsenic)
                - odorous/volatile compounds (e.g., CO_2, CH_4, HS, NH_3)
                - antibiotics
                - pesticides & hormones

        - *exemptions*
            - "agricultural stormwater discharges"
                - thx, Senator Craig
            - "return flows from irrigated agriculture"
                - thx, Senator Dole
            - more mechanical control, more focused output of effluvia → more likely to be subject to regulations

- 40 C.F.R. § 122.23: CAFOs *(500)*
    - (b) (1)
        - AFO (Animal Feeding Operation) = animals confined & fed for ≥45 days in any 12-month period *and* crops/forage not grown on any part of the lot or facility
    - (b) (2)
        - AFOs aggregate if under common ownership & adjoin *or* use same waste disposal system
    - (b) (4)
        - Large CAFO defined (700 mature dairy cows *or* 1000 veal calves *or* 2500 ≥55-lb. swine, etc.)
    - (b) (5)
        - "manure" defined
    - (b) (6)
        - Medium CAFO defined (200–699 dairy cows *or* 300–999 veal calves *or* 750–2499 ≥55-lb. swine, etc.)
    - (b) (7)
        - "process wastewater" defined
    - (b) (8)
        - "production area" defined

- 40 C.F.R. § 122.24 (CAAPFs)

- Proposed Revised CAFO Rule

- *Cases*
    - CARE v. Southview Farms (2d Cir. 1994) (34)
        - Citizen suit alleging five CWA violations; went to jury trial, judgment for **π**s; JaaMoL for **Δ**; **π**s appealed

        - Liquid manure spreading operations = point source
            - storage lagoons for cow manure, up to four acres in size, 6–8 million gallons
            - *shit geysers*
                - liquid manure separated & used for washing down barns
                - also sprayed (in arc 12'–30' high) over fields as fertilizer
            - point source #1
                - manure collects in swale, flows into pipe through stonewall, into ditch, into stream *(37)*
            - point source #2 (alt to #1)
                - tankers spreading manure *(38)*

- Agricultural exceptions do not apply *(39)*
  - If rain causing stormwater runoff is coincidental → liability
    - If discharges *resulted from* precip → exempted
    - If discharges merely occur on rainy days → ≠ exempt
      - Q is whether runoff primarily caused by oversaturation of fields
  - No "return flows from irrigated ag" exemption
    - Discharges incl. matter not from crop production → no exemption *(40)*
    - these discharges included *ridiculous amounts of poop*
  - As long as there's no growing *in the area of confinement*, it's still a CAFO
    - here, crops grown adjacent to pen *(41)*
    - whole purpose of crop-growing exemption is that crops grown where animals are kept could be expected to mitigate the pollution problem

- Waterkeeper Alliance v. EPA (2d Cir. 2005) (365)
  - Various envt'l groups challenge EPA's rule regulating the emission of water pollutants from CAFOs
    - EPA's regs subject to *Chevron* deference/A&C std *(373)*

  - Most common way for pollutants to enter surface waters from CAFOs is "improper land application" *(369–70)*
    - excessive/improper application → runoff

  - Background: EPA's CAFO rule
    - CAFOs & NPDES permits *(371)*
      - Generally, CAFOs need to apply for indiv. NPDES permits or file NOI for coverage under general permit
      - *Exception:* if CAFO owner obtains "no potential to discharge" determination from the relevant permitting agency

    - Nutrient Management Plans (NMPs) *(371)*
      - requirement for NPDES permit
      - EPA rule said that following site-specific NMP = any "precipitation-related" discharge is an "agricultural stormwater discharge" & thus exempt from regulation *(372)*

    - Effluent Limitation Guidelines (ELGs) *(372)*
      - "best management practices" – qualitative, tech-based
      - NMPs

- CAFO rule is “impermissible self-regulatory permitting regime” *(374)*
    - No meaningful review of the NMPs that CAFOs develop
        - NPDES permits must ensure compliance. *(§ 1311)*
        - No check to ensure NMPs will *in fact* reduce discharges. *(376)*
        - NMP is more than “simply a planning tool,” it’s an effluent limitation. *(376–77)*
        - Permitting authorities don’t (but must) review NMPs to ensure adequacy. *(377)*
    - Terms of NMPs were not on NPDES permits
        - NPDES permits must include all applicable effluent limitations. *(378)*
        - NMPs = non-numerical effluent limitations
        - “effluent limitation” = “any restriction” on “rates” *(§ 1362(11))*

- Permitting process struck down for violating pub. partic. reqs
    - NPDES apps must be open to public comment; so must NMPs *(379)*
    - CAFO rule includes no provision for public to call for a hearing
    - NMPs are a “sine qua non” of EPA’s land-application discharges regulation program
    - need for transparency *(380)*

