We consider Lagrangian fibrations by abelian surfaces and threefolds over the complex projective plane and threespace, respectively, with total space holomorphic symplectic manifolds or varieties. We recall some classification results of Markushevich, Kamenova, and the speaker in the principally polarized case, and a new classification result in the (1,2) polarized case (joint work with Xuqiang Qin). We also describe restrictions on the polarization; indeed, `most' polarizations are not possible.