On the complete integrability of the Ostrovsky-Vakhnenko equation

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In 1999 V.O. Vakhnenko investigated high-frequency perturbations in a relaxing barothropic medium. He discovered that this phenomenon is described by a new nonlinear evolution equation. Later it was proved that this equation is equivalent to the reduced Ostrovsky equation, which describes long internal waves in a rotating ocean. This paper studies the complete integrability of the Ostrovsky-Vakhnenko equation by means of symplectic and differential-algebraic tools. A compatible pair of polynomial Poissonian structures, Lax-type representation and related infinite hierarchy of conservation law are constructed.