



**Public Workshop to Discuss  
Reducing Emissions from  
In-Use Commercial Harbor Craft**

## **2002 California Statewide Commercial Harbor Craft Survey**

March 23, 2004

California Environmental Protection Agency

---



**Air Resources Board**

## **California Statewide Commercial Harbor Craft Survey**

---

- Survey focuses on Harbor Craft
  - Fishing boats, tug boats, ferries, work boats
- Collected data on vessels & activity for 1999-2001
  - Vessel age and use, engine information, fuel usage
- Data to be used to improve inventory and support efforts to reduce emissions

## **Vessel Data**

---

- Collected data on 900 vessels and 1800 engines
- Most common home ports
  - ▶ San Diego
  - ▶ San Francisco
  - ▶ Los Angeles
  - ▶ Bodega Bay
  - ▶ Moss Landing

## **Most Common Vessels Use Reported Was Commercial Fishing**

---

**51% Commercial Fishing**  
**11% Commercial Passenger Fishing Boats**  
**9% Ferry / Excursion Boats**  
**8% Tug Boats**  
**7% Work Boats**  
**7% Other Boats**  
**2% Tow Boats**  
**2% Crew Boats**  
**1% Pilot Boats**

## Wide Range of Vessel and Engine Ages

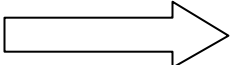
---

- Vessel Age
  - ▶ Range - Current to 99 years old
  - ▶ Average - 32 years old (1970)
- Engine Model Year
  - ▶ Range - Current to 97 years old
  - ▶ Average - 18 years old (1980)

## Survey Results Indicate Fuel Use Is Increasing

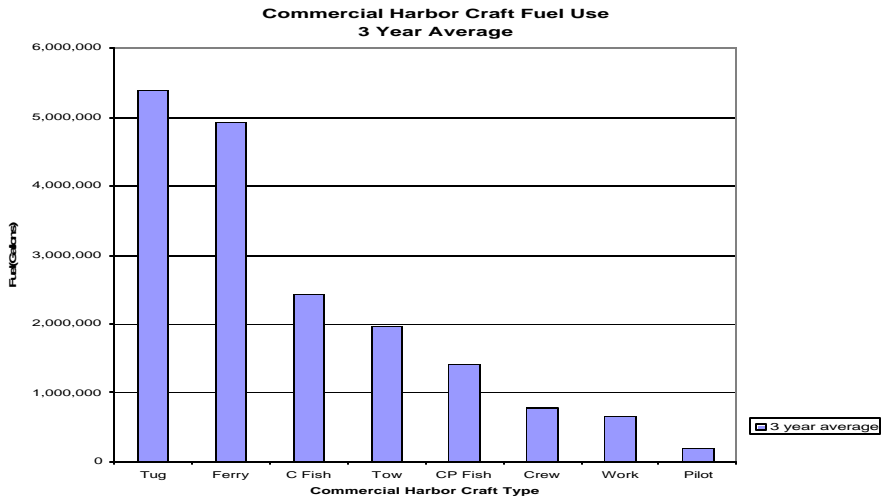
---

1999    2001

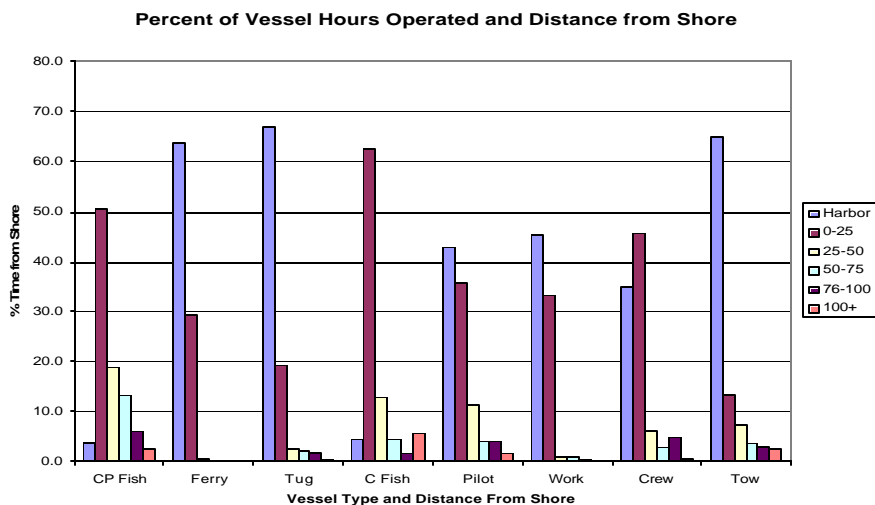
15,986,000 gal.            19,345,000 gal.

