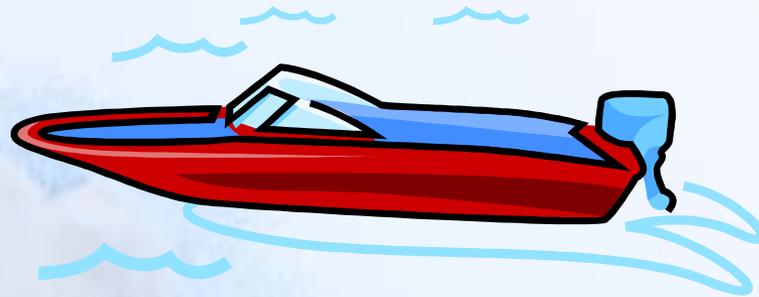


# Marine Pleasurecraft



January 14, 2004

# What Types of Vessels Comprise Marine Pleasurecraft?

- Personal Watercraft (PWCs)
- Outboards
- Inboards
- Sterndrives

# Personal Watercraft

- 80-135 hp
- Pre-regs: 2-strokes
- Regs: 4-strokes, EFI
- Population: Growing
- Useful Life: 9 years



# Outboards

- Engine and propeller external to hull
- 2-300 hp
- 2- and 4-stroke
- Population: Steady
- Useful Life: 16 years