- No needs for CAFOs automatically to apply for discharge permits (or prove no potential to discharge); there must be a “discharge of any pollutant” before they need to “seek or obtain” a NPDES permit *(380–82)*
    - cf. CAA, which regulates on basis of “potential to emit”

- “Agricultural stormwater runoff” exception
    - No liability for natural phenomena *(383)*
    - No liability for “precipitation-related discharges” when “manure, litter, or process wastewater has been applied in accordance with site-specific NMPs that ensure appropriate agricultural utilization.” 40 C.F.R. § 122.23(e) *(384–85, 500)*
    - Parenteau: “The crops are an excuse/means to get rid of manure”

- Bunch of stuff bout BAT/BCT/BPT *(387–98)*

- Remanded to EPA Q of whether states may promulgate CAFO WQBELs (EPA expressed intent not to) *(399)*

- USPIRG v. Atlantic Salmon (D.Me. 2002) (342)
  - CAAPFs: Concentrated Aquatic Animal Production Facilities
    - 40 C.F.R. § 122.24

  - Salmon terminology
    - fry (small, young, recently hatched)
    - par (not yet left fresh water)
    - smolts (become adapted to saltwater; beginsmoving seaward)
    - juvenile/yearlings
    - grilse (parenteau says "greel" but I doubt this is right) (salmon on first return from sea to fresh/brackish waters)

  - Facts *(343)*
    - Fish are hybridized, some from outside N. America; escapees mix with local population
    - Fish nets treated with "antifoulant," containing copper
    - Feed (ground-up fish, etc.) escapes nets
    - Diseases, viruses, parasites
    - Fish treated with antibiotics and other chemicals
    - Fish poop a lot → nutrient oversaturation → algal blooms → dead zones

  - CAAPFs defined as point sources: 40 C.F.R. § 122.24(a)
    - Letter from EPA that ME salmon net pen facilities may be CAAPFs under 40 C.F.R. § 122.24(b) or (c) *(346)*

    - **Residual Designation Authority:** § 122.24(c) *(352)*
      - EPA *or* the State can invoke: finding that a souce is a significant contributor to WQS violations
        - water already impaired; now come new discharges
      - (citizen/group would petition the administrator to use the RDA authority to add a given source as a point source based on its WQS violations; can also petition to add a class of sources)

  - Pollutants
    - fish waste, copper, antibiotics, etc., escapees (fish as "biological material" pollutant), food (cf. § 1362(6))
    - residual amounts of these substances move beyond the fish pens and into the marine environment
  - Court agreed with USPIRG that the salmon farms were CAAPFs & thus point souces aaMoL under § 122.24(b), so no need to designate under discretionary provision of § 122.24(c) *(353, 358–59)*

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STORMWATER

- Generally
  - Stormwater = rain-induced pollution event
    - comes about as a result of impervious cover in an area
      - threshold for significant damage ≈ 10–15%
    - "the effluvia of modern society"
    - particularly nasty: "first flush" = when it's been a while since the last storm

  - Stormwater isn't rocket science; it's good housekeeping. It's a thousand little things that can be done to protect the quality of the stormwater, "and it's all fun stuff."
    - Constructed stormwater wetlands are a great way to deal with urban impermeable cover, as long as the stormwater isn't highly contaminated—if it's just an issue of sedimentation, it's ideal
  - Control the flow of water through a contaminated medium: much more manageable than trying to deal with a massive body of water with a small amount of pollutants (then you have a massive treatment problem)
    - Start the management program high in the watershed, not just when the water enters the river *(see also BMP documents)*
      - cisterns, swales, buffers, level spreaders, infiltration devices
      - *forebay* for treatment before entering river
      - wet meadow

  - EPA regulation
    - 17 specific kinds of industry
      - industrial sources are specified
      - not listed → not covered (no liability)
    - municipal discharge

    - Phase II rule: § 402(p): rain-driven events only
      - NPDES permits req'd for "small MS4s"
        - small MS4s = small municipal separate sewer systems
          - still need nexus with navigable waters
          - not well defined
          - "separate": sewage not treated by municipal plants
          - "sewer": doesn't imply sewage
      - NPDES also req'd for small construx sites
      - Final Phase II rule expanded residual designation authority to give local agencies flexibility in regulating sources that didn't fit neatly into established categories *(In re Stormwater, 133)*
      - 1–5 acre construction sites

