Essential Fish Habitat.

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In 2006 congress revised the Magnuson-Stevens Fishery Conservation and Management Act and in doing so attempted to correct the poorly aimed regulatory structure which existed at the time. Prior to the act, fisheries management was conducted based primarily on how many fish were caught. The correction was founded in science and focused regulations on the fish itself and the needs of the fish which may arise during its life cycle. These needs were collected into something called *Essential Fish Habitat* (EFH).

The Act required that each life stage (egg, larva, adult) of each species that the National Marine Fisheries Service was supposed to take care of (AKA a *managed species*) be studied and that those habitats essential to the continued survival of that species be identified and mapped so that managers would be more able to protect it. The Act further required that each managed species have a specific and formally adopted *Fishery Management Plan* to enable these protections and empower the managers: Empower them with scientifically based guidelines. The Act goes so far as to extend the protection to the primary and preferred food sources of the managed species arguing that food is as essential as is the physical habitat. These studies and plans were to produce descriptions and maps identifying Essential Fish Habitat(s) for each species.

Science in management was on the rise.

The Act goes on to define an adverse impact as one to either quantity or quality of the EFH. The implication is clearly that EFH, once defined, can exist at different qualitative levels. Finally, there is a requirement that any federal action or federally issued permit must be done after having had a consultation on the effects to EFH. Compensation for impacts to EFH were to be based in the broad balance of the needs of *all* the managed species. This seemed to be a pretty good approach.

The reality of the requirement was that the science wasn't all there and the funds to conduct it was not readily available. The consequence was the Generic Amendment to the Fisheries Management Plans[1] which describes and adopts EFH for managed species in a broad all encompassing manner, technically satisfying the Act but not achieving the detailed empowerment originally desired. The attempt to manage based on science was failing.

In the Amendment *all estuarine waters, including the water column, and all estuarine substrates, including mud, sand, shell, rock, and the associated biological community, as well as all emergent and submergent intertidal and subtidal vegetation including seagrass, algae, mangroves, and marsh grasses are considered EFH.* The definition covers all conceivable habitats, making no distinction between natural and artificial; pristine or impaired.

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[1] Gulf of Mexico region. The Generic amendment applies to all FMPs.

The Act also recognized that some habitats may be more threatened than others and identified the more specific "Habitat Areas of Particular Concern" (HAPC). The effect of this attempt is negated[2] by an equally diluted seemingly all encompassing definition of HAPC, including "the importance of the ecological function provided by the habitat."[3]

The result of the inability to enact the legislation to the fullest extent intended is an unusual one. As an example, the normally ecologically undesirable exotic green mussel is defined as a biological community on a hard structure and is, by the plan, defined as Essential Fish Habitat. Bridge pilings are EFH. A beer can in which a toad fish has taken refuge is EFH. These are obviously absurd extensions, but the line between an absurd interpretation and a realistic one is not easily discerned; and the line is derived from staff interpretations which may or may not be well founded and may or may not be consistent with that of other staff. Each derivation also sets a precedent in interpretation that the advocates of equal treatment have been known to use as a means of reducing regulatory control. Raising the bar requires a rule change: Lowering it only requires a bad and precedent setting decision.

The topic of consistent treatment is discussed elsewhere. It is, for now, only necessary to recognize that there is a significant difference between the equal treatment of people and the equal treatment of habitats. Consistency must not preempt ad hoc scientific knowledge.

By definition, estuarine mud is EFH. Even those polluted muds laced with PCB's[4] or heavy metals are within the definition of EFH. When an agency undertakes a restoration program and fills an old dredge hole then plants seagrass, the agency action is adversely affecting the EFH that is the mud. By policy, these activities are normally accepted because there are still good biologists enacting the law.

The conversion from an impaired system (polluted mud) to a viable one is not recognized in the FMP but is easily recognized by the biologist as a conversion from one type of EFH to another, higher quality EFH. But the act makes no differentiation between the recovery of a dredge hole and placing an artificial reef in a grass bed. Such an action represents no less of a conversion than does filling in a dredge hole. Planting seagrass in a sand flat represents a desirable conversion from one type of EFH to another, yet replacing seagrass with a sand flat is considered unacceptable; by personal policy.

Considering the common practice of sinking ships to create reefs it is clear that the sunken vessel is not EFH until it is colonized by the "associated biological community." It has become acceptable to place these reefs on sand but not in mud (they sink) and not in grass beds. Note

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[2] We will need to see how these are applied in the long term before a final assessment of the effectiveness can be made.

[3] They have already been identified as essential connoting a good deal of implicit importance. See 50 CFR 600.815(A)(9).

[4] Polychlorinated biphenyls.

that sand, mud, and sea grass are all EFH of equal legal stature. Sand is EFH which is indispensable to many managed species; pink shrimp, red drum, gray snapper, yellowtail snapper, lane snapper, flounders, and rays. There is some work that indicates that some open sands are more productive than are grass beds.[5]

The practical application of the Act has apparently resulted in an informal consensus based prioritization of EFH which places a high value on reefs and SAV, and a low value on muds and sands.

If you found this essay convoluted, irrational, and confusing or if you found the decision-making process of the federal agent to be arbitrary and based in personal or agency values rather than ecological values, then I have properly conveyed the effects of adopting *Essential Fish Habitat* as a regulatory guidepost.

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[5] The quick turnover from diatom to grazer results in a low standing crop, but the primary production is reportedly rapid. The diatom is also more easily assimilated into the food chain.