



Updates on Commercial Harbor Craft Emissions Inventory

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Overview of Updates

- Applied latest OFFROAD fuel correction factor
- Integrated proposed regulations into emission inventory
 - Reflect tier II emission factors
 - Working to estimate Tier III emission factors (not integrated in the inventory yet)

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Methodology

- We used ARB 2002 CHC survey data to calculate ship type and region specific average emission rates
 - There are about 600 auxiliary & 1,300 main engines in the survey data
 - Roughly 20% of the statewide population
- We assumed survey data are representative of statewide population
- We calculated statewide emissions based on population & emission rates

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Components of Methodology

- Population
 - Number of vessels
 - Vessel & engine specific data
 - Growth rate
 - Useful life/attrition
- Emission factors
 - Based on OFFROAD emission factors
 - Adjusted for marine cycles
 - Accounted for engine deterioration
 - Corrected for cleaner fuel
- Activity
 - Annual operating hours by engine
 - Vessel type specific load factor

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Updated fuel correction factor

- Latest OFFROAD fuel correction factor
 - Fuel correction factor for HC 0.72
 - Other changes negligible impacts

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Integrating Regulatory Strategy

- Regulatory strategy: engine repower based on compliance schedule
- Identify sample engines reaching compliance year in each calendar year
- Treat repowered engines as new engines
 - Apply most current emission factor
 - Apply deterioration & attrition using new model year (compliance year)
- Estimate vessel type, region and calendar year specific emission rates based on emission factors, activities & population of the sample engines
- Calculate emissions based on emission rates & population

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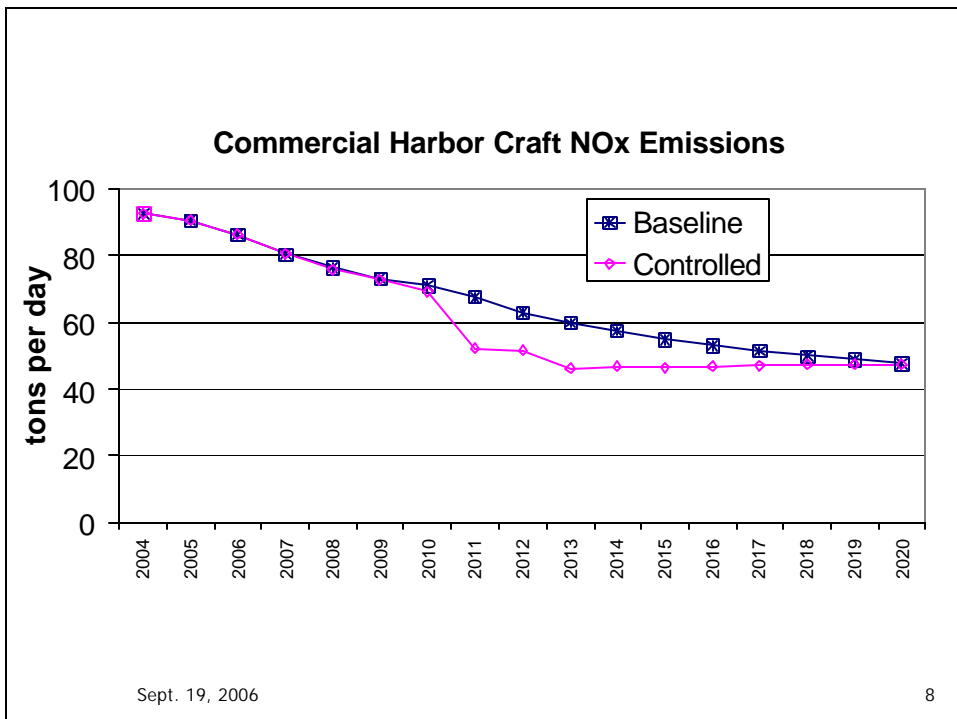


