

## **A Balance of Nature – Steel Reefs and Coral Reefs – Compatible or Contradictory?**

### **¿Un Equilibrio de la Naturaleza – Arrecifes de Acero y los Arrecifes de Coral – compatibles o Contradictorias?**

### **Un Équilibre de la Nature – Acier Récifs et Coraux – Compatible ou Contradictaires ?**

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#### **EXTENDED ABSTRACT**

Artificial reefs are well known icons in the Gulf of Mexico even though most coastal residents of Texas and Louisiana recognize them, not as fish habitats but as the offshore oil and gas production platforms dotting the northern Gulf of Mexico. These prominent features are the single largest contributor to the economic health and productivity of the Gulf of Mexico. Some 54% of US crude oil production and 52% of natural gas production comes from the Gulf. These structures are also economic powerhouses for the multi-billion dollar recreational fishing industry, and it is this latter contribution to the economic health of this region and Gulf that are now at risk. Without timely public action to keep these structures in place, we will likely lose this valuable asset, to the detriment of our local economy and that of the Gulf as a whole.

Most people do not realize how important these structures are to the Gulf's recreational fishery industry. These *Artificial Reefs* provide habitat to thousands of fish, shellfish and invertebrates - a self-contained ecosystem that grows in diversity, productivity, and value the longer the platform remains in place. If you are a SCUBA diver and have had the opportunity to dive on one of these steel reefs, you know what an amazing place they are - sharks, sea turtles, lobster, coral, a riot of colorful reef fish of every description, schools of jacks and spade fish, and Goliath Grouper that can be as large as the diver themselves. Fishermen are also attracted to these areas. Red snapper, king mackerel, and many other sought after gamefish are found in and around these structures. Even if you do not fish or dive you can experience an artificial reef at the Texas State Aquarium's Islands of Steel exhibition.

Why are these structures at risk, if they are so valuable? Federal law requires that these structures be removed from the Gulf once their production life ends. It is a sensible precaution but not when there are viable options that preserve their economic and environmental value by leaving them in place. There are state led programs across the Gulf that can take ownership of these structures and preserve their value by negotiating funding arrangements that benefit both the owner and program.

There is a growing movement in the federal regulatory community to view any proposal to leave these offshore platforms in place as ocean dumping and pollution. They also raise the argument that these artificial reefs attract fish from surrounding natural reefs and concentrate them to be caught, rather than producing and sustaining fisheries populations of their own. The growing preponderance of study does not support this opinion but neither this nor the overwhelming support of fishermen and divers seem to be changing this view.

US fisheries represent an approximately \$45 billion industry, but this "renewable" resource is in jeopardy from overfishing and serious habitat degradation. According to current estimates, over two-thirds of the world's fisheries are fully or over-exploited with only 3% of overfished stocks recovering. In the Gulf of Mexico, artificial habitats can help mitigate fishing pressure by providing structure where none or very little naturally exists. Specifically, oil and gas platforms can provide acres of vertical structure for marine life, and previous research has indicated that standing structures can support more fish biomass than natural areas. Whether this higher biomass is due to production or attraction is still debated in the scientific literature; however, recruitment and increased biomass of sport and commercial fisheries to artificial structures has well-been documented. For example, research on the most economically important fish in the Gulf of Mexico, red snapper (*Lutjanus campechanus*), indicates that these fish have long term residence and high site fidelity on artificial structures. In fact, the red snapper fishery may be supported by populations associated with artificial structures, and the Gulf of Mexico Fishery Management Council is currently considering recommendation of artificial structures as essential fish habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006.

In light of the Idle Iron Directive (Department of the Interior, October 2010) to remove non-producing oil and gas platforms, there is increased concern that essential habitat may be lost from the Gulf of Mexico. Because of the important biological and economic impacts (fishing, diving, etc.) of these artificial reef structures, the position of the Harte Research Institute for Gulf of Mexico Studies is that a precautionary approach should be adopted when scheduling removal of these structures. For example, thorough scientific studies should be performed on these structures to assess their biological/ecological and economic value before they are removed.

At HRI, with funding from Texas Parks and Wildlife Department, we are beginning a comprehensive assessment of artificial reef structures of the South Texas coast. Our goal is to help resource managers maximize benefits from artificial reef structures and understand how they can best be used as a management tool for healthy marine ecosystems. We are conducting these studies using the latest cutting edge technology: remotely operated vehicle (ROV). This mini-submarine is piloted from the surface and allows us to perform studies on very deep artificial structures where our conventional SCUBA diving could not occur. Critical studies like these are needed in the Gulf to better quantify the ecological and economic value of standing artificial reefs.