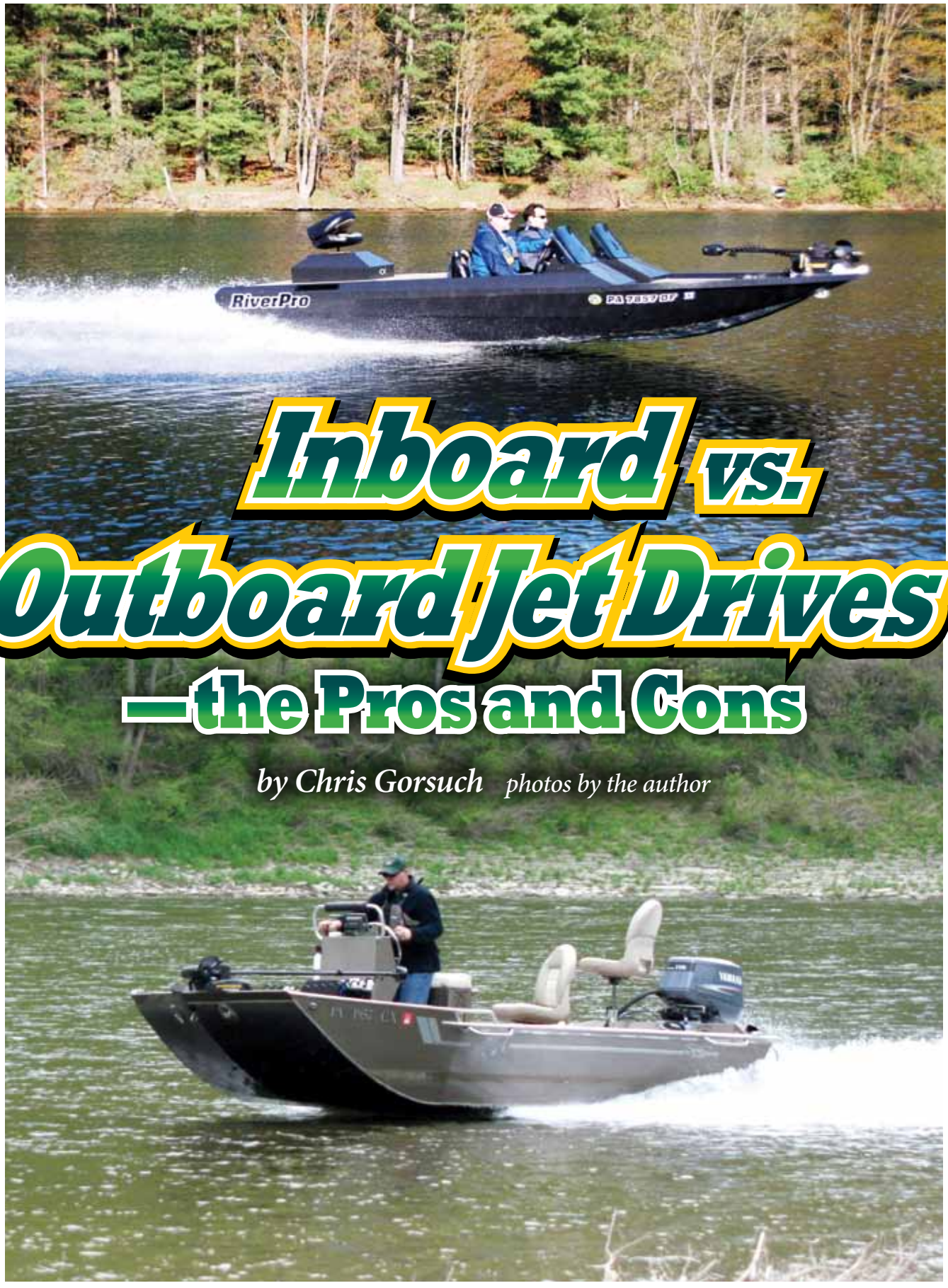


Inboard vs. Outboard Jet Drives —the Pros and Cons

by Chris Gorsuch *photos by the author*

In Pennsylvania, we are blessed with some of the most prolific smallmouth bass rivers east of the Mississippi River. The shallow rocky terrain in many of these rivers presents a challenge for anglers who wish to fish these rivers in a powerboat.

Selecting a craft that meets these challenges will open up more than one thousand miles of prime bass water across the state. Jet drives are hands down the safest way to traverse shallow, rocky rivers in a power craft. In the simplest of terms, a jet drive simply replaces the traditional propeller as the mode of propulsion.

Water is pulled into the bottom of the jet pump and dispersed through the exhaust port. This exchange of water is what propels the craft forward. Unlike the propeller of traditional marine engines that sits below the hull of the craft, a jet drive uses an impeller that is encased in the drive unit that sucks water just below the rivers surface. For this reason, jet drive crafts will run in less than 6 inches of water.

