

University of Puerto Rico at Humacao campus

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Literature review assignment

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Introduction:

Humpback whales are very fast and agile. They are the inspiration to create turbines such as wings which generate agility. Inspired by nature is the only possible way for the future of humanity. More and more companies are working from this perspective, called biomimesis or blue economy. It is based on developing applications of what they call Tubercle Technology inspired by the fins of humpback whales, which have tubers or bumps on the front edges.

Body:

A type of bulge is created where the air passes. Through that space, whirlpools are created that increase the speed of the blades. Compared to whales, they create different angles of inclination, which this research seeks to create that operation. In the case of the blades of the wind turbines that were designed, they require lower wind speeds to start spinning, which increases the amount of time they can operate and the number of places where they can actively generate electricity. Applied to the design of small fans for use in the cooling of computer circuits that greatly reduce the power consumption of the computer.

Conclusion:

Inspired by nature is the only possible way for the future of humanity. It was shown that the edges of the humpback whale fin, known for their shape with tubers, change the distribution of pressure on the fin, so that some parts of the

flow that passes through them stops with respect to others. Since the different parts of the fin profile have different angles of attack, this prevents sudden water stagnation so that the animal has greater agility in the water.