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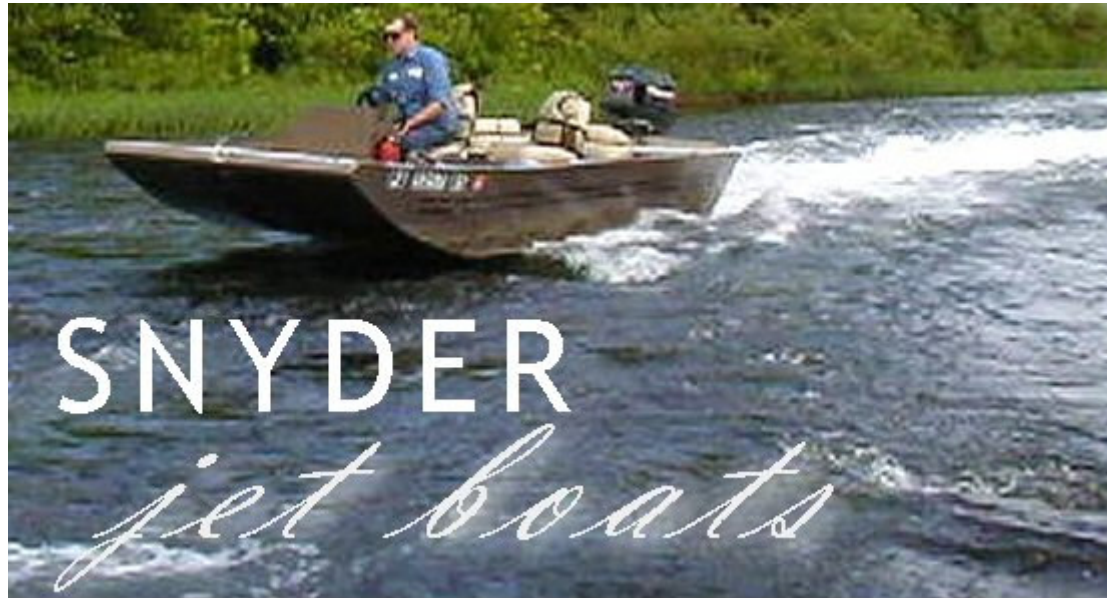
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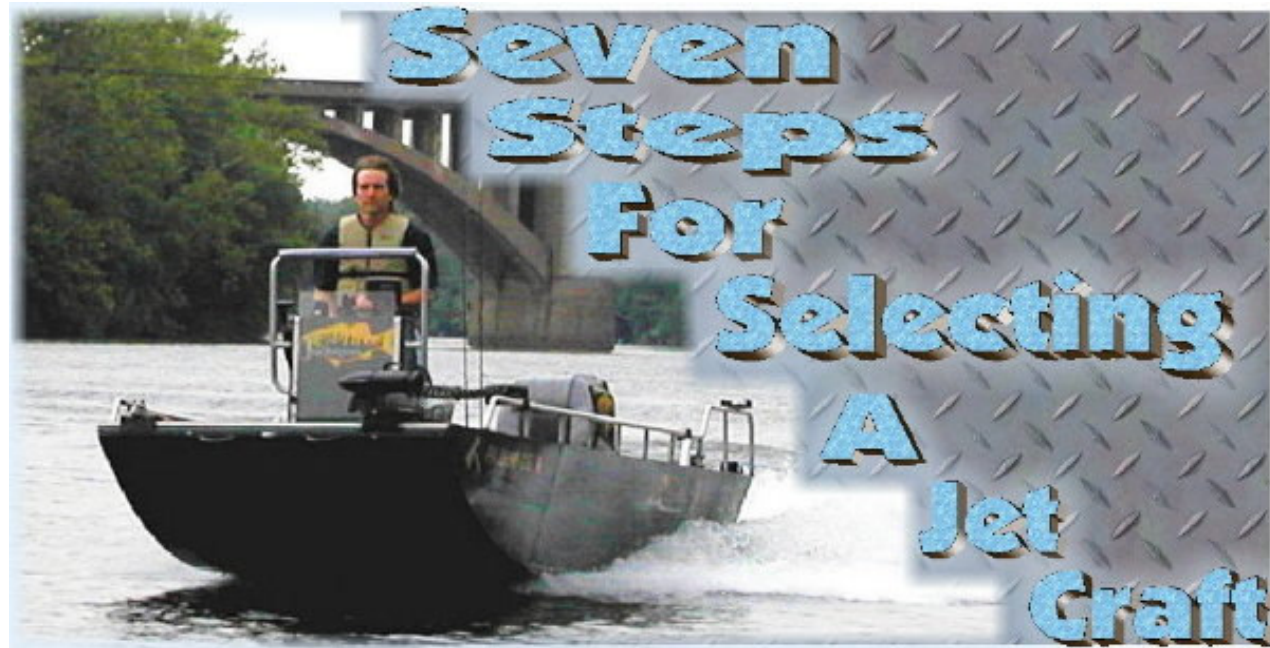
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Jetting Resources