- *Statutes*
  - Parenteau says: This is all about rain discharges; stuff that would otherwise enter stormwater runoff ≠ liability under § 402(p). Further, you should get a PE (professional engineer) to certify that all your crap is covered; when the EPA gets a PE certification, "bam, rubber stamp, that's the end of it."
  - Regulatory background: In re Stormwater, p. 125 ¶ 4
  - 33 U.S.C § 1342(p)
    - (p)(1): *stormwater generally exempt from NPDES*
    - (p)(2): exceptions
      - (B): industrial activities
      - (C): municipal discharges from storm sewer systems serving populations of 250,000+ (Phase II?)
      - (D): municipal discharges . . . 100,000–250,000 (Phase II?)
      - **(E): "residual authority" clause** *(In re Stormwater, 124)*
        - Final Phase II rule expanded residual designation authority to give local agencies flexibility in regulating sources that didn't fit neatly into established categories *(133)*
    - (p)(3): permit requirements *(discussed, DOW v. Browner, 71)*
      - (A): industrial permits must comply fully with § 301
        - BAT: best available tech economically achievable
          - toxics, conventional pollutants
        - BPT: nonconventional
        - BPJ: best professional judgment (case-by-case; when there is no BAT/BPT)
        - TBELs & WQBELs
      - (B): muncipal permits must reduce "to the maximum extent practicable, including management practices"
        - lower standard than industrial
    - (p)(4): dates for regs
      - (A): 2/4/89 = date for (2)(B) & (2)(C) regs (Phase I ?)
      - (B): 2/4/91 = date for (2)(D) regs (Phase II?)
    - (p)(6): dates, cont'd
      - 10/1/93 = date for everything else

- *Cases*
    - DOW v. Browner (9th Cir. 1999) (67)
        - Envt'l orgs against EPA official, seeking review of agency determination to issue NPDES stormwater permits to municipalities without numeric limitations that would ensure compliance with state WQS
            - EPA action upheld
                - pet'rs said stat was ambiguous; ct disagreed
            - EPA had discretion over whether to impose numeric limits

        - EPA may impose either numeric limits or management practices

    - Environmental Defense Center v. EPA (9th Cir. 2003) (104)
        - Various interests against EPA for review of MS4 rule

        - Individual permit: individual application
        - General permit: NOI all that's needed

        - 10th Amendment argument
            - Said that the fed. reg. scheme compelled municipalities to implement fed. reg. programs (no "commandeering")
            - Can't force states & local gov't to enforce fed. regs agt 3rd parties

            - Ct. said no coercion b/c options exist *(111–12)*
                - indiv permit: 40 CFR § 122.34(b)
                - Alternative permit: § 122.26(d)
                    - § 122.26(d) listed *application* requirements, not *permit* requirements → not coercive
                    - § 122.26(d) requires applicants to propose management practices

        - "Minimum Measures" (MM) for permits *(109)*
            - *apply to both indiv & gen'l permits*
            - *"squishy" requirements, not readily subject to monitoring*
            - public education
            - public participation
            - detecting/eliminating illicit discharges
            - reducing pollution from construx
            - minimizing impacts from redevelopment
            - preventing/reducing runoff fr. munic. activities

- NOI program (*cf.* NMPs in CAFO cases)
  - ct agreed w/ envt'l pet'rs that this was "an impermissible self-regulatory system" *(113)*
    - EPA had said that submitting NOI + implementing MM = MEP (maximum extent practicable, *see* § 402(p)(3)(B)(iii))
  - NOIs need individual review *(114)*
    - and public participation *(116)*

- "Failure to designate" argument rejected *(117)*
- Forest roads *(120–22)*
  - remand to EPA to determine whether § 402(p)(6) requires EPA to regulate forest roads *(122)*
- MS4s in urbanized areas *(122–23)*
  - regulating by population density upheld as having a reasoned basis

- In re Stormwater NPDES Petition (Vt. 2006) (124)
  - Vt. Water Resources Bd. had found that certain discharges req'd federal discharge permits
    - Reversed and remanded to Agency of Nat. Resources b/c Board encroached on Agency's authority in assuming that the discharges contributed to violations of WQS

  - § 1342(p)(2)(E): EPA retains "residual authority" to designate a discharge as requiring an NPDES permit if it "contributes to a violation of a wate quality standard or is a signficant contributor of pollutants to waters of the U.S." *(In re Stormwater, 124, 125 ¶ 5)*

  - Background of case *(125 ¶ 6)*
    - Petrs had seeking determination that stormwater discharges into five brooks contributed to violations of Vt WQS
    - Basis of claim: Water Bd's previous findings that the five brooks ≠ meet WQS, brooks on § 303(d) list, existing dischares contribute to impairments

  - "Residual authority" permits can be categorical rather than needing to be issued for single discharges *(127 ¶ 11–12)*

        - Water Board's holding that NPDES permits were necessary was based on the implicit application of collateral estoppel in cases that had held (on fact-specific grounds) that stormwater discharges contributed to the impairment of certain impaired waters. This was an improper basis to estop the Agency of Nat. Resources from exercising their otherwise broad discretion in regulating municipal discharges under the residual designation authority granted in § 402(p)(2)(E). *(133 ¶ 28)*

STATE WATER QUALITY CERTIFICATIONS

- *Statutes*
    - Basically, activities that may result in any discharge to navigable waters is subject to the § 402 permitting scheme subject to state-law restrictions on *activities* and *water-quality criteria* (together: WQS)
        - "powerful tool for states to increase compliance with WQS"

