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*Conley-Zehnder index and bifurcation of fixed points of Hamiltonian maps.*

We study the bifurcations of fixed points of Hamiltonian maps and symplectic diffeomorphisms. We are particularly interested in the bifurcations where the Conley-Zehnder index of a fixed point changes. The main result is that when the Conley-Zehnder index of a fixed point increases (or decreases) by one or two, there are several bifurcation scenarios. Under some non-degeneracy conditions on the one-parameter family of Hamiltonian maps, two, four or eight fixed points bifurcate from the original one. We give a relatively detailed analysis of the bifurcation in the two dimensional case. Higher dimensional cases can be reduced to the two dimensional case.