To further define the term jet drive, there are basically two types: an outboard jet drive and an inboard jet drive.

By far, the most common jet drives are outboard jets. An outboard jet is simply a standard outboard with an aftermarket jet pump bolted to where the prop unit sits. Most any outboard from 25 horsepower and larger can be converted to a jet drive. These jet units are specific to the engine size, bolt pattern and driveshaft of each manufacturer. However, the same company, Outboard Jets in San Leandro, California, manufactures all of these jet units.

Some outboard manufacturers offer factory installed jet drives; others offer what they call jet-ready outboards. This simply means that the outboard comes without the lower prop unit and is priced accordingly. So, regardless of the outboard manufacturer, if it has a jet pump on it, the jet drive was manufactured at the same place.

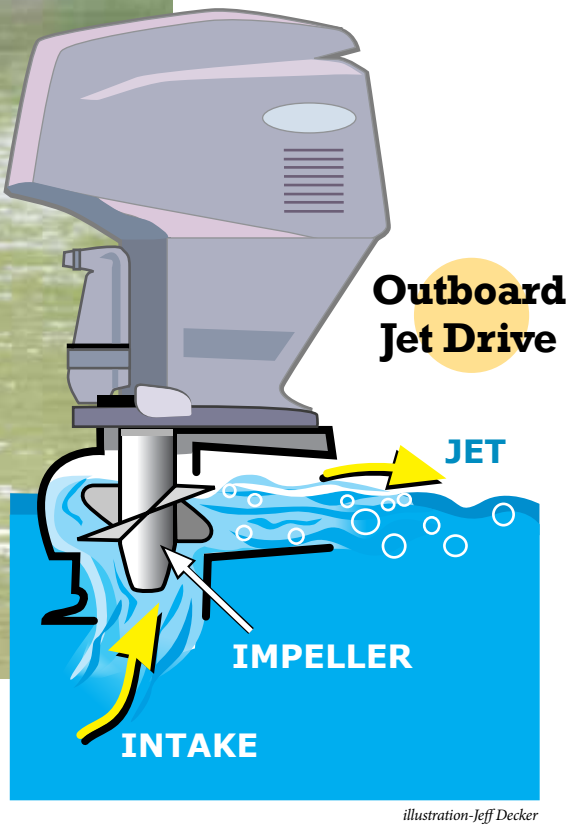
Inboard jets are less common, but are beginning to increase in popularity among river anglers. The inboard jet engine is exactly what the name implies. The engine sits inside the craft rather than hanging off the transom. Not only is the weight distributed better, but the design of the inboard jet pump and water intake allows the pump to be much more efficient.

There are pros and cons with each type of jet drive. Having owned both inboard and outboard jet drives, I've compiled a list for consideration.

Variety and selection

One of the largest advantages with an outboard jet craft is the wide variety of boat and engine manufacturers. Boat owners can select most any outboard manufacturer they wish in engine sizes that range from 25 to 225 horsepower. This provides a significant variety of engine choices. To add to the flexibility, the hull choice for an outboard jet is also extensive. Most aluminum boat manufacturers offer all-weld models in14 to 20 feet in length. This extends the layout and console options where the buyer can find the exact size and layout that best fits their needs.

With an outboard jet drive, the water enters the bottom of the jet intake and is turned 180 degrees. It is expelled through the exhaust housing.



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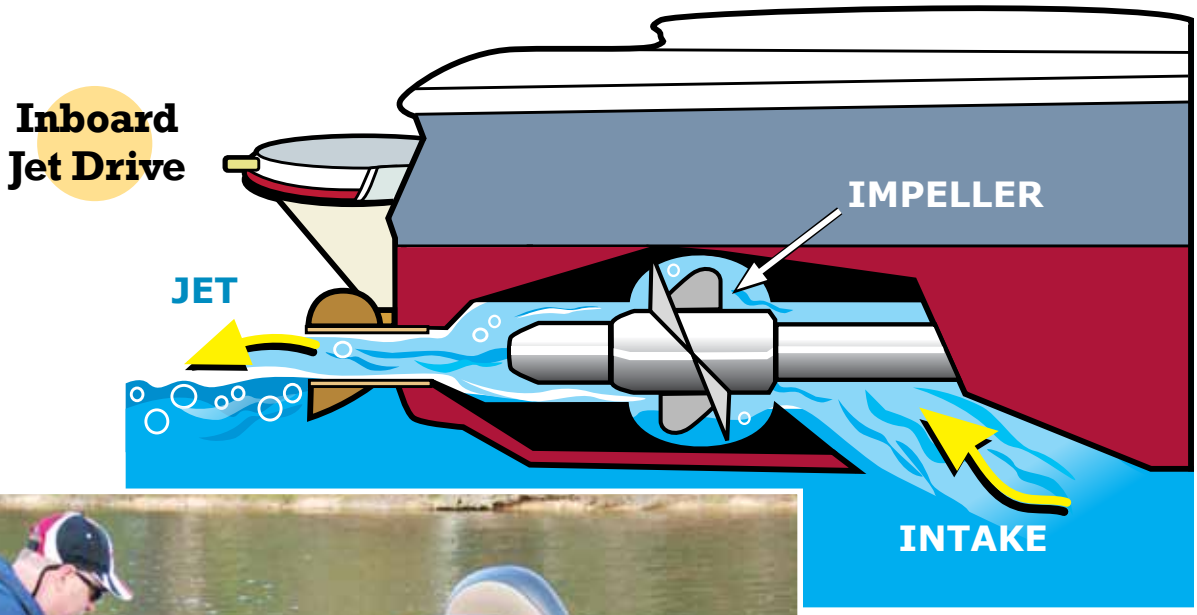