    - 33 U.S.C. § 1341 *(455)*
        - (a)(1): Applicants for federal licenses or permits for any activity that may result in any discharge into navigable waters *must provide* a certification from the State in which the discharge does or will originate:
            - certifying compliance with § 301, 303, etc.
            - pub. notice & cmt. req'd
            - no response from State w/in one year → State certification reqmt. waived
            - no license granted w/o State cert.
        - (a)(2): Another state objects → hearing; finding of implact on neighboring state → no permit

        - (d): Certifications shall set forth *any effluent limitations and other limitations* necessary to assure compliace with all federal limitations and *any other appropriate requirement of State law.*

- *Cases*
    - PUD No. 1 v. Wash. Dept. of Ecology (U.S. 1994) (277)
        - Petrs wanted to build dam on a river of undiminished flow. WA permitting authority imposed various conditions on permit, including a minimum stream flow requirement.

        - Q: Was imposing minimum stream flow requirement proper? *(How much power does § 401(d) reserve/return to states in light of FERC permitting power & supremacy of fed. power as servitude to nav'bl waters?)*
            - Yes; within state's authority under § 1341(d) ("and other limitations" nec. to ensure compliance with "any other appropriate reqmt of St law"); meant to protect designated use as fish habitat

            - Minimum stream flow requirements OK only insofar as necessary to enforce a designated use contained in a state WQS.
                - conditions of certification become conditions of license

        - EPA's regs said that *activities* as well as *discharges* must comply with WQS—Ct deferred
            - Conditions on permit may go no further than to ensure *compliance* with state law

            → question:
                - Was the state law on which the condition is based enacted to ensure compliance with the state WQS?

        - Here: min. flows nec. to ensure compliance because the stream in question had among its desig. uses "[fish] migration, rearing, spawning, and harvesting"; min. stream flow protected designated use.

        - Why "criteria" are not sole component of § 401 conditions *(283)*
            - § 401 cert involves reference to uses, criteria, and antidegretation policy
                - uses: statewide classification statewide
                - criteria: sometimes but not always specific numeric values
                    - "primitive water quality management"

        - inclusion of activities is best way to ensure that WQSs are achieved
        - too many designated uses would be impractical to try to protect through the use of numeric criteria only *(284)*
        - antidegradation policy demands that existing uses be protected
        - *also:* § 1314 recognition that "pollution" may entail "changes caused by the construction of dams"; EPA regs require existing dams to be operated to attain designated uses *(285)*

    - quantity/quality is a false distinction; conditions can protect water quantity b/c quantity & quality are closely related. *(285)*

    - no issue with FERC (286)

- S.D. Warren v. Me. Bd. of Envt'l. Prot. (U.S. 2006) (626)
    - Dams raise a potential for discharge → § 402 permits require § 401 state certification

    - State-cert reqmt triggered if there *may* be a discharge

    - "Discharge" construed broadly to have its "ordinary or natural meaning" *(627)*
        - "flowing or issuing out" *(628)*
        - same use as in *PUD No. 1*
        - is consistent w/ EPA & FERC interp of "discharge"
        - *refuting S.D. Warren's args for a narrower reading, pp. 629–32*

    - Reference to broad purpose of the act & recognition that dams wreak major changes on a river, incl. navigability, dissolved oxygen, chemical changes, nitrogen levels, etc. *(633)*
        - → causes alteration of water quality that the Act's purposes recognize as significant, threatening, and suitable to trigger the requirements of the Act

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INTERSTATE WATER POLLUTION

- *Statutes*
  - 33 U.S.C. § 1365: citizen suits
  - 33 U.S.C. § 1370: fed. stds are floor for st. stds

  - [
    Preemption doctrine:
    - express/explicit preemption, e.g., mobile sources under CAA
    - implied
      - field preemption: "Congress has occupied the field"
      - conflict preemption: st law is obstacle
        to implementing fed prog
    -]

- *Cases*
  - Milwaukee v. Illinois
    - Milwaukee I
      - IL filed against Milwaukee in the SCt invoking original jurisdiction
        - SCt said "this isn't a suit between states; look to federal common law"
    - Milwaukee II
      - IL filed suit in fed. dist. ct. under nuisance theory
      - WI Dept of Nat. Resources filed suit in WI st ct against Milwaukee for enforcement of suit
      - . . . field preemption: CWA precluded application of fed common law
    - Milwaukee III
      - 7th Cir. said that in interstate water pollution claims, the laws of the source state can support a claim against the source
        - "Savings clause"
          - § 510 / § 1370: preserves state regulatory authority to impose stricter water quality standards than feds *(136/478)*
          - § 505(e): preserves state statutory and common law rights of persons
            - "persons" includes citizens, corporations, municipalities, states

- Int’l Paper v. Ouillette (U.S. 1987) (135)
    - CWA preempts state-law claims of the state affected by a discharge.
    - Claims based on law of state in which discharge originates still OK.
    - Claims must be brought in the federal district in which the discharge originates.