**Tug Boat and Ferries  
Consume 58% of Fuel Total**

# Total Fuel Use by Vessel Type 3 Year Average



# Most Commercial Harbor Craft Operate the Majority of the Time within 25 miles of California Coast

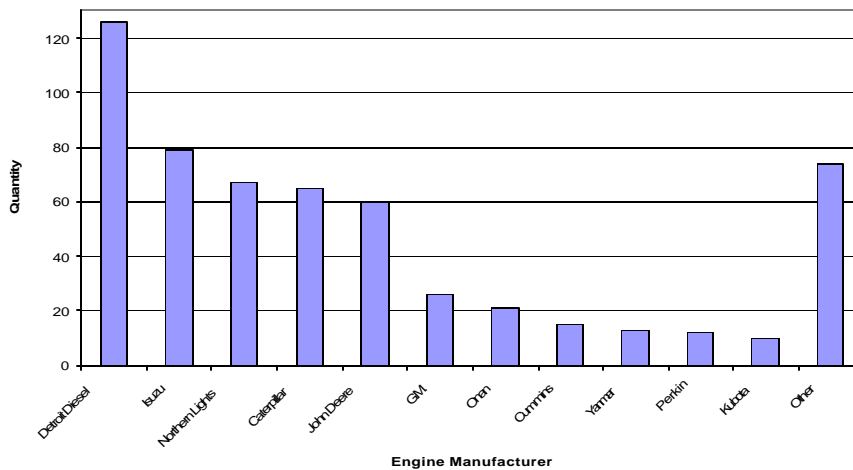


# Propulsion and Auxiliary Engine Data

- 40% vessels had auxiliary engines
  - ▶ Average 75 hp
  - ▶ 80% 1970 model year or newer
- 63% vessels had one propulsion engine
  - ▶ 36% had 2 or more
  - ▶ Average 500 hp
  - ▶ 52% reported dry exhaust
  - ▶ 80% 1970 model year or newer

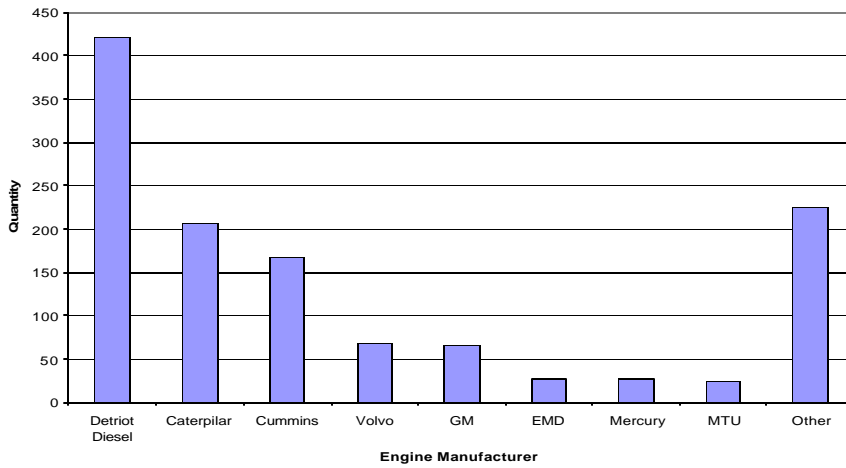
# Auxiliary Engine Manufacturer

Quantity of Harbor Craft Auxiliary Engines by Manufacturer



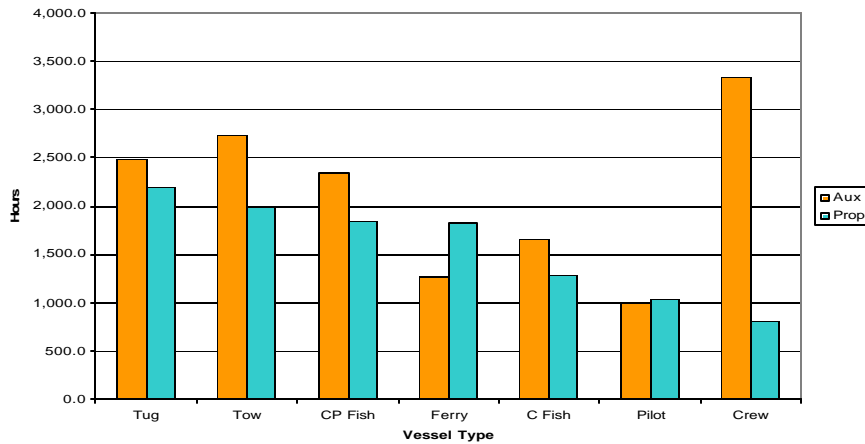
# Propulsion Engine Manufacturer

Harbor Craft Propulsion Engine Manufacturers



# Average Engine Hours of Operation

Average Engine Hours of Operation per Year



## ARB Contacts

---

- **Todd Sterling**
  - e-mail: [tsterlin@arb.ca.gov](mailto:tsterlin@arb.ca.gov)
  - phone: 916.445.1034
- **Kirk Rosenkranz**
  - e-mail: [krosenkr@arb.ca.gov](mailto:krosenkr@arb.ca.gov)
  - phone: 916.327.7843

Survey available: <http://www.arb.ca.gov/harborcraft>