



# Hazardous Air Pollutants In Marine Coatings

- Marine coatings often contain HAPs, e.g., benzene, toluene, xylenes, styrene, isocyanates, heavy metals...
  - Health effects include: damage to blood cells, heart, liver, kidneys, and immune system; neurological, reproductive, developmental, and respiratory problems; eye, nose, throat and skin irritation
- Some HAPs are also volatile organic compounds (VOCs) that contribute to ground level ozone, or smog



# Overview of Air Regulations

Marine trades are subject to a number of different regulations under CAA, both federal and state.



# Clean Air Act: Air Toxics Requirements

- 1990 CAA Amendments, Congress required regulations to control 189 hazardous air pollutants (HAPs)
- CAA **required** HAP regulation at very low levels
- Actual **or potential** emissions more than 10/25 tons HAP per year = major source
  - Average adult breathes 5 tons of air per year
- Actual or potentials less than 10/25 tons HAP per year = area source
- Since 1990, over 150 regulations issued to control air toxic pollutants in various industries
  - National Emission Standards for Hazardous Air Pollutants (NESHAPs)



# NESHAPs Applicable to Boat and Ship Building and Repair

- Shipbuilding and Ship Repair (Surface Coating) Operations (1997) – military/commercial construction/repair
- Boat Manufacturing (2004) – aluminum/fiberglass construction (not repair)
- Surface Coating of Miscellaneous Metal Parts and Products (2007)
- Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources (2010)



# Learn the Ropes

- For more information on the Clean Air Act requirements for the marine trades, contact:
- Ed Braczyk @ MA DEP  
Edward.Braczyk@State.MA.US (or)
- Steve Rapp @ EPA    rapp.steve@epa.gov