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We construct enriched quantum Yang-Baxter principal fiber bundles over a fixed Riemann manifold, with the structure quantum group a unital Hopf \mathbb{K} -algebra $\mathcal{H}=(\mathcal{H},m,\eta,\Delta, \varepsilon, S)$. The base space M , total space P are objects in a category of \mathbb{K} -algebra sheaves and are endowed with invertible Yang-Baxter operators satisfying the quantum Yang-Baxter equations. In addition we require that the Yang-Baxter operators endow M and P with r-structures making them into r-algebra sheaves. (Received September 26, 2006)