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With an inboard jet drive, the water enters the intake and after a short 28-degree ramp passes directly through the impeller and out the exhaust housing. The inboard jet pump does not have to redirect the water, giving it a significant performance edge to an outboard jet drive.

When it comes to engine and hull manufacturers that focus on inboard jet drives, the market is inverted. Unlike the outboard jet drive that can be installed on a wide range of outboard sizes and manufacturers, the inboard market is much smaller, limiting competitive options and boat manufacturers to choose from, for buying.

Likewise, in most cases, outboard jet engines can be swapped between hulls. Engines can be upgraded to an existing hull with minimal effort. With an inboard jet, to go from one engine manufacturer to another requires a significant amount of fabrication work to the bottom of the hull where the engine and jet drive fasten to the boat.

In other words, with a craft fitted with an outboard jet drive, you can swap the engine out with most any other outboard jet drive engine within the capacity plate range listed on the hull. With an inboard, you are locked into one engine manufacturer unless you are willing to forego a significant amount of hull fabrication to retrofit the new engine.

Fewer choices in the inboard arena give outboard jet drives a true advantage.

Performance and fuel efficiency

The key to any jet drive is thrust generated by displacing water through the jet pump. The more thrust (i.e. volume of water through the pump), the quicker the craft goes from a static position to stepping on plane. As a general rule, selecting too small of an engine will hinder performance in a jet. The 1:25 ratio rule is a great guideline. It means that the engine should have a minimum of 1 horsepower for every 25 pounds of total payload. If the hull, engine, fuel, batteries and passengers weigh 2,000 pounds, the powerhead should never be any smaller than 80 horsepower. The lower the horsepower to weight ratio, the better the jet will perform in the areas of speed and fuel efficiency. For example, 1:20 is better than 1:25.

Fuel efficiency comes into play with the ability to drop the throttle to a lower rpm to achieve the desired speed. In most jets, 30 to 35 mph is fast enough. If you can run at speed using a lower rpm, you will consume significantly less fuel.

Inboard jet units are self-loading. This means the jet pump will recover during cavitation without having to drop the throttle to reload the jet pump as you do with an outboard jet pump.

With an outboard jet drive, the water enters the bottom of the jet intake and is turned 180 degrees. It is expelled through the exhaust housing. The result is a 30% loss in horsepower. With an inboard jet, the water enters the intake. After a short 28-degree ramp, the water passes directly through the impeller and out the exhaust housing. The inboard jet pump does not have to redirect the water giving it a significant performance edge to an outboard jet.

For performance and efficiency, the inboard jet drive gets the nod, hands down.

Price

This is a difficult topic to nail down depending on what the boater is looking for in a craft. The variety of size choices within the outboard jet offerings creates a wide swing in purchase price. The engine costs alone in these units will range from $4,500 to $15,000.

Those seeking an open craft utilizing a smaller outboard jet will find a price range far below those who are seeking a larger bass-style craft with full decks complete with rod and tackle storage compartments, livewells and carpeting from bow to stern.

To look at this honestly, it is best to draw a line at a given engine size. Most outboard jet packages that fit boats from 14 to 17 feet in length are going to cost significantly less than larger jet crafts. In crafts that range in this size, jet drives that range from the 25/20 tiller to 115/80 workhorse is tough to beat in the price range.

As soon as you leave the comfort of the115/80 jet and run into the larger horsepower and pump sizes, the inboard options become more appealing. Likewise, the closer they will compare in price.

For smaller to mid-sized crafts, the outboard jet drive has the clear price advantage. Once you enter into larger horsepower ranges of 150 to 200 horsepower, the inboard starts to draw a similar price point. Regardless, the average boat, motor and trailer cost is less for an outboard jet giving it the advantage.

