

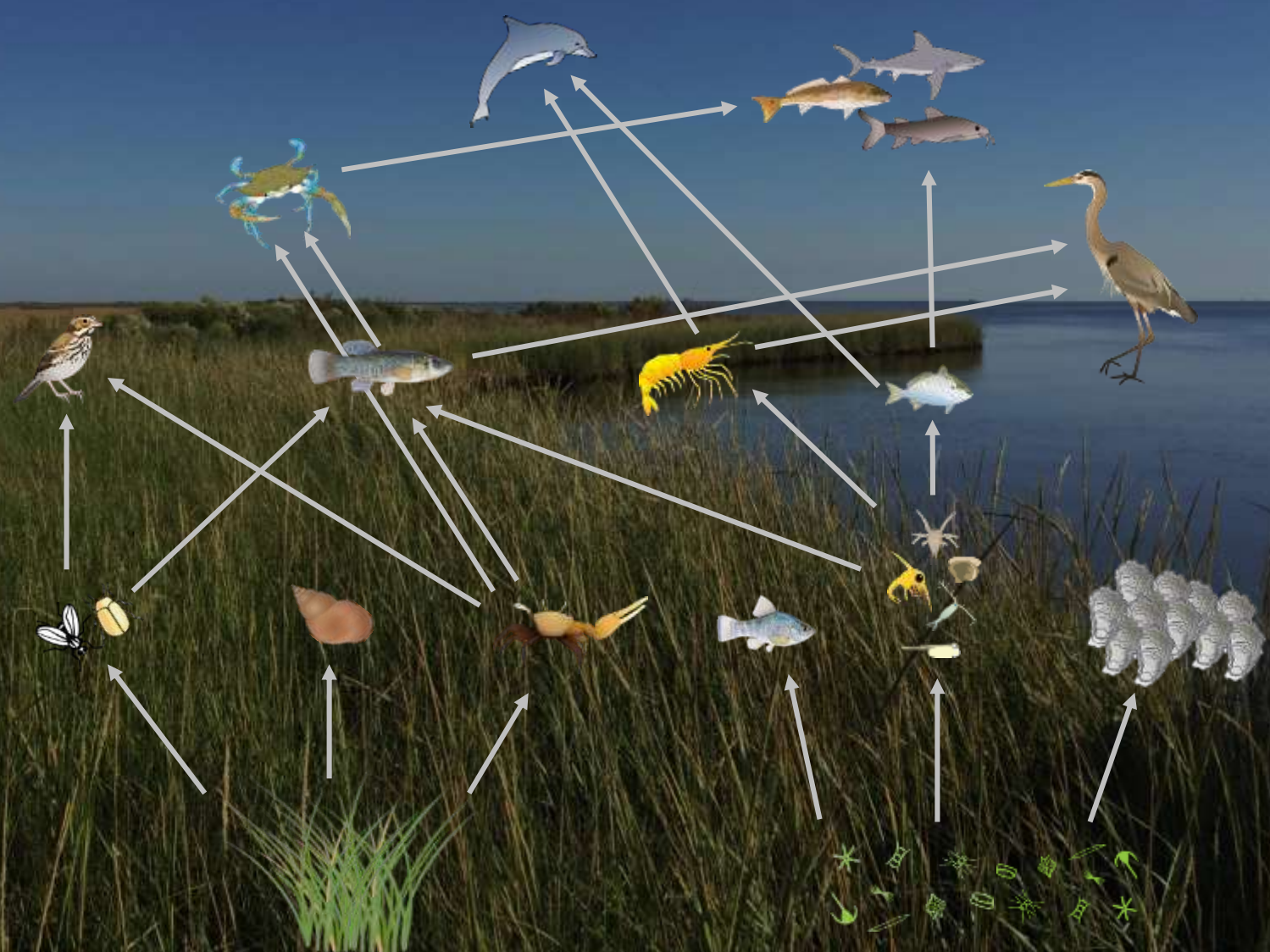
# A Closer Look at Marsh Food Webs

- 1) Similarities between food webs in marshes impacted vs. not impacted by oil in 2010
- 2) Surprising aspects of these similarities given previous studies
- 3) Implications of our results relative to ongoing and future oil spill research