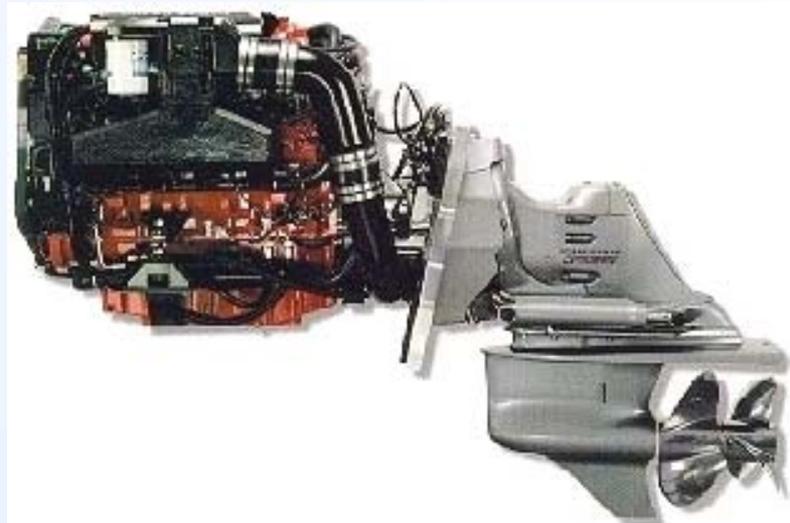


# Inboards

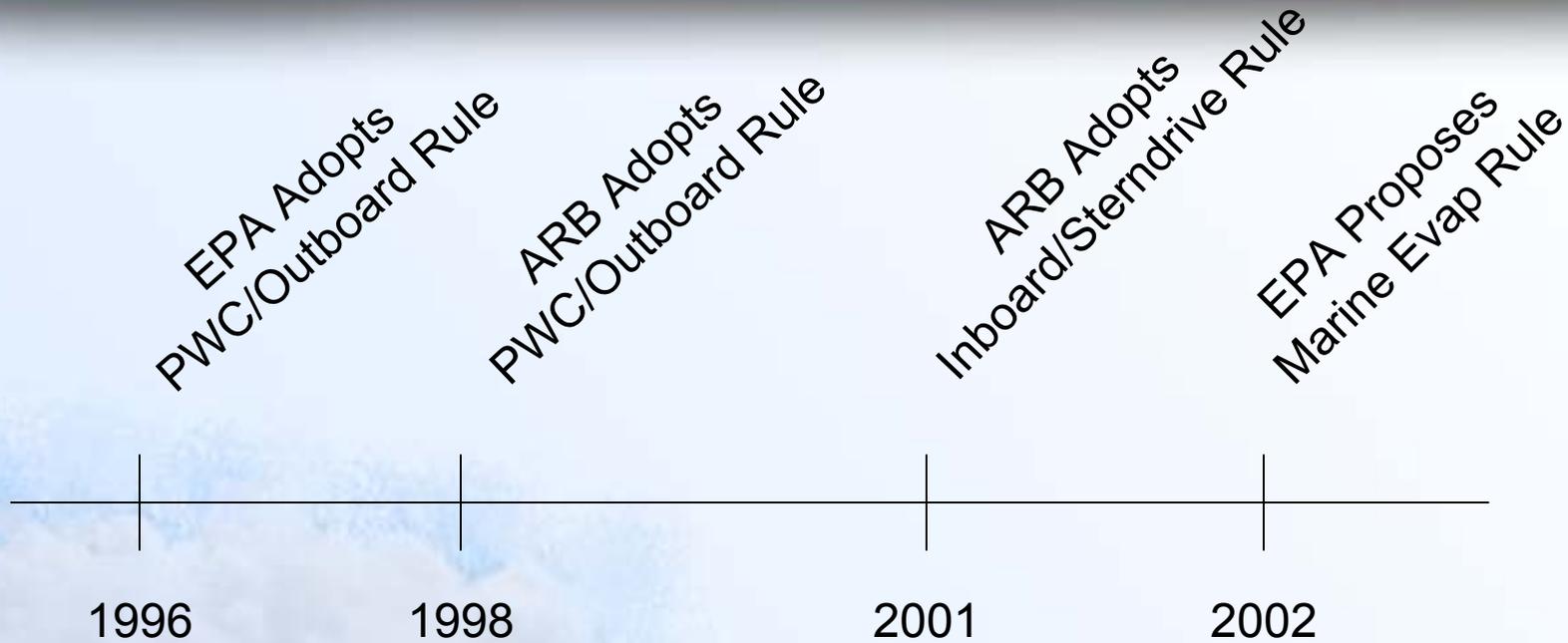
- Engine mounted in center of hull
- Marinized V-6/V-8 auto/truck engines
- Population: Growing
- Useful Life: 16 years