Maintenance

Both inboard and outboard jet drives have suggested annual or 100-hour maintenance plans. On an inboard, the drive housing and stator assembly require high performance gear lube as part of the recommended 100-hour service. Frequency will depend on how many hours the craft sees in a year.

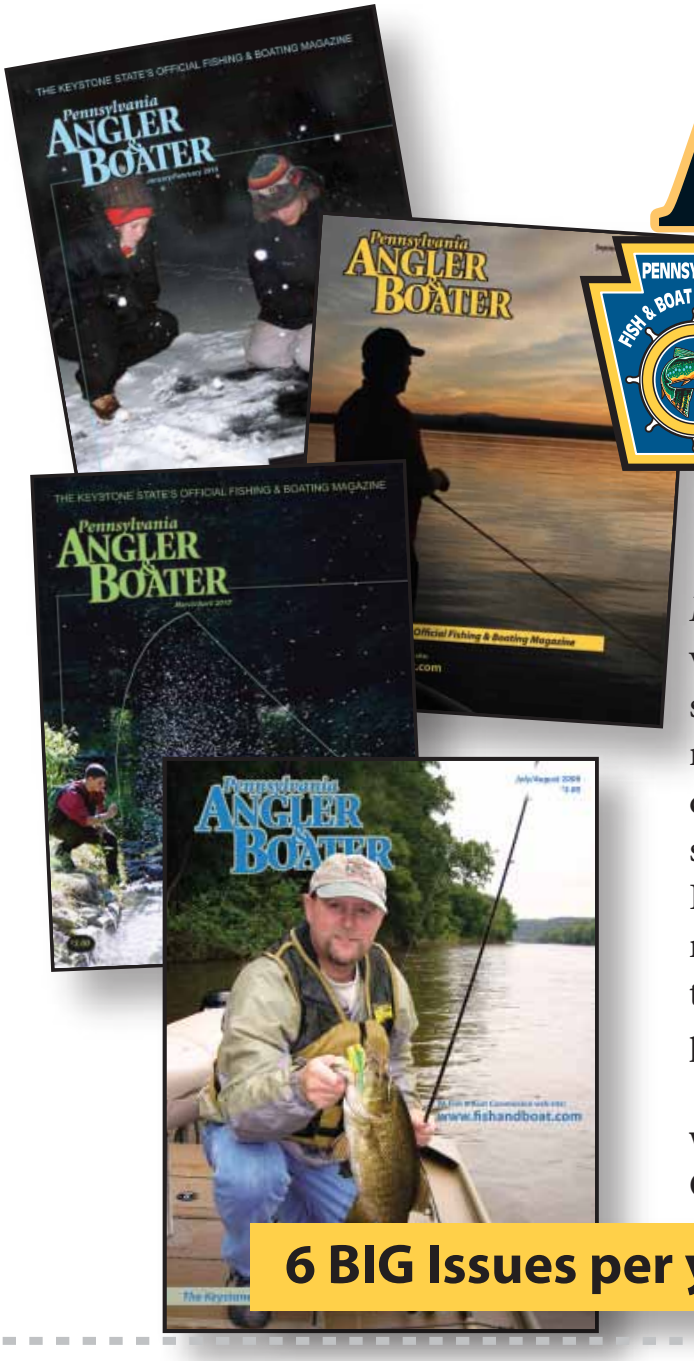
Impeller and liner wear is less in an inboard than an outboard jet drive. With my outboard jet drives, I am sharpening and adjusting the impeller to liner clearance once a year.

The main difference I've found between inboard and outboard jet drives is greasing the drive bearing. With an outboard jet, the bearing needs to be greased every ten hours of use and purged once every 30 to 40 hours. For most owners, it becomes part of their trip preparation and the bearing is greased before each outing. With an inboard jet, this step is not required giving it a slight advantage.

Both inboard and outboard jets have intake grates that, on occasion, will need to be cleared of debris. The difference is accessing the intake grate while on the water. With an outboard, the engine can be tilt-trimmed out of the water to access the grate. With an inboard, the grate is located on the bottom of the boat about 20 inches from the stern. A small garden rake with a short 24-inch handle is required to reach the grate. Clearing the intake while on the water gives the advantage to the outboard jet drive.

With most outboard jet boats, the lowest point of the craft is the jet intake itself. Being the lowest point, it is also the most vulnerable. Contact with river stone and ledges can be a common occurrence. Fixing and replacing bent grill bars is a fairly common aspect of outboard jetting. Since the intake on an inboard jet drive is set into the bottom of the boat, there is added protection to the intake grill. This gives the advantage to the inboard jet drive.

Weighing the pros and cons when selecting a jet drive craft will assist in making a well informed choice. The goal is to limit surprises and make a purchase that will fit your river boating needs. When possible, ask for a test drive before making such a large purchase. Operate within safe speeds, and always wear a life jacket.



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