CLAIMS

1. A device for recovering a vessel at sea from a surface station, the recovery device comprising:

- a cradle intended to support the vessel,

- a lifting device comprising an upper frame and a set of hangers connecting the cradle to the upper frame, lengths of the hangers being variable so as to make it possible to hoist and lower the cradle,

the set of hangers comprising a first stabilizing hanger and a second stabilizing hanger that are able to be in a stabilizing configuration in which the first stabilizing hanger and the second stabilizing hanger are under tension and extend linearly, and in which a first orthogonal projection of the first stabilizing hanger on a transverse plane (y, z) defined by an axis z, which is linked to the upper frame and extends substantially vertically in calm seas, and by an axis y orthogonal to the axis z, and a second orthogonal projection of the second stabilizing hanger on the transverse plane are inclined with respect to one another and cross one another so as to make it possible to limit swaying of the cradle with respect to the upper frame,

wherein the first stabilizing hanger and the second stabilizing hanger are able to be in a rest configuration in which the first stabilizing hanger and the second stabilizing hanger are under tension and in which a third orthogonal projection of the first stabilizing hanger on the transverse plane and a fourth orthogonal projection of the second stabilizing hanger on the transverse plane exhibit a smaller inclination with respect to one another than in the stabilizing configuration, such that swaying of the cradle with respect to the upper frame is more limited when the hangers are in the stabilizing configuration than when they are in the rest configuration.

2. The recovery device as claimed in the preceding claim, wherein the vessel is intended to rest on the cradle under the effect of gravity while it is being hoisted.

3. The recovery device as claimed in either one of the preceding claims, comprising an attachment connecting a first attachment point of the cradle to a second attachment point that is fixed, in the receiving configuration, with respect to the upper frame in translation along the axis y and/or along an axis x orthogonal to the axis y and to the axis z.

4. The recovery device as claimed in any one of the preceding claims, comprising:

- a connecting piece connected to the cradle with three degrees of freedom of rotation,

- a guide for guiding the connecting piece in translation along the axis z, with respect to the upper frame, during a variation in length of the hangers.

5. The recovery device as claimed in the preceding claim, wherein the connecting piece is connected to the cradle by a ball joint connection or a connection with three degrees of freedom of rotation and one degree of freedom of movement in translation along an axis parallel to an axis x linked to the upper frame and perpendicular to the axis y and to the axis z.

6. The recovery device as claimed in any one of the preceding claims, wherein the recovery device is configured to recover a vessel moving on the surface of the water in calm seas, preferably along an axis of forward movement parallel to an axis x linked to the upper frame and perpendicular to the axis y and to the axis z.

7. The recovery device as claimed in any one of the preceding claims, wherein the set of hangers also comprises hoisting hangers disposed so as to make it possible to hoist the cradle with zero list in calm seas and to adjust an attitude of the cradle.

8. The recovery device as claimed in the preceding claim, wherein each hoisting hanger has an orthogonal projection on the plane (x, y) that is able to exhibit a single predetermined orientation in calm seas, when the hoisting hanger is under tension and extends linearly.

9. The recovery device as claimed in any one of the preceding claims, comprising means for adjusting the lengths of the hangers, said means being

configured to keep the hangers of the set of hangers substantially under tension during a stabilized hoisting step during which the adjusting means hoist the cradle toward the upper frame, the recovery device being in the recovery configuration and the stabilizing hangers being in the stabilizing configuration.

10. The recovery device as claimed in the preceding claim, wherein the adjusting means are configured to keep the hangers of the set of hangers under tension during the stabilized hoisting step.

11. The recovery device as claimed in either one of claims 9 and 10, wherein the adjusting means are configured to continuously reduce the lengths of the hangers of the set of hangers during the stabilized hoisting step.

12. The recovery device as claimed in any one of the preceding claims, comprising connecting means for connecting a bow of the vessel to the cradle so as to prevent the vessel from moving forward along the axis x with respect to the cradle.

13. A method for stabilizing a cradle of a recovery device as claimed in any one of the preceding claims, during which the hangers of the set of hangers are kept substantially under tension, the stabilizing hangers being in the stabilizing configuration.

14. A method for hoisting a vessel at sea using a recovery device as claimed in any one of claims 1 to 12, comprising a stabilized hoisting step during which the cradle is hoisted toward the upper frame under the effect of a variation in length of the hangers, the recovery device being in the recovery configuration and the stabilizing hangers being in the stabilizing configuration.