Solar Energy South Africa

How to raise fish under photovoltaic panels in fish ponds

Overview

Can a fish farm use PV power?

It also includes an example of a fish farm currently using PV power. Closed aquaculture systems need pumps and aerators to provide oxygen, to move water into and through the system, and to purify the water. Solar-generated electric power, known as photovoltaics (PV), can be used to meet the power needs of an aquaculture operation. Background.

Can solar power be used in aquaculture?

This ATTRA publication examines the use of solar photovoltaic (PV) technology in aquaculture and outlines key questions to keep in mind if you are considering solar arrays for a closed aquaculture system. It also includes an example of a fish farm currently using PV power.

How FPV will affect the fishery and photovoltaics integration project?

With the increase of coverage ratio, FPV will lead to the overall reduction of T w in the construction water area, and the distribution of T w will be more uniform. For the “fishery and photovoltaics integration” project, reducing the peak T w in summer and reducing the diurnal fluctuation are more conducive to the growth of fish.

Does FPV affect fish growth?

For fish, the concentration of DO needs to be greater than 4 mg/L to ensure its normal life activities. FPV greatly increases the threat to the growth of fish, especially in “fishery and photovoltaics integration” project.

How much FPV can be installed in a pond?

The most technically feasible and realistic scenario corresponds to FPV systems above 50 kWp and up to 50% of the water surface area of each pond covered. In this case, FPV systems totalling one GWp could be potentially installed, which represents 5.4 times the existing PV capacity in the province.

How does Fishery and photovoltaics integration work?

However, in the “fishery and photovoltaics integration” project, a large amount of nitrogen, phosphorus and potassium are discharged into the water area, which will significantly increase the concentrations of nutrients and algae. In addition, significant biofouling is observed at the interface between the buoy and water (Fig. 5 c1–c2).

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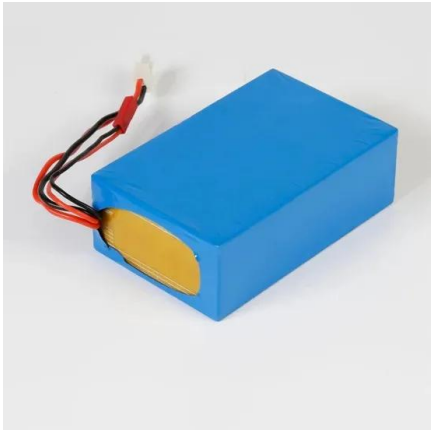

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