refer to the power which the engine would produce at its rated speed under a specified set of weather conditions.

The Engine Test Code of the Society of Automotive Engineers (SAE) standardizes the computation of horsepower from data obtained on the dynamometer, correcting all values to the power which the engine would produce at sea level altitude in dry air at 60 degree temperature and a barometric pressure of 29.92 inches of mercury.

Summer conditions of high temperature, low barometric pressure and high humidity all combine to reduce the engine power. This, in turn, is reflected in decreased boat speeds--as much as 2 or 3 miles-per-hour in some cases. Nothing will regain this speed for the boatman, but the coming of cool, dry weather.

In pointing out the practical consequences of weather effects, an engine, running on a hot, humid summer day, may encounter a loss of as much as 14 per cent of the horsepower it will exert on a dry, brisk spring or fall day. The horsepower which any internal combustion engine will produce depends on the density of the air which it is consuming; this density, in turn, depends on the temperature of the air, its barometric pressure and water vapor or humidity in the air.

Accompanying this weather-inspired loss of power is a second and more subtle loss. At fitting-out time in early spring, the engine was equipped with a propeller which allowed the engine to turn at its rated r.p.m. at full throttle. With the coming of the summer weather and the consequent drop in available horsepower, this propeller will, in effect, become too large. Hence, the engine will operate at less than its rated r.p.m.

Due to the horsepower-speed characteristics of an engine, this will result in further loss of horsepower at the propeller with another decrease in boat speed. This secondary loss can be regained by switching to a smaller pitch propeller which allows the engine to again run at rated r.p.m.