- *Arkansas v. Oklahoma* (U.S. 1992) *(1)*
    - see p 547
        - “detectable change in water quality”

- *Kansas v. Colorado* (U.S. 1995) *(145)*
    - In the west, to keep (or get) water rights, you need a (series) of dams—because the water isn’t there when the crops need it
    - or too much of it is there when you don’t!
    - reservoirs are sized, built, and located to catch release from snowpack, not floodwater… and climate change \ more floodwater than snowpack \ problems.
        - reservoirs… who has the rights to the water? whose rights take precedence?
        - this is what KS v CO is about…
        - “material depletion”

    - Old-school meaning of “conservation” = store it and use it later = dam; waste = not putting it to beneficial use = not putting it in a reservoir.
        - “If it’s in the river, it’s going to get away! . . . If it’s in the reservoir, we got it.”

    - Stuff about compacts… treaties between States, ratified by the Senate
        - *although* if contested → need 60 (supermajority) to break filibuster
    - “law of the river”
        - adjudications… states have roughly equal power.
        - action to enforce the Compact
            - burden of proof:[7]
                - enforcement axns: preponderance
                - mod to K: clear and convincing
            - → judgment
        - invokes original jurisdiction of the Supreme Court
        - equitable apportionment (policymaking: not bound by rules of evidence, precedent, remedies, etc.)
            - → decree
            - → becomes Law of the River

[7] “whoever has the burden of proof in a really close case where you can’t determine the outcome is going to lose.”

The Endangered Species Act

- *Statutes*
  - 16 U.S.C. § 1536(a)
  - 16 U.S.C. § 1538(a)
  - 16 U.S.C. § 1540(g)

  - Section 7: BioOp—ESA must consult with Sec of Commerce to and insure that the contemplated agency action (AOT building) "is not likely to jeopardize the continued existence of any endangered species or threatened species" or destroy or adversely modify designated critical habitat

  - Section 9 prohibits the taking of species by ANYBODY. Incidental take permits may be granted for habitat or species take, if the permit is for an activity that is otherwise lawful and not for the purposes of take.

- **Crash course in architecture of the ESA!**
  - **Species** = biological definition: can interbreed successfully
    - Subspecies
  - **Distinct population segment**
    - vertebrates only… some distinguishing feature, but nonbiological def
  - **Endangered**: in danger of extinction throughout all or SPR (significant portion of range)
    - *current range vs. historic range*
    - **extinct** = doesn't exist anywhere in the world
    - **extirpation** = loss of all members of a species within a given area
    - **threatened** = likely to become endangered w/in all or SPR in the foreseeable future
    - . . . determined to the *maximum extent practicable* § 1533(b)(3)(A)

- **Listing –** § 4/1533… all science, no economic impact
    - administered by NMFS (now NOAA) and FWS[8]
    - **five criteria**
        - 1. habitat loss – can be destruction, but most typically means fragmentation
          more fragmentation → greater risk of extinction
        - 2. overharvest – commercial species, e.g., salmon; charismatic megafauna
        - 3. disease/predation
        - 4. inadequate regulatory mechanisms
            - those that aren't protecting the spotted owl
        - 5. other factors, e.g., invasives
            - close second to habitat loss in causes of endangement
        - relevant to listing, to recovery plan, to delisting decision, to reclassification
- **Critical habitat**
    - essential to conservation
    - **conservation** = taking all steps necessary to bring the species to the point where the special protections of the act are no longer necessary
        - ≠ restoring to historic range
        - highly contested definition
        - the smaller the pop, smaller habitat, more limited interaction with other segments of pop → greater chance of extinction
    - occupied or unoccupied habitat
        - what habitat that's occupied is essential to recovery?
        - what " " unoccupied " ?
        - economic analysis included
    - loss of 90% of habitat may preclude species recovery on any timespan less than centuries
        - "you can create a formula by which you deem a species to have recovered, but species like the california condor are never really, biologically, going to recover."
    - designation can be "outright dangerous" in some parts of the country
        - critical habitat = map
        - if map includes private land → peeps get really upset

[8] See course pack at 554

- **Recovery plan –** § 4(f)
    - must contain *measurable, objective criteria* that address all five of the listing factors
    - with one exception, the courts have uniformly ruled that the terms of the recovery plan are not enforceable
- **§ 7**
    - **§ 7(a)(1) –** first procedural requirement.
        - affirmative, mandatory duty to conserve[9]
            - consultation
        - muddled by de courts
        - e.g., Edwards Aquifer case
            - if you have the statutory authority to condition your use of subsidies, you must use it
            - unless pumping would be reduced by 25%, certain species would be lost
                - → gotta reduce pumping
                - "pretty remarkable. you don't find that very often, so don't count on getting lucky like that"
        - "NEPA-like procedural duty"