Compliance Dates

Vessel Group	Annual Operating Hours	Model Year	Compliance Year
Non Fishing	300- 1500	pre 1975	2009
		1976- 1989	2011
		1990- 2003	2012
		2004- 2006	2014
	>=1500	pre 1975	2008
		1976- 1989	2010
		1990- 2003	2011
		2004- 2006	2013
Fishing	300- 1500	pre 1975	2012
		1976- 1989	2014
		1990- 2003	2016
		2004- 2006	2018
	>=1500- 10000	pre 1975	2011
		1976- 1989	2013
		1990- 2003	2015
		2004- 2006	2017

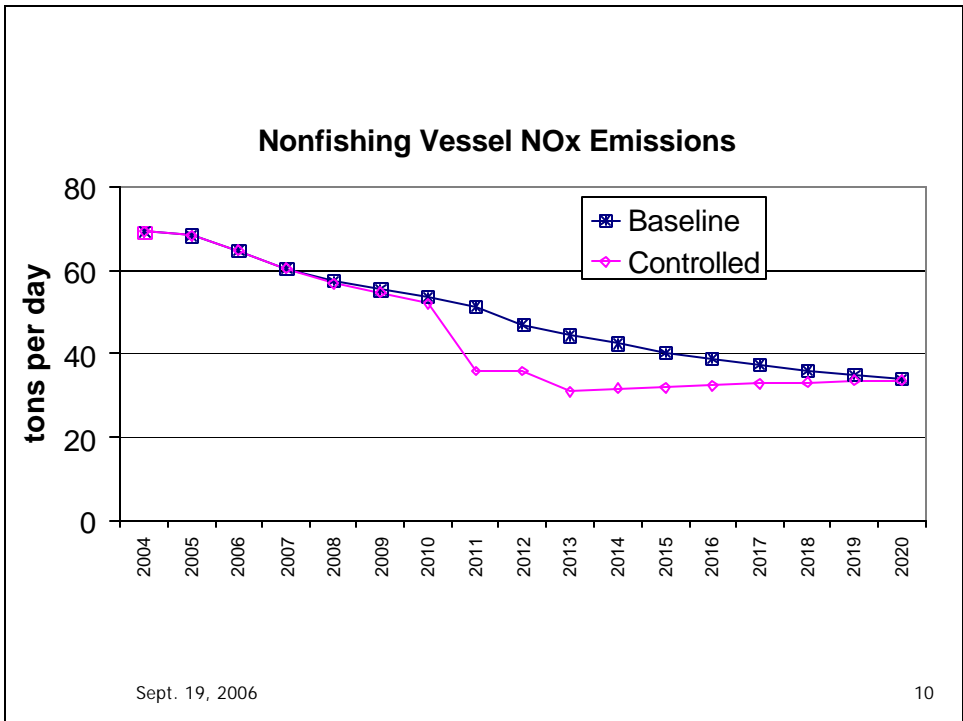
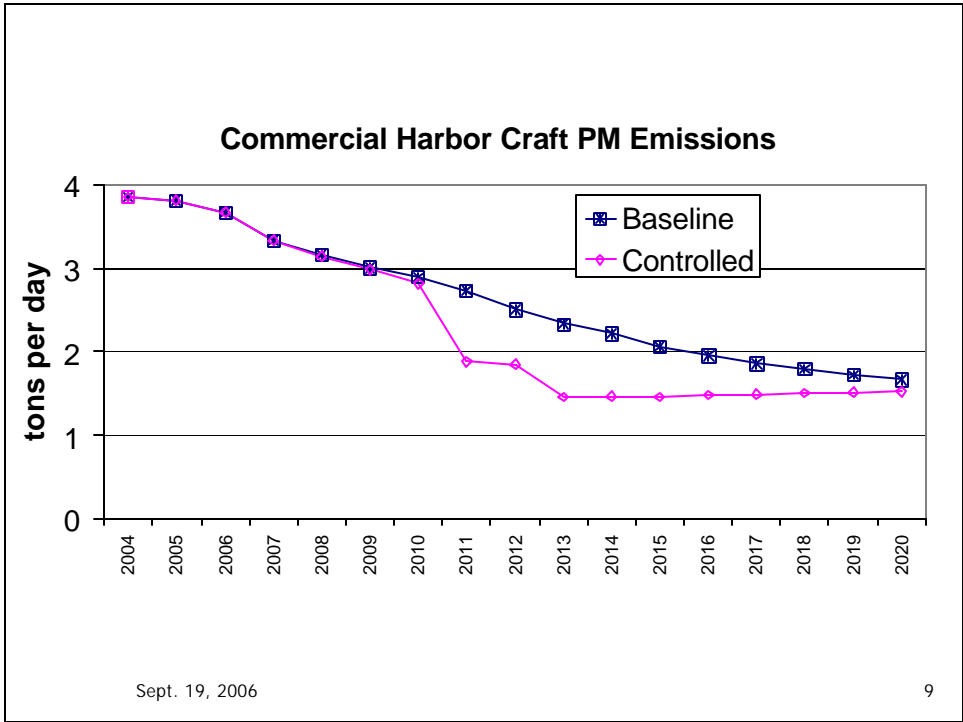
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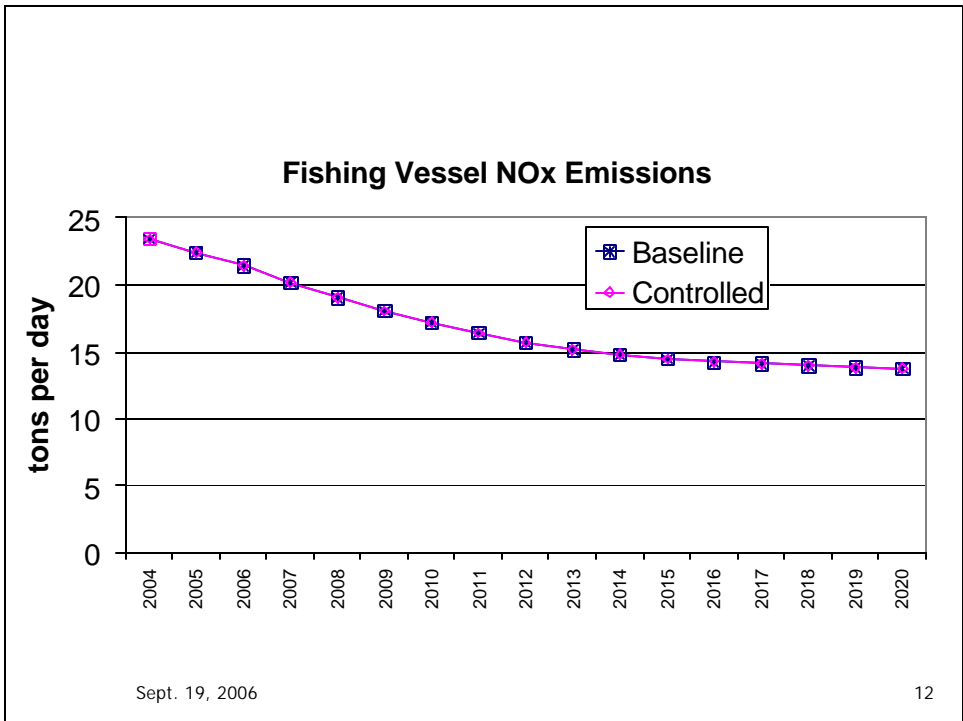
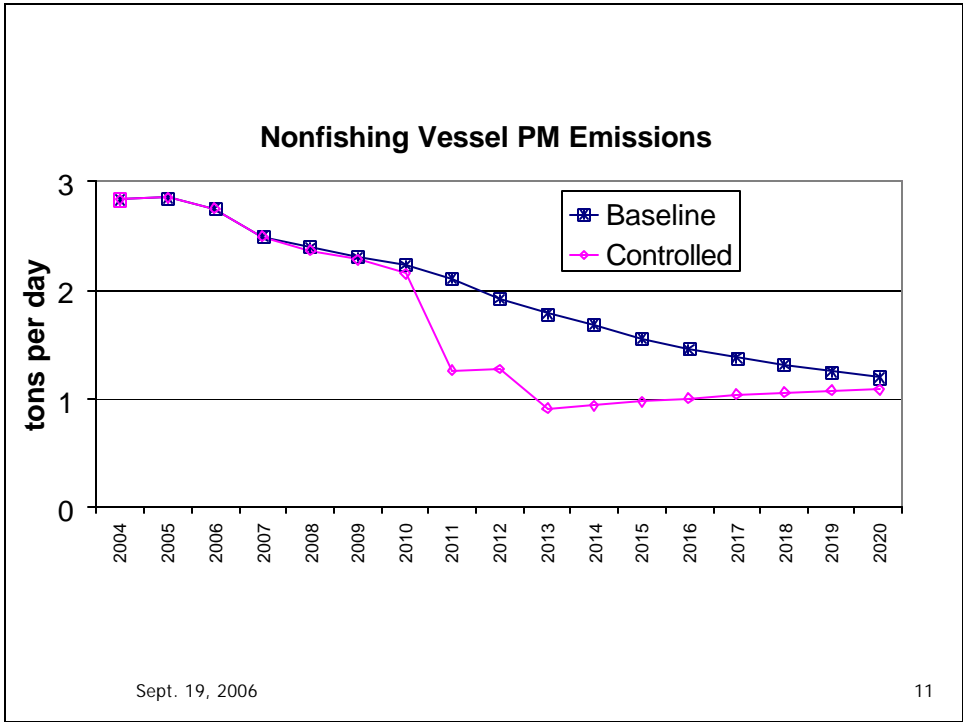
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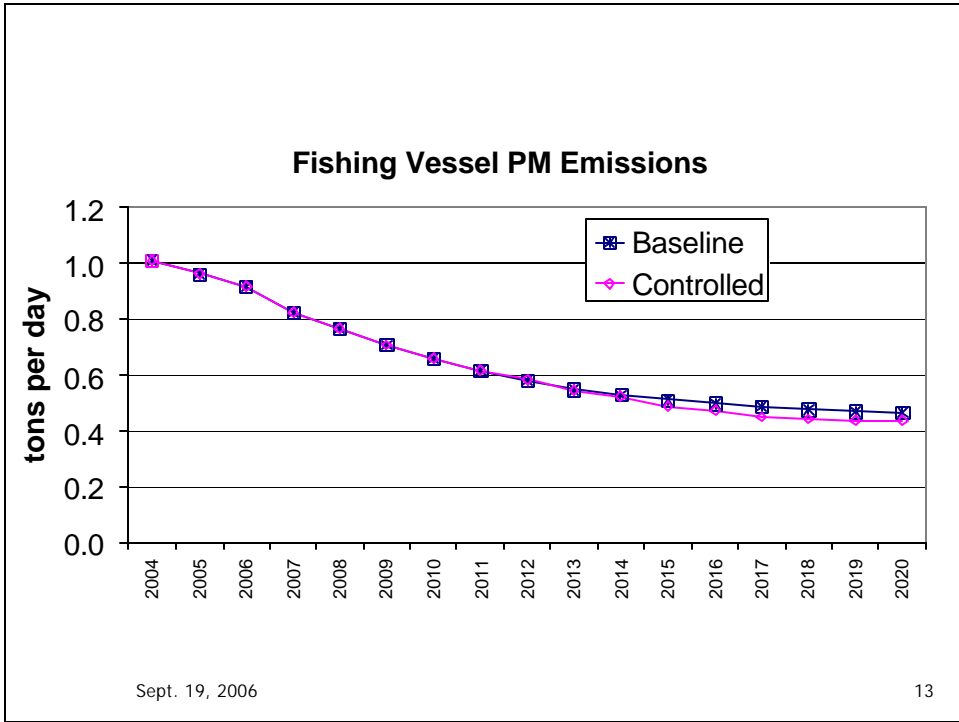


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Ongoing Work

- Incorporating tier III emission factors
- Continuing QA Processes
- Refining spatial distribution
- Estimating SOx emissions

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Previous presentations on Commercial Harbor Craft Regulation can be found at :
<http://www.arb.ca.gov/msprog/offroad/marinevess/harborcraft.htm>