How is a **submarine cable installed** on the seabed?

The **installation of a submarine cable** is a complex process that can take several years from planning to operation. Its assembly and maintenance require **high levels of technological and logistical expertise.** These are some of the key phases in the installation process:

1 Route study and selection

A **detailed survey** of the seabed is first carried out using **geotechnical surveys** and **subsea mapping**. Factors such as **depth**, **seismic activity**, the presence of **sensitive ecosystems** and **maritime traffic** are analysed to choose the optimal route that ensures safety and efficiency.
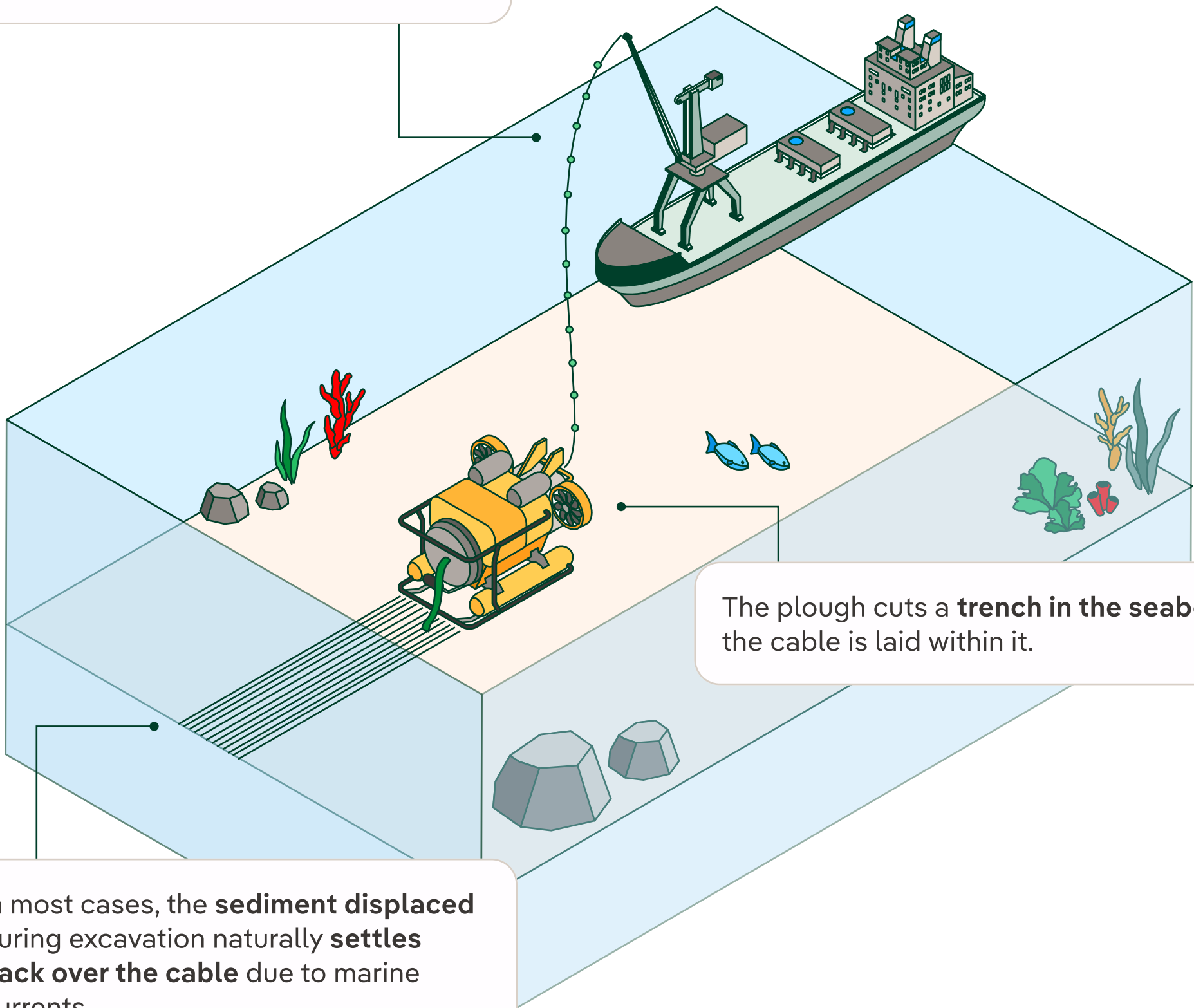
2 Cable manufacturing and testing

Once the route has been defined, the **cable segments are manufactured.** Each section undergoes **resistance, insulation and durability tests** before being transported to the installation site.

3 Cable transport and laying

The cable is loaded directly from the factory onto **specialised vessels** (cable-laying vessels), equipped with large **reels**, advanced **positioning** systems and remotely operated **robotic underwater tools.** During deployment, the vessel follows the **planned route** and slowly **lays the cable** on the seabed.

Whenever possible, the preferred option is to **bury the cables beneath the seabed** to protect them from potential damage. The most common method is **cable ploughing:**

The cable is fed from the **stern of the vessel** into a **plough** towed by the cable ship or another support vessel.

The plough cuts a **trench in the seabed** and the cable is laid within it.

In most cases, the **sediment displaced** during excavation naturally **settles back over the cable** due to marine currents.

4 Final connection and testing

Once the cable is installed, **connections are made at the converter stations** at both ends, and transmission tests are conducted to verify correct operation before going live.

Source: European Subsea Cables Association, ZMS Cable.