**Small Passenger Vessel Capacity:**

The number of passengers that can be approved for carriage aboard a U S Coast Guard certified passenger vessel is based on space (length of rail, square footage, fixed seating see 46 CFR123), and vessel stability criteria. The space regulations set the initial maximums and then stability tests must be performed to verify the safe maximum load.

For each 36” of rail space you get one passenger. For each 18” on a fixed bench or each separate fixed seat you get one passenger. For each 10 square feet of habitable deck space you get one passenger. You can’t claim rail space and claim the same area in square footage. This can get a little complicated but a competent naval architect can assist you with calculating the max that the Costies are likely to approve.

You must provide space for passengers and crew. The number of “safety sensitive” crew you have to carry will be specified by the Costies. You may, for instance, need two deckhands from 1 to 150 passengers actually aboard, three from 151 to 300 and four over 301. You will be allowed other crew billets for bartenders, wait staff, and other similar crew.

For the final stability determination you must prove your vessel is safe for x number of passengers and crew at 185 pounds (used to be 140 or 160) each. There are basically two types of stability tests. In the simplified stability test you put weights (55 gallon drums filled with water on wooden pallets) centered aboard and note how much freeboard you have. You then move the drums as far toward the railing as possible and see how much the freeboard is reduced. Things like ports capable of causing “down flooding” must be considered.

The other type of stability test is called an “incline experiment”. In this test you suspend three special types of plum bobs on the vessel and move a fixed amount of weight in increments and plot the “area under the righting curve”. This is a rather complex test that normally needs to be supervised by a naval architect. Approximate data can be obtained, usually during the vessel design phase, by putting vessel lines drawings data into appropriate design software. This software normally yields pounds needed to heel the vessel one degree. The final incline experiment must be witnessed by the Costies and then the many pages of documentation must be submitted for review.

---------------------------------------------------------------------------------------------------------------------

This document used by permission of NavCal Marine Services, LLC Knoxville, TN, [www.navcal.com](http://www.navcal.com), captfarmer@navcal.com, 865-765-3407 as long as these credits are included.