Over the years, I've seen outboard jet applications utilized for fishing saltwater bays, shallow lakes, navigating rock filled eastern river flats and the raging white water of northwestern rivers. Having climbed aboard a number of outboard jet rigs that were designed to meet specific marine applications, I've learned there may be no limit to where we will find outboard jet usage in the future. However, there are limitations for how they are best used in shallow eastern rivers. A hull that perform well in one application may not perform well in others. If you've concluded that an eastern river is where you intend to use the boat most, here are seven steps intended to help select a jet boat to successfully traverse eastern river systems.

The list order below is important as each step offers information that helps to better define the next in line. Because of the specific needs associated with river travel, careful attention is placed on areas that may never even get a second look in other marine applications. Following these seven steps will help resolve many of the limitations common to outboard jetting.



1. Hull Shape:

When most people consider a river craft, they first turn to a flat bottom jonboat. Just take a look around and you'll see plenty of jets on flat bottom hulls. The problem is that when it comes to outboard jets, flat bottom hulls tend to cavitate more than any other hull type. Cavitation occurs when the jet intake pulls more air than water into the pump housing. The ingested air and decrease in water causes the engine's RPM level to rise, the result is significant power loss and shortened engine life. Flat bottom hulls have a tendency to channel air bubbles and carry them from the bow to the stern and into the jet intake. A slight degree of deadrise in the hull splits off the air bubbles before they reach the intake. This slight deadrise also improves handling. Many of the aluminum boat manufacturers now offer sled and jonboat hulls with 3 to 6 degrees of deadrise from the bow to the stern.

View from Transom



Regardless which outboard brand name you select, if the engine has a jet pump attached to the lower unit it was manufactured by Outboard Jet, a division of Specialty Mfg. Outboard Jet publishes a guideline for selecting a jet hull. One of their first key elements is the hull's chine. The chine is the area where the hull's side meets the bottom. For optimum performance, you must select a hull with a sharp chine. A sharp chine reduces drag and will step on plane better than a soft, rounded chine.

View from Transom



2. Bottom Width & Length:

The slogan "*wider is better*" is very true in jet applications. Most if not all jet powered boats are designed to run shallow water while on plane. The key is to select a hull that drafts shallow while on a drift. The wider the bottom of the hull is, the more displacement the boat offers. The increased displacement produces a shallow draft when the craft is on drift. Under power, even though there is increased surface area, the hull tends to jump on plane quicker due to the short rise. Jet drive should not be considered for any craft that does not have a consistent bottom width equal to or greater than 48 inches. Based on a number of other key elements, you should select a hull that is 48 to 72 inches wide.

The general rule when it comes to a jet hull length is straight forward; nothing less than 14 feet. This guideline stands to reason, as there are not too many sled or jonboat hulls less than 14 feet that meet the bottom width requirements. The most popular hull lengths seem to be in the range of 16 to 18 feet. At this length, the hull size and weight is a good match for a mid range jet engine.