    - **§ 7(a)(2) –** interpreted in *Tellico* . . . a standard that admits of *no exception*. there's an "exemption route" but the exemption committee ("god squad") has only met three times in history—this route doesn't get taken much.
        - major thrust is substantive.
        - "strongest substantive requirement in all of environmental law"

        - "shall ensure that action or inaction *authorized*, *funded*, or *carried out* by the agency *is not likely* to:"[10]
            - (1) jeopardize the continued existence of any listed species
                - does it actually jeopardize the *survival* of the species? – hard to say this b/c it's a probability assessment based on data that is rarely exhaustive; scientists don't think that way, but the law asks them to
            - (2) result in adverse modification of any designated[11] critical habitat

[9] "be careful reading too much into the duty. clearly requires consultation" but not much else is clear
[10] "this can cut either way… In the hands of an agency that does not want to find jeopardization, they can say 'well, it might, but it's not *likely* to'" – an "elastic" standard
[11] Parenteau underlined this word like five times. "Don't think that just because it's *de facto* designated means that it's *de jure*. Has to be adopted by rule after notice and comment and published in the federal register."

- relates to *recovery*
- easier to establish than (1)
- action that ≠ jeopardize survival may jeopardize recovery.

- courts have viewed the two as disjunctive standards that raise different questions
- this is the second consultation requirement
  - → **Biological opinion** that answers the two questions above
  - if would jeopardize:
    - any **reasonable and prudent alternatives**?
      - includes economic factors
    - alts w/in authority of agency to implement?

- 90% of opinions are no-jeopardy findings: "basically a green light"

- must also address the "vexatious" quesiton of **take** (§ 9)
  - will the action result in the *take* of any species?

- *Cases*
  - NAHB v. EPA (NPDES permit authority)
    - Nine criteria in § 1342(b) are all that's required; if the criteria are met → EPA's duty to transfer permitting authority is merely ministerial
    - No requirement that State NPDES permitting programs include any consultation with EPA/FWS/etc a la the ESA
  - NWF v. NMFS

THE PLATTE RIVER

- *Statutes*
    - 33 U.S.C. § 1251(g)
        - State water allocations not to be affected by federal law, at least as much as possible
- *Cases*
    - Riverside Irrigation District v. Andrews (10th Cir. 1985) (297)
        - Corps denied § 404 permit for dam/reservoir based on potential downstream impact on an endangered species from the increased consumptive use of water
            - upheld

        - ESA "imposes on agencies a mandatory obligation to consider the environmental impact of projects that they authorize or fund." *(298)*
            - not limited to direct, on-site effects
                - indirect effects OK
                - "to require [the Corps] to ignore the indirect effects . . . would be to require it to wear blinders that Congress has not chosen to impose" *(299)*
            - downstream effects of water quality legitimate consideration
            - Wallop Amendment (§ 101(g) of CWA) not a barrier

THE KLAMATH RIVER

-

BALLAST WATER DISCHARGES

- *Statutes*
    - .
- *Cases*
    - Nw. Envt'l. Advocates v. EPA (N.D. Cal. 2006) (245)
    - effects
        - ~10,000 species a day hitch rides around the world in ballast water—bacteria and viruses to flowering plants and mussels
            - *see* http://www.seagrant.umn.edu/exotics/fieldguide.html
        - $137 billion total annual economic losses

    - regulations
        - Aquatic Nuisance Act of 1990 (NANPCA)
        - Invasive Species Act of 1996 (NISA)
        - Coast Guard
            - ballast water management program, made mandatory 9/2004
                - complete ballast water exchange 200 nautical mi or more from shore… offshore
                - keep water onboard

        - "environmentally sound method" of b.w. mgmt[12]
    - "NOBOB" – no ballast water on board for Great Lakes
        - ballast tanks generally have reserve areas that ships can't flush directly
        - asks for open-ocean flushes or flushes w/ saltwater to kill freshwater organisms
- Int'l Maritime Organization
    - requirements
        - ballast water mgmt prog
        - exchanges w/ at least 95% efficiency
        - standards for max no. of viable organisms per unit of volume of ballast water
    - not ratified!!
- Michigan got tired of the crappy regulation & passed their own law in 2005
    - Dist. Ct. upheld the law agt industry challenge; now on appeal to the 6th Circuit

- CWA
    - shit at issue
        - § 1362(6),(12),(14)
        - § 1311(a)
- Regulation at issue: 40 CFR § 122.3(a)—30 y.o. rule passed by EPA—exempts effluent discharges "incidental to the normal operation of a vessel" from NPDES requirement
    - challenged as ultra vires

