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INTRODUCING GROUND EFFECT INTO PERSONAL WATERCRAFT

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MARINE DESIGN



Fig. 1

ABSTRACT

This applied design research focuses on the introduction of ground effect into personal watercraft as a way of improving the efficiency and performance of the craft, while also creating a new user experience. Ground effect is an aerodynamic phenomenon experienced by bodies flying in close proximity to a surface and results in a significant increase in the lift to drag ratio. It is used by race boats as a means of improving performance.

The scope of this research will be to investigate how ground effect may be implemented into personal watercraft to help increase their efficiency. This will be used as a framework for designing a revised form of personal watercraft. The opportunity to redesign a craft (from the ground up) provides a product offering a level of market differentiation. As such, all aspects will be assessed for their impact on the efficiency, performance and user experience.

The current paradigm in personal watercraft design is based upon a saddle-style seat, like that of a motorbike. This arrangement does not actively promote a shared user experience, resulting in personal watercraft use being perceived as an anti-social activity. Research conducted into the design of a new general

arrangement that promotes more interaction between the driver and passenger while using the product is investigated.

The outcome of this research is a design that has performance comparable to the existing market leaders, while having less impact on the environment. Moreover, it will be a design that confronts the social issues surrounding this adrenalin-inducing pastime.



Fig. 2



Fig. 3

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Fig. 4