

**Highlights**

- Low solubility of nickel ions from metallic nickel nanoparticles in seawater.
- No lethality of sea urchin embryos up to 3 mg/L metallic nickel nanoparticles.
- Considerable size reduction after 48 hours was comparable to the reduction for 1.2 mg/L nickel salt.
- Contributes to the overall understanding of metallic Ni NPs in the marine environment.