    - started as administrative petition for rulemaking: seeking repeal of § 122.3(a) (denied)
    - petrs complained in district court
        - 1. seeking DECLARATION THAT RULE IS ULTRA VIRES!
        - 2. seeking VACATUR ! ! !! ! !LKJ!!LKJ!LKJ!L!KJ!KLJ
            - EPA said the ct should just remand based on *Defenders of Wildlife*
            - *but* ct quoted 9th Cir. precedent saying that "when equity demands," rule can be left in place while agency follows ct instrux[13]

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[12] Parenteau says "beeble beeble beeble beeble"

[13] Possibly dangerous move because if there's an en banc rehearing in the 9th Cir., they may decide that this equity thing is the wrong rule to apply and that a remand is appropriate… though if the rule is merely remanded w/o a deadline for action, the rule's going "in the black hole"

- argies
  - EPA: this case is just about ballast water
    - Court: petrs challenged the whole of the rule, not just the ballast water provision
  - EPA: petrs have no standing
    - Court: petrs have declared a change in use of Columbia R based on the fx of the rule
  - EPA: non-ballast-water discharges are de minimis & don't need to be regulated
    - Court: you guys should have brought this argument during SJ; too late now; you can regulate differently when you remake the rule
  - EPA: court only has jurisdiction over the denial of the petition, not the entire rule
    - Court: *ultra vires* challenge was proper → jurisdiction over the whole rule

- permanent injunctive relief
  - standard
    - 1. immediate threat of irreparable injury
    - 2. inadequacy of remedies at law
    - 3. balance of hardships
      - includes: public interests, economic interests, industry (i.e., the regulated third parties), administrative burden(?)
        - industry's been relying on this rule for 30 years…
  - Sept. 30 2008 deadline has been stayed by the 9th cir.
  - court didn't want to engage in some kind of oversight

THE GULF OF MEXICO DEAD ZONE

- **effects**
  - benthos – sea-floor life&zone
  - fisheries
    - 200,000+ jobs
- **size**
  - 100 mi2 (1985) 8500 mi2 (2006?)
  - doubled since 1993 floods in MI river

- **affects the largest river ecosystem in the US; 2nd/3rd largest in the world**

- **columnar stratification in the water Nsummar algal blooms die off in the fall, decomposition deprives the benthos of water**

        - stresses mobile animals; kills stationary animals

- **problems stem from:**
    - fertilizers
        - affects river and groundwater both
    - municipal/industrial runoff
    - atmosphere
    - cattle/pig/poultry farm runoff
    - loss of millions of acres of wetlands

    - most discharges come from upper reaches, OH river

- **some fixes**
    - three key ways
        - more efficient fertilizer inputs
        - keep it on the land
        - remove it in wetlands
    - generally
        - change flood control pracices
        - more efficient fertilizer use
            - ~50% of fertilizer applies washes off into streams
        - control discharges of nitrogen
            - industrial/municipal wastewater treatment plants
        - create & restore wetlands
        - reduce nutrient loading
        - manage the whole watershed system
        - enhance biodiversity
            - ecosystem services have been heavily reduced by habitat loss, species loss, loss of riparian zones

- **the US farm bill…**
    - subsidizing agriculture: govt stimulates overproduction → gets overproduction → prices fall → govt props up farmers' income → farmers can't sell excess anywhere in the world → grain goes to silos and rots → govt pays farmers not to produce → prices go back up

- **solutions, more specifically (see Dead Zone Awakening)**
    - policy analysis
        - tax on nitrogen fertilizer use
        - extension of CRP
            - some kinda cost-sharing program?
        - conservation tillage study
    - nitrogen trading sytem
        - nitrogen becomes the commodity
        - compliance costs = caps = TMDL

            - polluters with high marginal costs buy allowances from polluters with low marginal costs for reduction
        - cap should be set at a point to keep the oxygen levels above 2ppm in the gulf of mexico

        - setting limit to 3mg/l @ $5/lb → >10% redux in N delivered to gulf
            - equivalent to N + GHG permit trading
            - predicted to *increase* farm income 4–5%
            - - ~7% GHG emissions
            - ~7–8% less N and P delivered to waterways

            - nitrogen trading = most cost-effective way of reducing size of dead zone

    - conservation tillage subsidy: ->10% erosion/soil loss

    - tertiary treatment is the most expensive option

MARKET-BASED APPROACHES

- **Pollution Trading**
    - trading reqmts
        - NPS (non-point sources) must first meet their portion of LA (load allocation) before they can generate tradable credits
    - what's tradable?
        - EPA National Policy allows for:
            - total nitrogen
            - total phosphorus
            - sediment
            - cross-pollutant trading(?)
            - other pollutants?
            - *no trade* of PBTs (persistent bioaccumulative toxics)

    - trading can occur pretty much any time
        - unimpaired waters, impaired w/ TMDL, impaired w/o TMDL, pretreatment, intra-plant
    - *but* trading can't be used for some things:
        - can't be used to meet tech-based limitations
        - trades can't result in nonattainment of any WQS
        - can't adversely effect WQ @ intake for drinking water supply
        - can't allow discharger to exceed TMDL-based cap

- anti-backsliding policy
    - CWA prohibits relaxation of permit effluent limits
    - policy:
        - anti-backsliding will be satisfied when a PS increases its discharge through trading:
            - in accordance w/ NPDES permit
            - consistent w/ TMDL
        - No impairment to existing or designated uses.

