1086-70-861 **Baldvin Einarsson*** (baldvine@math.ucsb.edu), Center for Complex and Nonlinear Science, University of California, Santa Barbara, South Hall, Office 6523, Santa Barbara, CA 93106, and **Bjorn Birnir** and **Luis L. Bonilla**. *Synchronization of Schools of Fish.*

We describe an ODE for schools of fish and study the long term behavior of its solutions. The model can be reduced to one ODE for the speed of the individual particle and one for its directional heading. These equations contain the mean speed, $\bar{v}$, and a Kuramoto order parameter for the phases of the fish velocities, r. We show that the system of equations has two stationary solutions, consisting of an incoherent unstable solution with $r = \bar{v} = 0$ and a globally stable solution with $r = 1$ and a constant $\bar{v} > 0$. We describe these solutions and discuss their stability.

Then, we perturb the directional headings of the particles in two distinct ways, and accelerate the speeds in order to obtain non-stationary, complex solutions. We show that the system exhibits a similar bifurcation to that in Vicsek *et al.* (1995), between phases of synchronization and disorder (Received September 14, 2012)