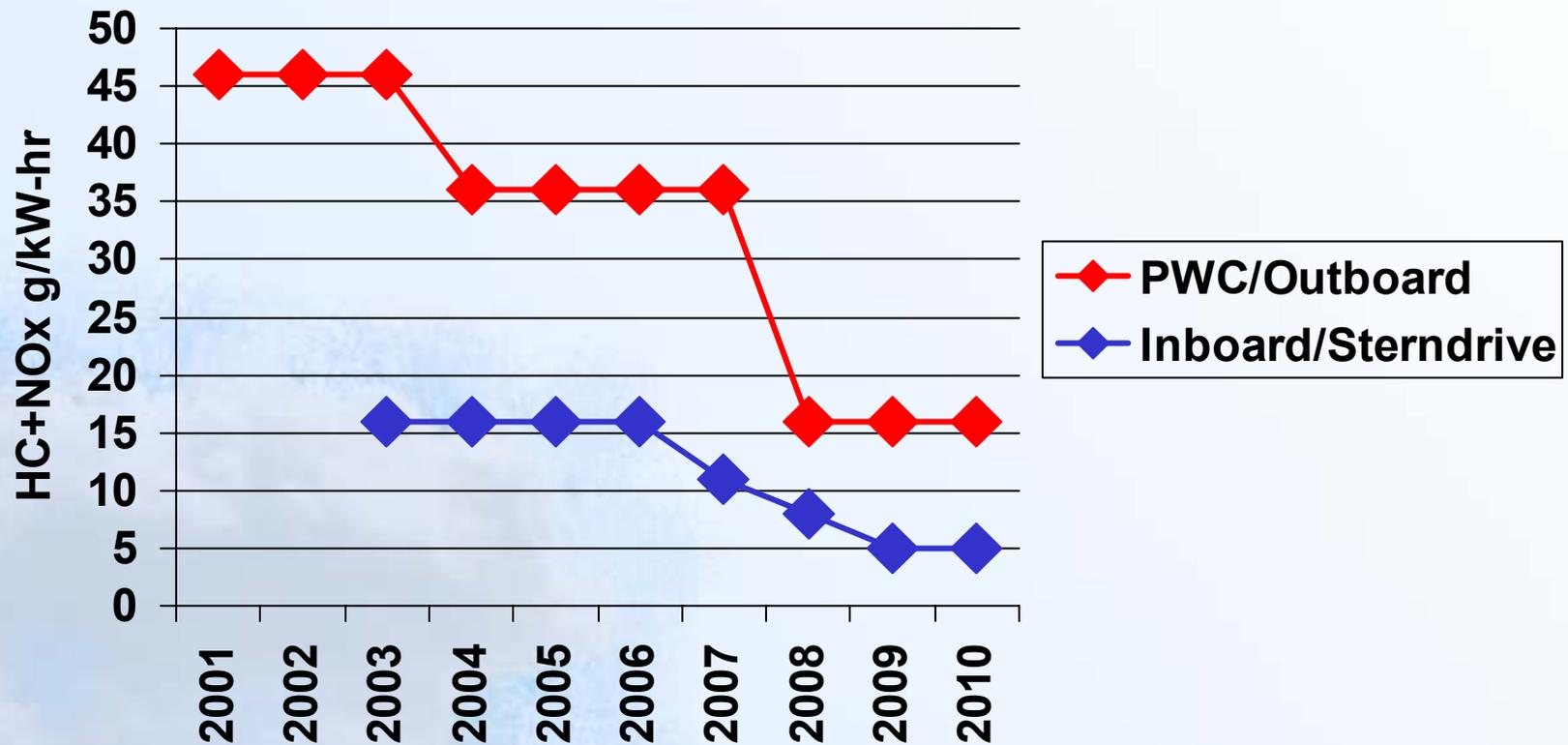
# Sterndrives



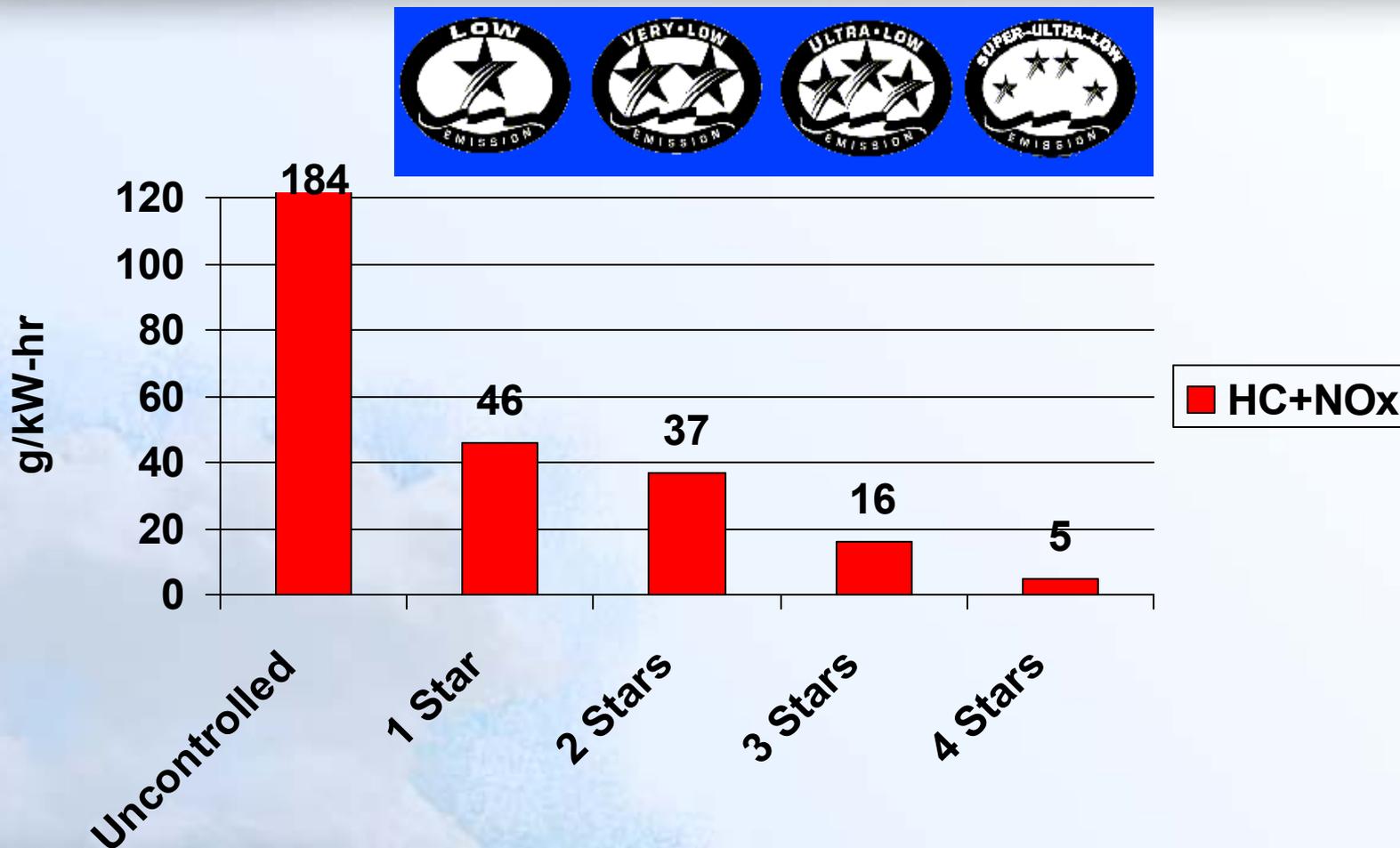
# Regulatory History



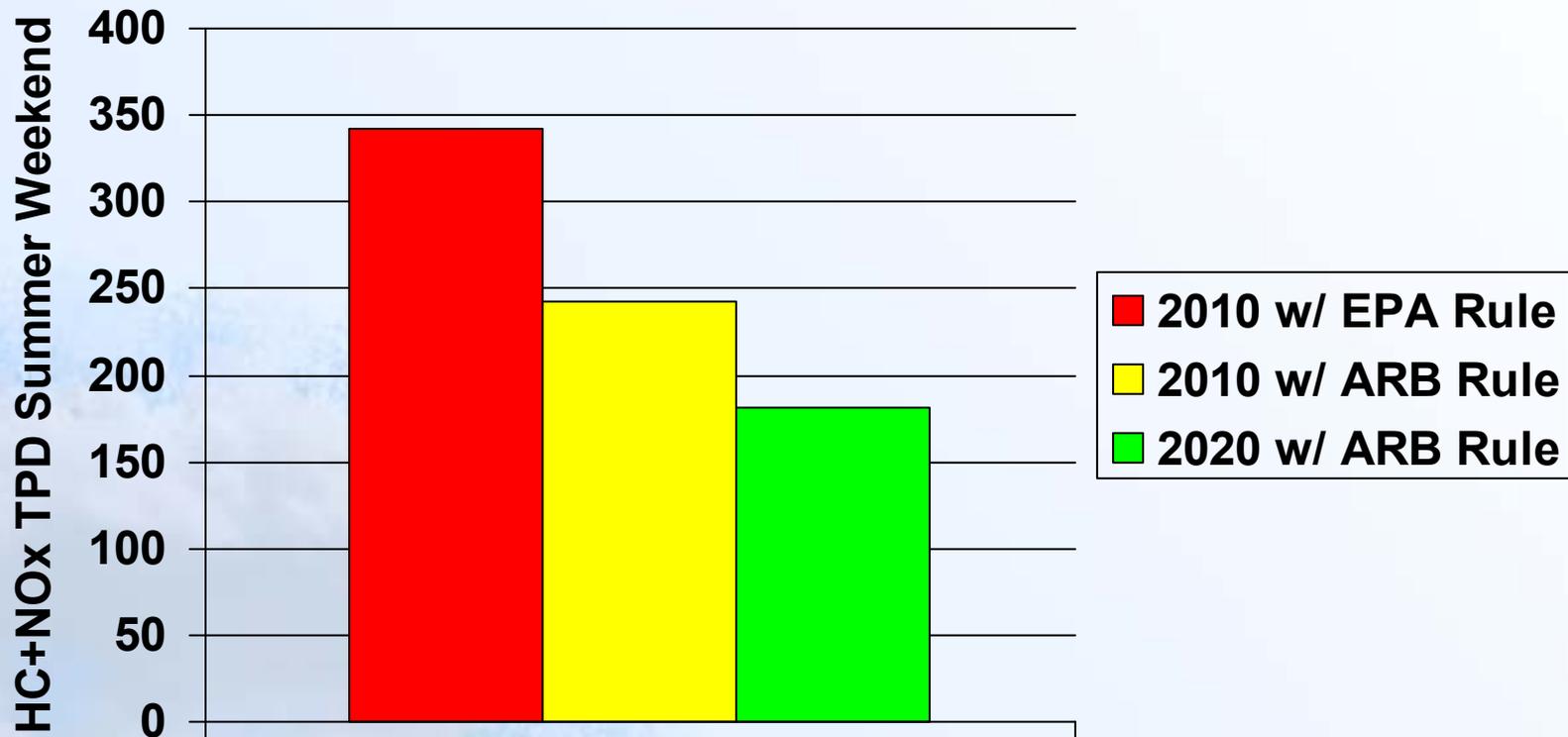
# Emission Standards Timeline



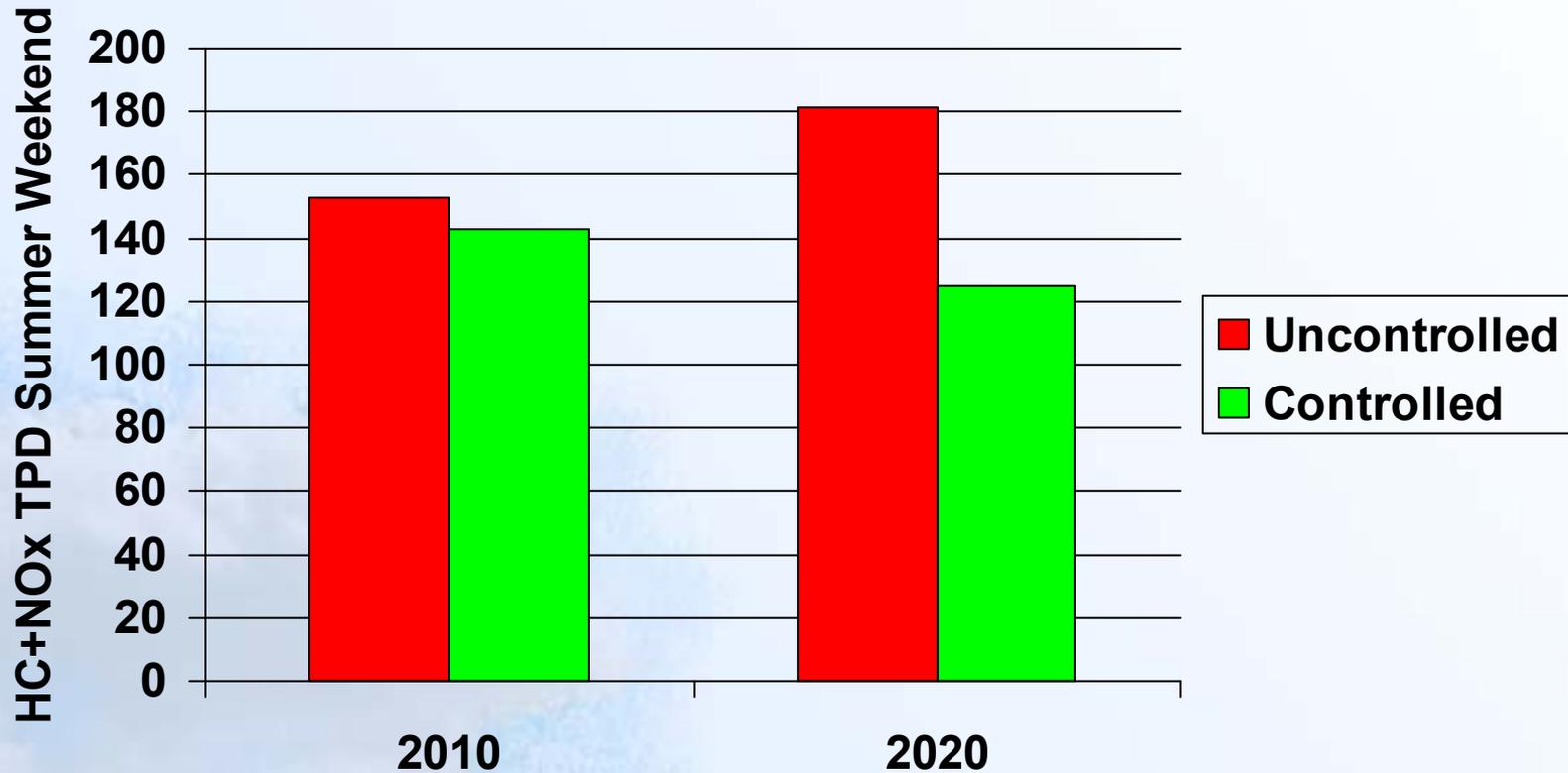