- elements of a credible trading program
    - legal authority
    - unit of trade
        - "with a point-source regime, you know exactly what's going on. you know what you're getting in response to the controls you're imposing."
        - when it comes to reducing NPS pollution… how do you know how much credit to buy from Cabot Creamery that will effectively neutralize your own increased discharge into Lake Champlain
    - timing of credits
        - some pollutants are more problematic at certain times of the year
    - managing uncertainty
        - cuz this *is* a regulatory program… it just uses some market mechanisms
    - compliance and enforcement
        - record-keeping
        - certifications
        - monitoring
        - reporting
        - inspections

- WQT programs should be: **Transparent** (keep public informed), **Real** (actual improvement), **Accountable** (well managed), **Defensible** (actual basis in science), **Enforceable.** (nurr)

- EPA WQT ppt
    - focus is on agricultural nutrient pollution

- **Wetlands Banking**
    - Wetlands mitigation
        - wetlands mitigation bank = wetland, stream, or other aquatic resource area that has been restored, established, enhanced, or preserved for the purpose of providing compensation for unavoidable impacts to aquatic resources permitted under § 404.

- Swampbusters
    - says you can only get subsidies for some kinds of wetlands protections program
        - doesn't say you can't destroy wetlands
    - must mitigate wetlands degradation

- types of compensation for dmg to wetlands
    - permittee-responsible mitigation – 60%
    - 3p mitigation
        - mitigation banks – 33%
        - in-lieu fee (ILF) – a "cash-out deal" – 7%

- statute says nothing about mitigation; just that you need a permit.
    - Zabel v Tabb gives Corps power to condition permits on mitigation
    - → corps regs
    - *Sweden Swamp* case…
    - → conditions of § 404 permits
        - **primary reqmt = avoidance of damage if alternative sites available**
            - if the use is non-water-dependent, burden is on applicant to show lack of available alternative sites
            - if the use *is* water-dependent, BoP is on govt
        - **secondary = minimize impact on wetland**
            - thru project design… etc
        - **tertiary = compensate**
            - **so all this stuff about mitigation only arises when (a)** no alt sites & (b) fx minimized as much as possible already[14]
            - *restoration*
                - the best kinda thing are those areas where you can just put the water back and the water
            - *enhancement*
                - heighten productivity of an existing wetland
            - *creation*
                - john todd is really awesome. he's a genius.
                - only prollum is that you can't exactly create a wetland where there was none before . . . not in any ecologically meaningful sense
            - *preservation*
                - uh… destroy a jurisdictional wetland and in its place preserve a non-jurisdictional wetland "that has big time beaucoup ecological value!!!"

[14] a different site would avoid the problem altogether, so if you're practicing, try this first…. but don't ever let the client know that you care

- **MOAs change every five years or more frequently**

- **all federal mitigation for wetlands is under the umbrella of "no net loss"**
- **came from GHW Bush**
- **losses must be unavoidable**
- **how do we "offset" the unavoidable loss?**
    - scientifically & ecologically, it's the **functions and values** of the wetlands that matter, not acreage
    - ratios for offsets have varied from 1:1 to 7:1 depending on the uses involved
        - you might have a much higher ratio if, say, you're taking an acre of land of wetlands habitat for an endangered duck
    - major failing of the fed wetlands mitigation program is that it *does not focus on functions and values*
        - which would be rather difficult to do because it's really difficult
        - even quantifying one function – flood control – is "fiendishy complicated"
        - are the wetlands capable of uptake of heavy metals? this that the other thing? what kind of critters live there?
            - would need to duplicate the analysis for the site chosen as mitigation to figure out the ratio… yer not supposed to do it on a pure acreage basis
    - how far away from the impact site can you mitigate?
        - new rule would open it up to the whole watershed
        - wetlands restoration would be more valuable than some kind of in-kind on-site mitigation
    - http://www.mitigationbanking.org/mitigationbanks/

- **most mitigation sites are publicly owned now**

- **mitigation "banks" = wetlands.**
- **want to be a bank?**
    - submit a prospectus
    - cf SEC
    - you INC yourself as "the somebody wetland mitigation bank," submit your shit to EPA/corps, and you get "prior approval" in your bank

    - one goal here is to "incentivize" more o these long-term mitigation banks

CLIMATE CHANGE