Another consideration for the length and width selected is the basic characteristics of the river where you'll most use the boat. Tight areas and narrow passes may put limitations on the hull size. It is important to keep your primary usage in mind; this will also keep you from getting hooked into features you may not need.

3. Hull Construction:

Hands down, aluminum hulls are your best bet for shallow rivers. Aluminum hulls offer superior durability and are lighter than other hull materials. Anyone who has ever operated a jet powered boat knows that hitting shallow ledges is inevitable. To help counter the occasional impact associated with river travel, the hull gauge should be no less than .100th inch thick. Anything less will not likely hold up over time. (Trust me I've been there.) Here again, many hull manufacturers offer hull gauges in .100th and .125th inch.

With the hull material selected, the next decision is how it should be fastened. When it comes to aluminum, the hulls are either riveted or welded. While many will have a number of arguments for which one is best, having owned both types, I've drawn my own conclusion. In a lake setting with pounding waves, a riveted hull seems to travel better. However, for river applications I prefer welded hulls, they just last longer.



One area of debate for outboard jets is the tunnel hull. The purpose of the tunnel is to decrease planing depth and offer superior protection to the jet intake foot. Much like other aspects regarding hulls, not all are created equal. Many of the tunnels you'll find on the market were made for prop protection and offer no advantage for a jet. In order for a tunnel

to be effective for an outboard jet, it must be only be a short small port that just leaves enough lift to protect the intake foot. If they are not designed right, they will be very prone to cavitation. As a rule, tunnels for jet applications are rarely higher than 3 inches and extend less than 2 feet from the transom forward.

Step 7 **Take A Test Drive**, is very important if you're planning on purchasing a tunnel hull.

4. Overall Weight:

Overall weight is the most overlooked area, even though jets are known to be more susceptible than prop powered hulls. Beyond the hull weight, which can range from 400 to 1000 pounds, it is important to get a good estimate of the total weight your engine will be pushing. To be accurate, include the engine, batteries, passengers and any expected payload. This information is important to ensure you select a hull and engine size that is designed to handle your needs. The chart below provides a good example and doubles as a worksheet to help you calculate your overall weight.

Weight Calculation	Example	Worksheet
Engine Weight	235	
Battery (2)	+ 115	
Fuel (@ ~8lbs per Gal)	+ 95	
Your Weight	+ 175	
Passenger A	+ 190	
Passenger B	+ 165	
Gear Weight	+ 50	
(A) Weight in Payload	1025	
Hull Weight	+ 550	
(B) Total Gross Weight	1575	

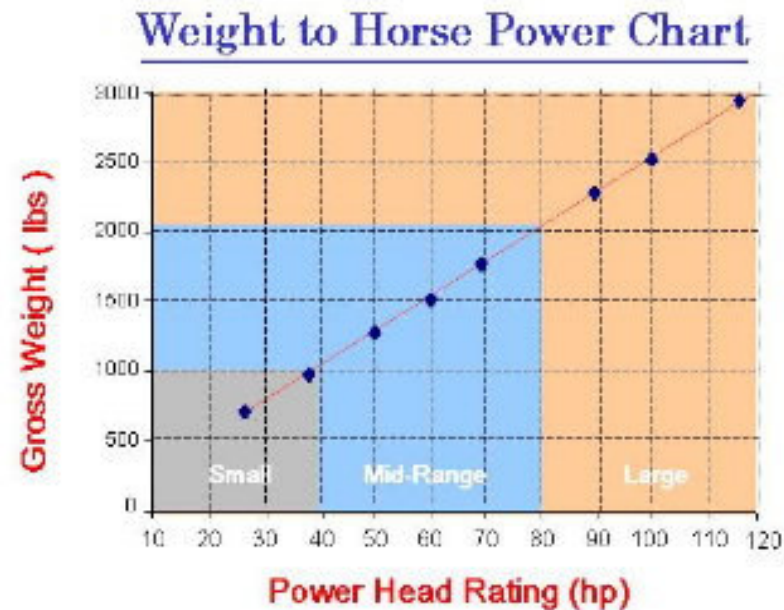
The weight associated with a full livewell was not listed above because they fluctuate and are easy enough to control. Regardless, you can see the weight quickly adds up. Getting an idea of the overall weight will help to outline two needs. First, use **(A)** as a guide to ensure the hull selected is rated well above this total capacity calculated. Weight will vary between passengers and gear, so it is always best to guess on the high side. Second, total gross weight **(B)** should be used in the next step to help select the proper engine size. Each step

prepares you for the next.

