Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

Caltech's Fish-inspired Wind Farm: Results from the first summer[1] JOHN DABIRI, California Institute of Technology — Field tests are being conducted at the Caltech Field Laboratory for Optimized Wind Energy to study the aerodynamic interactions of vertical-axis wind turbines in closely-spaced arrays. A model of the wind farm performance—inspired by previous mathematical models of fish schooling—suggests that substantially higher power per unit land area can be extracted relative to existing wind farms of horizontal-axis wind turbines by tuning the spatial arrangement of the turbines. Results from the first summer of field testing support the conclusions of the model, while indicating opportunities for further refinements of the model.

John Dabiri
California Institute of Technology

Date submitted: 21 Jul 2010   Electronic form version 1.4