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# Marsh Food Web

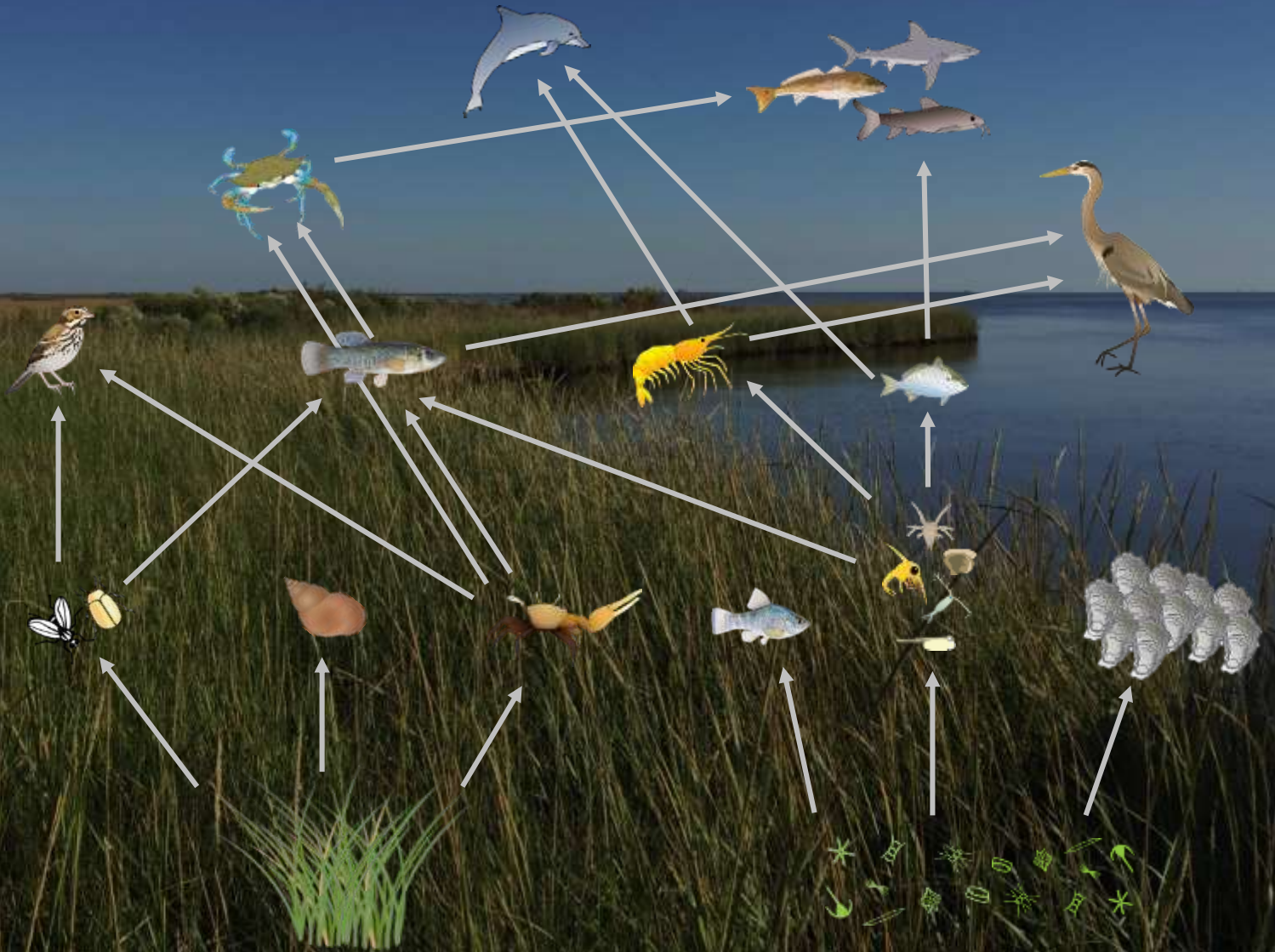


# “You Are What You Eat”










Secondary  
and  
Tertiary  
Consumers

Primary  
Consumers

Primary  
Producers



**Five years of research** on the effects of the 2010 Deepwater Horizon Oil Spill (DHOS) indicate that oil impacts on marsh species vary widely among taxonomic groups: negative (↓), positive (↑), or no change (⊖).

