CLAIMS:

1. A marine ducted propeller propulsion apparatus comprising:

an intake section;

an impeller section;

a discharge section;

a passage extending from an intake opening of the intake section to an outlet of the discharge section, the passage having a length and an axial cross-sectional area, the passage capable of creating a flow path for a water stream on a volumetric basis; and

a plurality of internal working parts, the plurality of internal working parts being at least partially accommodated within the passage,

wherein the axial cross-sectional area of the passage is increased and decreased throughout the length of the passage between the intake opening and the outlet of the discharge section to accommodate a volumetric mass of the plurality of the internal working parts while maintaining a decreasing water volume from the intake opening of the intake section to the outlet of the discharge section.

2. A marine ducted propeller propulsion apparatus of claim 1 wherein the plurality of internal working parts includes at least one of a drive shaft, straightener vanes, directional vanes, an impeller hub, a diffuser/confusor hub, a steering shaft, spoke vanes, flow control vanes, guide vanes and steering vanes.

3. A marine ducted propeller propulsion apparatus of claim 1 wherein a diffuser/confusor hub of the impeller section and an upper steering nozzle of the discharge section form an exit radius at a transition point between the diffuser/confusor hub and the upper steering nozzle which allows for a reduction of turbulent flow for the water stream.

4. A marine ducted propeller propulsion apparatus of claim 1 further comprising:

an exhaust heater exchange;

a diffuser/confusor hub; and

an upper steering nozzle, wherein the exhaust heater exchange heats the diffuser/confusor hub and the upper steering nozzle.

5. The marine ducted propeller propulsion apparatus of claim 4 further comprising:

a lower steering nozzle, the lower steering nozzle being interchangeable.

6. The marine ducted propeller propulsion apparatus of claim 5 wherein the lower steering nozzle includes a steering vane, the steering vane being retractable and maintaining the lower steering nozzle in straight position when a marine vessel is in motion.

7. The marine ducted propeller propulsion apparatus of claim 1 further comprising:
straightener vanes, the straightener vanes being positioned on either side of an impeller hub, the straightener vanes directing the water stream from the intake opening to the impeller hub.

8. The marine ducted propeller propulsion apparatus of claim 1 further comprising:
an upper steering nozzle; and
a lower steering nozzle, wherein the lower steering nozzle is removably attached to an end of the upper steering nozzle.

9. The marine ducted propeller propulsion apparatus of claim 8 further comprising:
straightener vanes, the straightener vanes being positioned around an interior of the lower steering nozzle thereby controlling a water stream through a radius of the lower steering nozzle.