4. Engine Size:

Selecting the correct engine size does not have to be such a mystery. Here are some key points of interest when it comes to a jet powered river craft. It may seem like a long way around it, but it is important to understand how to arrive at the suggested guideline. As a rule, sled and jonboat style hulls jump on plane and run faster than a deep V-hull powered by the same sized engine. Therefore, they require about 25% less power due to the reduced drag of the semi flat bottom. This however is negated by the outboard jet engines requiring 25-30% more power than those powered by a traditional prop. For this reason, you can select engine horsepower following the same guideline used on prop engines for deep V-hull crafts.

The calculation is based on a ratio of 25:1. That is, one horsepower is required for every 25 pounds of gross weight. Use the engine power head rating and not the jet rating when calculating. For example, a 60/40 Jet engine will effectively bring 1500 pounds of gross weight on plane. Weight beyond this number will impact performance.

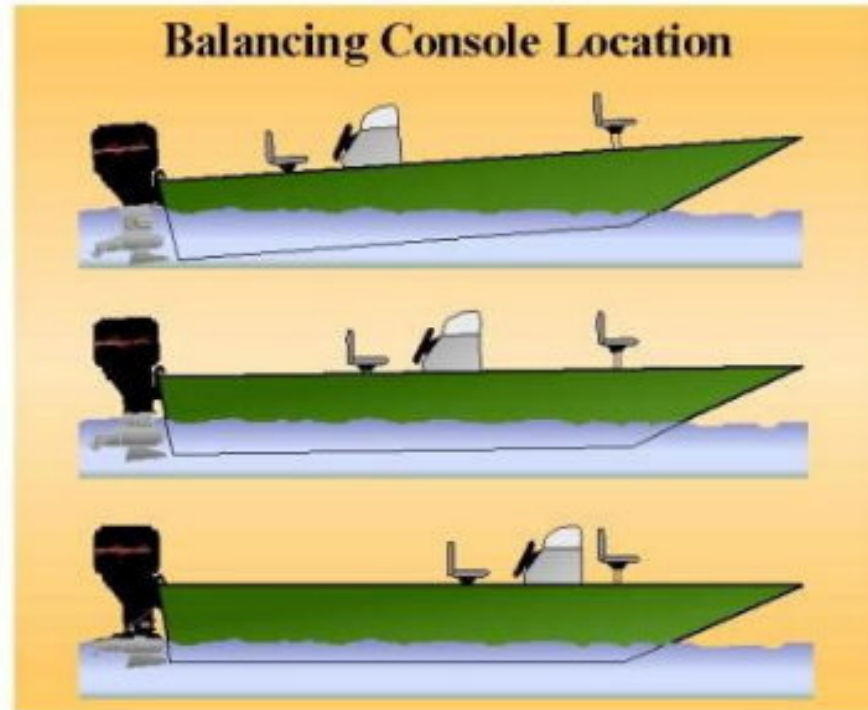


The chart to the right was created to be used as a quick reference guide. The red line on the chart follows the 25:1 weight ratio. The folks at Outboard Jet produce a chart similar to this. Although theirs is far more scientific, as they factor in the impeller size associated with the engine size.