# Consumer Labeling Program



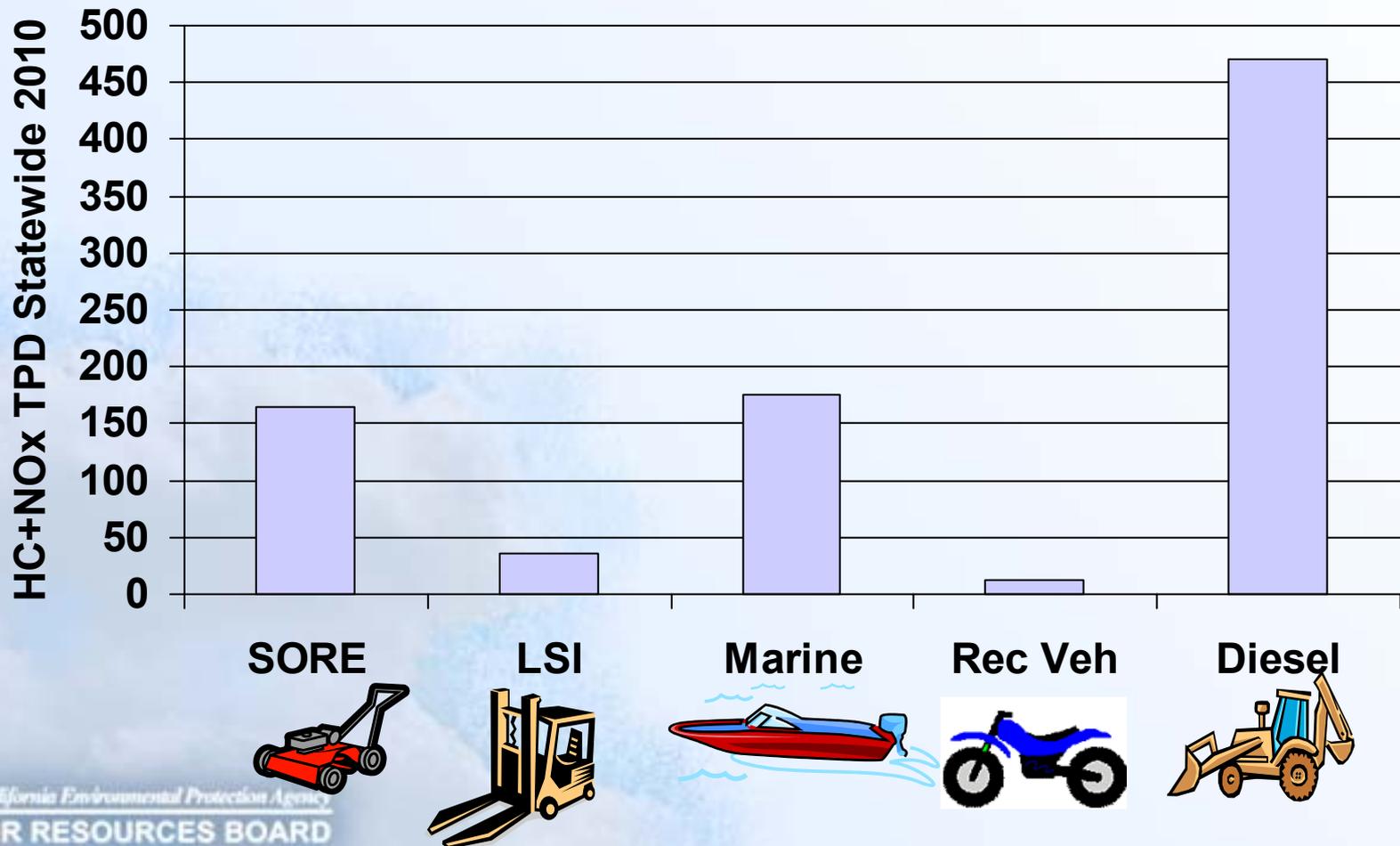
# PWC/Outboard Reductions Significant



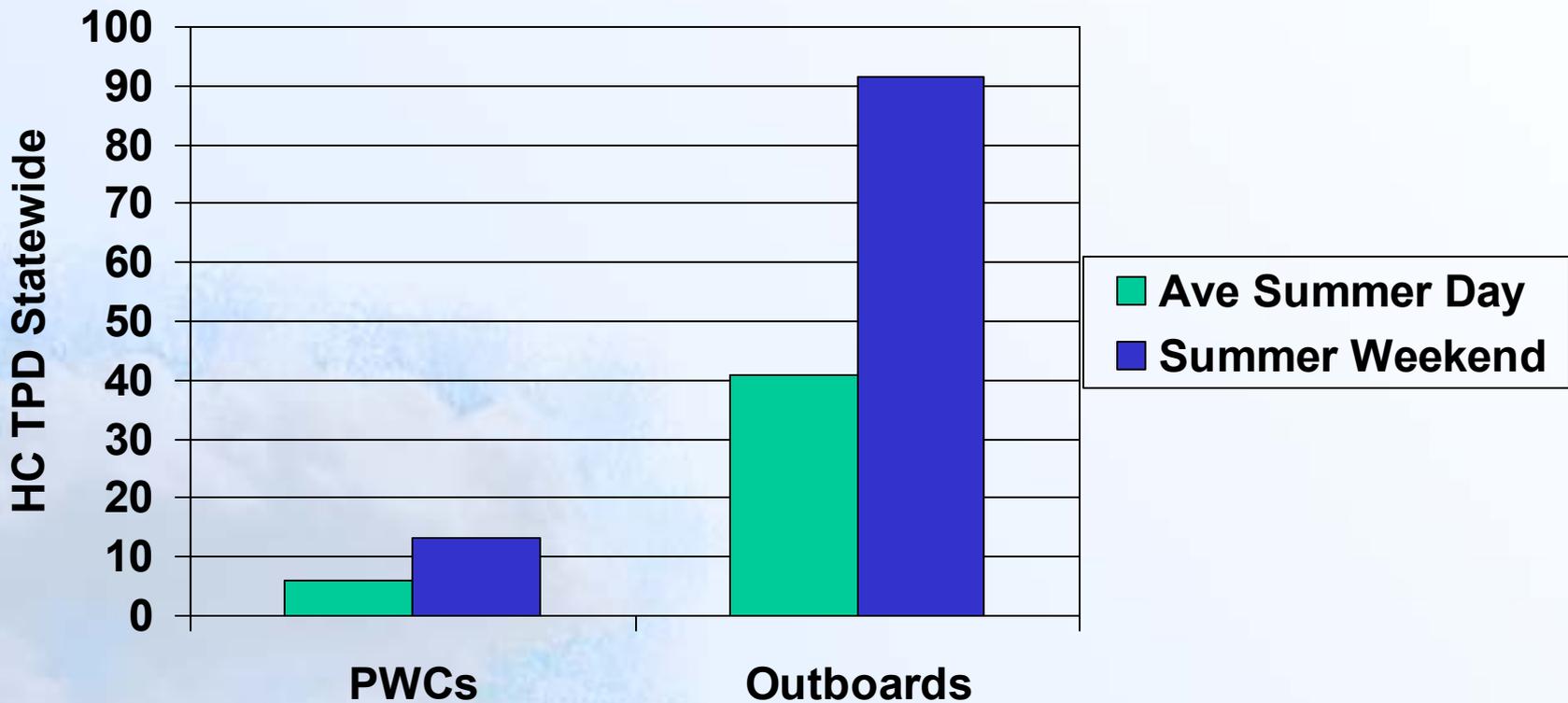
# Inboard/Sterndrive Reductions Significant



# How Important is Controlling Marine Pleasurecraft?



# 2010 Average Summer Day vs. Summer Weekend



# Other Possible Strategies

- Accelerate fleet turnover
  - Buyback program
- Limit use on ozone episode days
  - Only the cleanest vessels
  - 260 tons of HC+NO<sub>x</sub> benefit
- More stringent new engine standards
  - EPA evaporative proposal
  - Exhaust being evaluated

# Conclusions

- Major source of emissions
- Adopted rules reduce emissions
- Proposed EPA Evap Rule provides additional reductions
- Episodic controls may provide significant reductions
- More stringent new engine standards being evaluated