

BODEGA MARINE LABORATORY & RESERVE FOR 2004-2005.

1st Deadline: June 30, 2004

2nd Deadline: November 15, 2004

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Initial Genetic Analysis

- **Pat Gaffney, U. Delaware**
- **Sequenced 8 large oysters (108-160 mm) from South SFBay**
- **2 Mitochondrial genes (16S and COI) & 3 Nuclear genes**

Results:

- ***Crassostrea gigas*, with relatively high genetic diversity**



Impacts in Other Parts of the World

- **Aggressive spread; exclusion/smothering of native organisms; alteration of habitats & food webs**
- **Native oyster populations harmed in Australia & NZ, leading to limits or bans on cultivation**
- **Mussels beds eliminated in areas in the Netherlands & Germany**
- **Power plant fouling; shore use impeded**

Possible Impacts in SF Bay

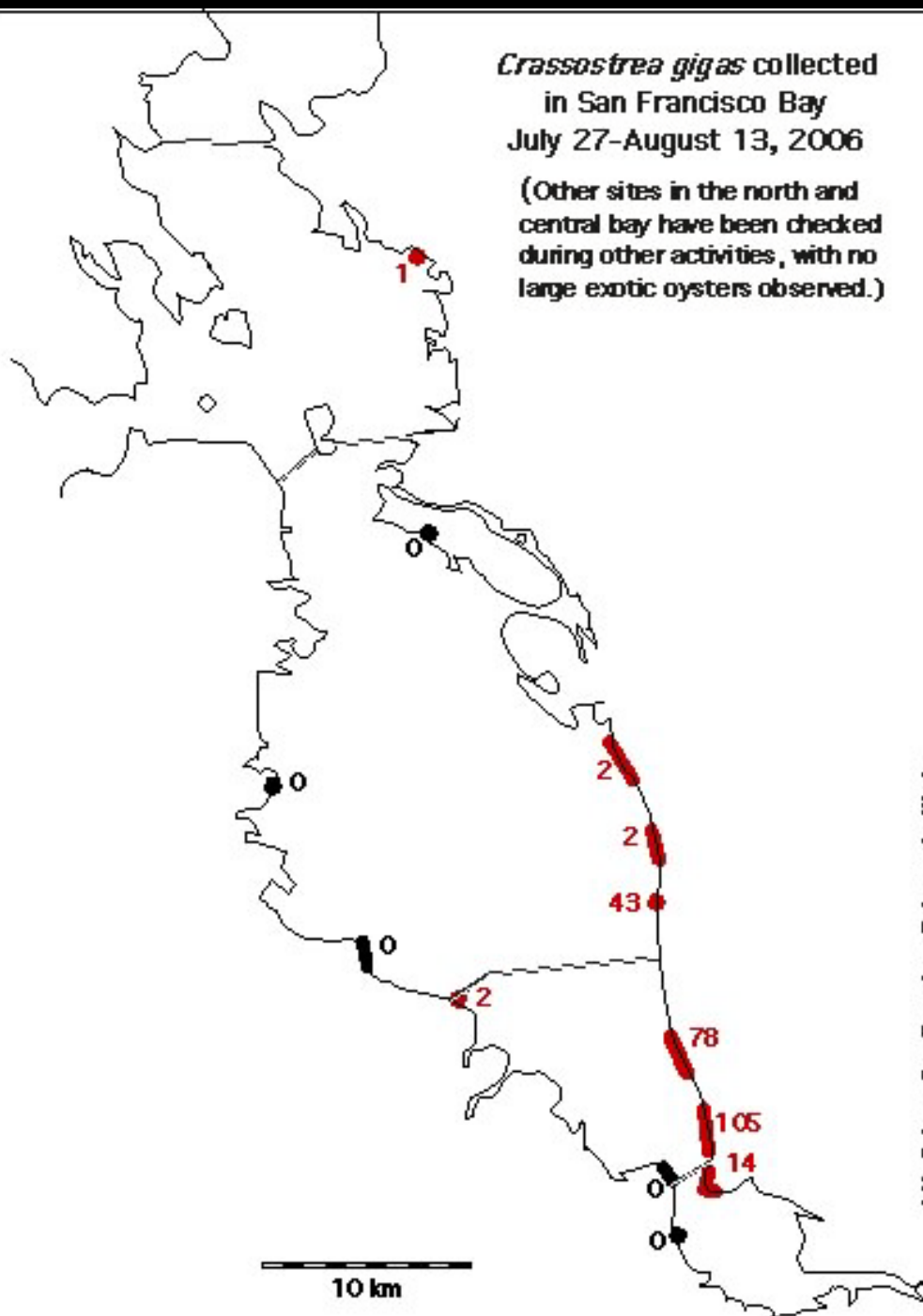
- **Out-compete or overgrow native oysters, or impair their growth with metabolites, feces**
- **Out-compete or overgrow other epibenthic organisms**
- **Reduce phytoplankton biomass & productivity, limiting food resources for many pelagic & benthic species**





Crassostrea gigas collected
in San Francisco Bay
July 27-August 13, 2006

(Other sites in the north and
central bay have been checked
during other activities, with no
large exotic oysters observed.)



Possible Vectors

- **Larval drift from commercial oyster farms (e.g. Drakes Estero, Tomales Bay)**
- **Larvae in ballast water**
- **Spawning adults on a boat or ship hull**
- **Illegally planted adults (e.g. San Rafael)**
- **CDFG experimental cultivation (1981 and earlier)**
- **Spawning adults in bioaccumulation studies (RMP, BCTCP & LEMP 1991-2002)**

Implications

- **State of California / Exotic Species Management**
- **Oyster Farms**
- **Bioaccumulation Studies**
 - **use of exotic study organisms**
 - **transfer of genes**
 - **transfer of parasites or other associated organisms**