6. Hull Layout:

Selecting the right hull layout is an essential part of the process. Doing the homework here will help to balance the weight from the aft to the bow. Weight distribution will greatly improve the time it takes to the boat reach plane and water depth that can safely be drifted through. Some manufacturers have specific hull well designs suited for jet applications, others will require some thought. The situation to avoid is a layout that places all the weight in the back of the boat. Hanging the outboard off the transom is a must and there may not be placement alternatives with some models. However, the side console location is almost always a workable option and any good marine shop can accommodate the job. Console placement will greatly assist in balancing the overall weight. The illustration, (below) shows the effects of adjusting the

console forward. This is first hand experience gained from helping a fellow jet owner resolve this very situation. The goal is to get the craft to sit as level as possible.



A forward mounted console offers more than just weight distribution. It also improves the line of sight while running narrow channels or shallow flats. To further add to the variety to hull steering, a number of manufacturers are beginning to offer jet crafts in side console, center console and stick steer. Each have their advantages and are well worth looking into. One could argue a host of reasons why one type of steering is better than another, but it always comes down to personal preference not function. I have operated crafts with each set up, they all work well when they are set up properly.

Heavy cargo that has the tendency to fluctuate in weight should have optimum placement. Hundreds of pounds in passengers, water from the livewell and even fuel will fluctuate from day to day. Each should be placed where they will have either a minimum impact, or assist weight distribution.

Livewell Location:

When it comes to river crafts, one of the best places for the livewell is in the center of the hull. Stick or Center Console arrangements often place the operators seat on top of the livewell box. Others may have them built into the front of the Side or Center Console. Another good location is to set them into the front deck.. Again the key is to equally distribute the weight.

Seat Location:

Multiple seat base positions will enable passengers to be seated in a number of locations when the craft is under power. This becomes important as the number of passengers may change from trip to trip.

Seat bases in both of the raised decks offer good space for those fishing and helps to balance the hull when on drift. A third fisherman would place themselves mid ship, when the seats are moved to the decks there is ample room. Fishing four from a 16 to 17 foot boat is very tight, but can be done. Most will find more comfort in fishing no more than three anglers.

Fuel Tank Location:

Two-stroke outboard jet engines tend to go through the fuel. A larger 12 to 24 gallon permanent gas tank is highly suggested over a 6 gallon portable tank. Permanent fuel tanks come in many shapes and sizes.

Some are designed to be placed midship, under the floor, in a dual saddle arrangement to better distribute weight. Tanks placed perpendicular under the front deck may better counteract the engine weight on certain layouts. On crafts with a side console, the tank can be placed on the port side across from the console. Most manufacturers do not offer that level of flexibility.

Customizing the hull layout can be one of the most rewarding and beneficial steps in optimizing the boat for how it will most be used. The only down side is the tendency to go a little overboard. Multiple storage bins, rod lockers and other accessories are nice, but they also add weight. For shallow eastern rivers, it is important to keep the weight down. The level of customizing may also be dependent on the manufacturer you choose, most offer open hulls and a number of options to meet the task. The key questions to keep reminding yourself are;

-Which features do I really need for my application?

-Which features will be no more than just frills ?

7. Take A TEST Drive!!!!!!

The best advice I can give anyone is to ALWAYS ask for a test drive before you buy. It is the final exam for how well the first six steps were followed. Marine shops that have a good product will not have any problems taking a potential buyer out on the water first. Take the helm, drive it, test how it maneuvers. Get a feel for how well it drifts and how much your drafting depth is. This is a sizable purchase and you will likely spend \$10 to \$16K on a new boat-motor-trailer. If you let the performance of the hull do the talking, you'll insure your money is well spent. Insist on a test drive and be willing to walk away if it can't be arranged. If for some reason a test run cannot be provided and you're still sold on a particular craft, ask to speak with a customer who purchased a similar package. Perhaps a test run can be arranged with them, then you can get their thoughts as well. You wouldn't buy a car without a test drive first, why should it be any different with a boat? Do not make the same mistake so many other buyers do, buy the boat and buy their lines. A test drive is the only way to ensure this. Trust me, I meet a mess of unhappy jet boat owners on the river every year. Usually I see the long faces during the months of September and October when the fishing is reaching it's peek and the water level reaching the season's low marks.

Written by Chris Gorsuch

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