Taxonomic Group	Oil Response	Field Studies
Marsh Plants	 ⊖	McCall & Pennings 2012
Marsh Periwinkle	 ⊖	McCall & Pennings 2012
Fiddler Crab	 ↓ ↓	McCall & Pennings 2012 Zengel et al. 2016
Terrestrial Arthropods	 ↓	McCall & Pennings 2012
Brown Shrimp	 ↓ ⊖	Rozas et al. 2014 Moody et al. 2013
Grass Shrimp	 ↓	Moody et al. 2013
Blue Crab	 ⊖ ⊖	Grey et al. 2015 Moody et al. 2013
Marsh Fish	 ⊖ ⊖ ⊖	Fodrie and Heck 2011 Moody et al. 2013 Able et al. 2015
Transient, marsh-associated fish	 ⊖ ⊖ & ↑ ⊖	Fodrie & Heck 2011 Moody et al. 2013

# Reconciling Population vs. Organismal Responses in Fish

*Fodrie et al. 2014 (BioScience)*



8 POPULATION studies: >100 species; stable (or increasing) populations and assemblages in **93%** of cases



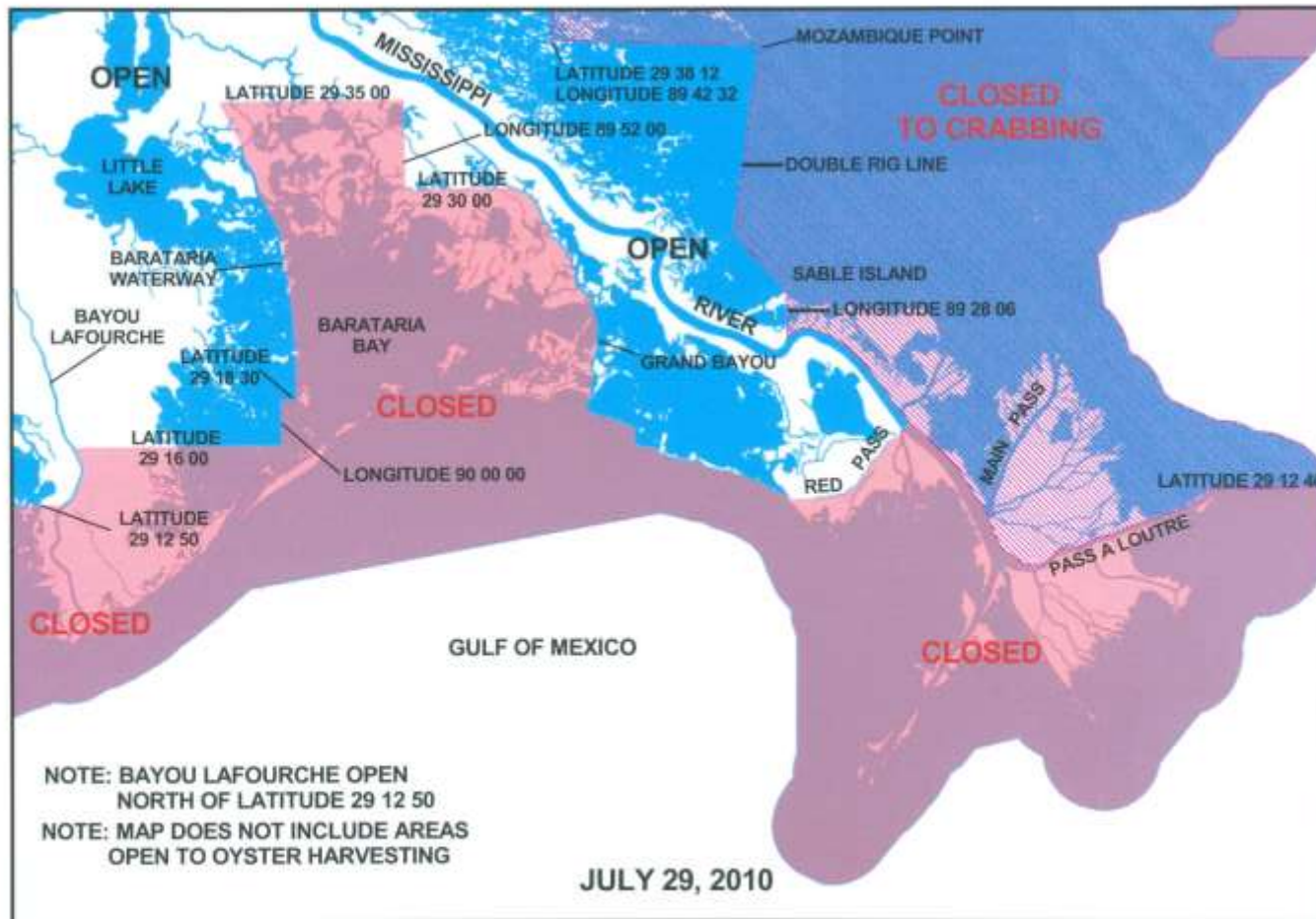
21 ORGANISMAL studies (lab and field): 13 species; genomic, physiological, developmental, reproductive, or survival costs in **95%** of cases

