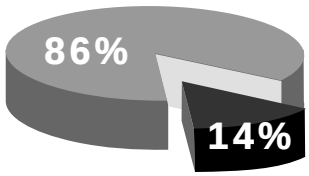
New regulations for gasoline marine engines

At its December 1998 meeting, the California Air Resources Board (ARB) adopted new emission regulations for gasoline-powered marine engines, including outboard, personal watercraft and some jet boat engines. The regulations apply only to new marine engines manufactured for the 2001 model year and later. There is no requirement to retrofit pre-2001 model year watercraft or engines.

The need for new standards

Watercraft engines are significant contributors to California's air quality problems—the most difficult in the nation. In order to improve air quality, ARB has developed emission control strategies for a number of sources including automobiles; heavy-duty diesel trucks and buses; gasoline and diesel fuels; lawn and garden equipment; consumer products such as hair spray and auto polishes; and other equipment and products. Reductions of watercraft emissions are needed to help attain California's air quality goals.

Watercraft account for 14% of all smog-forming ROG* emissions created by mobile sources in California



** reactive organic gases, hydrocarbons*

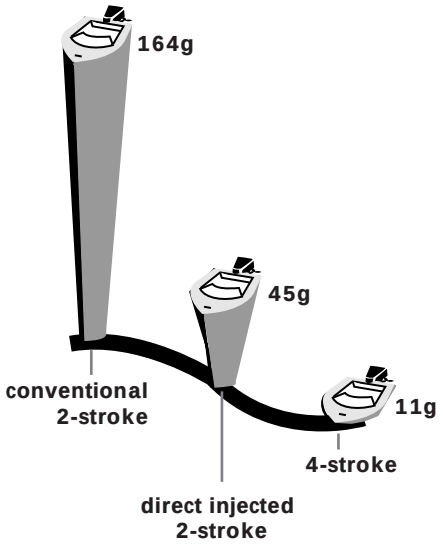
Currently, a personal watercraft operated for seven hours produces more smog-forming emissions than a 1998 passenger car driven for 100,000 miles. The impact of marine engines on air quality is especially serious on summer weekend days, when smog levels are highest and use of marine engines is heaviest.

Nearly all personal watercraft and outboard motors utilize "two-stroke" engines. These engines burn gasoline inefficiently. As much as 30 percent of the gasoline is discharged unburned into the environment. This not only impacts air quality but also causes water pollution.

The new ARB and EPA regulations

In 1998, the U.S. Environmental Protection Agency began phasing in federal regulations that will reduce marine-engine emissions by 75 percent by 2025. However, California needs cleaner marine engines to be introduced more rapidly because the state faces the greatest air-quality challenges in the nation. Under ARB's new regulations, a typical marine engine will become 75 percent cleaner by 2001 and 90 percent cleaner by 2008. Marine engines meeting ARB's new regulations in 2008 would emit only one-third as much as engines meeting federal standards.

Smog-forming pollution from 90 hp outboard motors**



***grams/kilowatt-hour (ROG+NOx)*

Improving air and water quality

Because two-stroke marine engines discharge exhaust into the water, the strategy to reduce air emissions will have the dual benefit of reducing water pollution. This will have a recreational benefit since several water resources agencies have banned or are considering bans on high-polluting watercraft on drinking water reservoirs. ARB's regulations provide these agencies with options for allowing the use of new, cleaner watercraft while protecting water quality.

The new standards are cost-effective and based on existing technology

The new ARB emission standards can be met by advancements in marine engine technology that are already taking place. The market has seen a growth in popularity of four-stroke outboard engines which offer greatly reduced emissions and dramatic improvements in fuel economy. Some manufacturers are also looking at technology which will make two-stroke engines cleaner and more fuel efficient.

The new standards will reduce operating costs

Along with providing cleaner air and water, the new technology engines will also burn 30 percent to 40 percent less fuel and oil. This means considerable savings to consumers who pay as much as $2 to $2.50 per gallon for fuel and up to $20 per gallon for the two-stroke engine oil that is mixed with gasoline in these marine engines.

Seven hours of personal watercraft use creates the same emissions as a new car driven more than 100,000 miles.

Two-stroke watercraft exhaust up to 30 percent of their fuel unburned.

For more information

Please contact the ARB toll-free at (800) END-SMOG (California only), (800) 242-4450 (outside California).

You may obtain this document in an alternative format by contacting the ARB's ADA Coordinator at (916) 322-4505 (voice), (916) 324-9531 (TDD, Sacramento area only), or (800) 700-8326 (TDD, outside the Sacramento area).