## WHY THE DISCONNECT?

Oil avoidance behaviors by fish (*Charlie Martin, LSU*)

Fishery closures (*Giovanna McClenachan & Gene Turner, LSU*)

# State Fishery Closures (April to November 2010)



LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES  
COMMERCIAL FISHING CLOSURE  
DETAIL SHEET 1

# Federal Fishery Closure 2010-2011

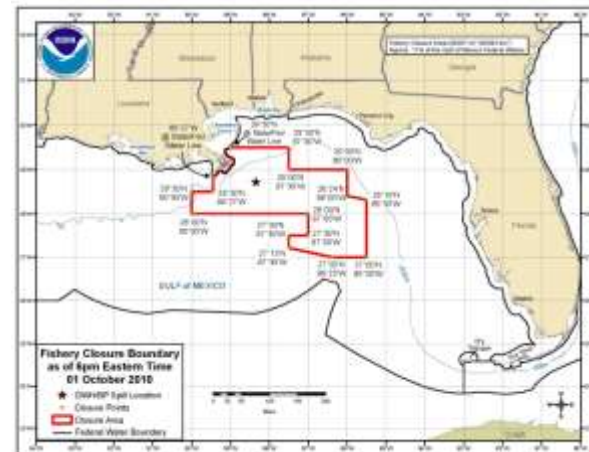
11 May 2010



28 June 2010



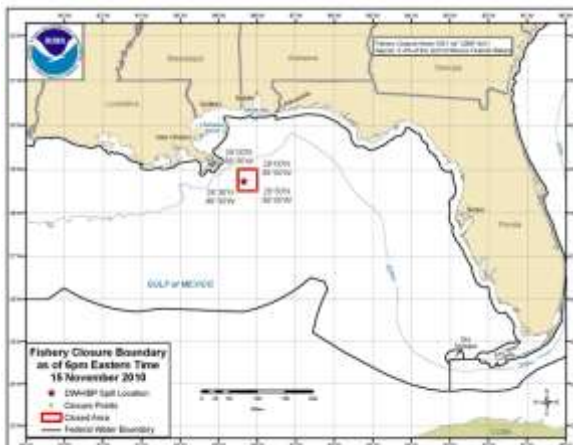
01 October 2010



22 October 2010



15 November 2010



19 April 2011

