Deep-sea mining

What are the minerals found in the deep ocean?

Polymetallic nodules

FORM ON ABYSSAL PLAINS

1-100 mm / million years

26 Fe 25 Mn 28 Ni 27 Co 29 Cu

Relatively high concentrations of iron and manganese, as well as nickel, copper and cobalt.

Polymetallic crusts

FORM ON SEAMOUNTS

1-5 mm / million years

26 Fe 25 Mn 28 Ni 27 Co 29 Cu

Relatively high concentrations of iron and manganese, as well as nickel, copper and cobalt.

Polymetallic sulphides

FORM IN TECTONICALLY ACTIVE AREAS

29 Cu 30 Zn 33 Pb 33 As 27 Co 47 Ag 79 Au ...

Relatively high concentrations of copper, zinc, lead, arsenic, cobalt, silver, gold, and other metals.

Why may deep-sea mining occur?

TERRESTRIAL SOURCES OF KEY MINERALS ARE RUNNING OUT WHILST CLEAN ENERGY DEMAND IS GROWING RAPIDLY

MINERALS FOUND IN THE DEEP-SEA ARE USED IN EVERYDAY PRODUCTS:

25 Mn MANGANESE

Combined with aluminium and used in drink cans to avoid corrosion.

29 Cu COPPER

A good conductor of electricity, copper is used in motors, for electrical wiring and in electronic goods such as radio and TV sets.

28 Ni NICKEL

Nickel resists corrosion and is used in high strength alloys.

27 Co COBALT

Cobalt remains magnetic at very high temperatures, therefore is used for specialised magnets in generators and hard drives, as well as in rechargeable batteries.

Phases of deep-sea mining

Prospecting

Searching for deposits and estimating size, distribution, composition and economic value

Exploration

Further analysis of deposits

Testing equipment and facilities

Completing environmental, technical, economic and commercial assessments

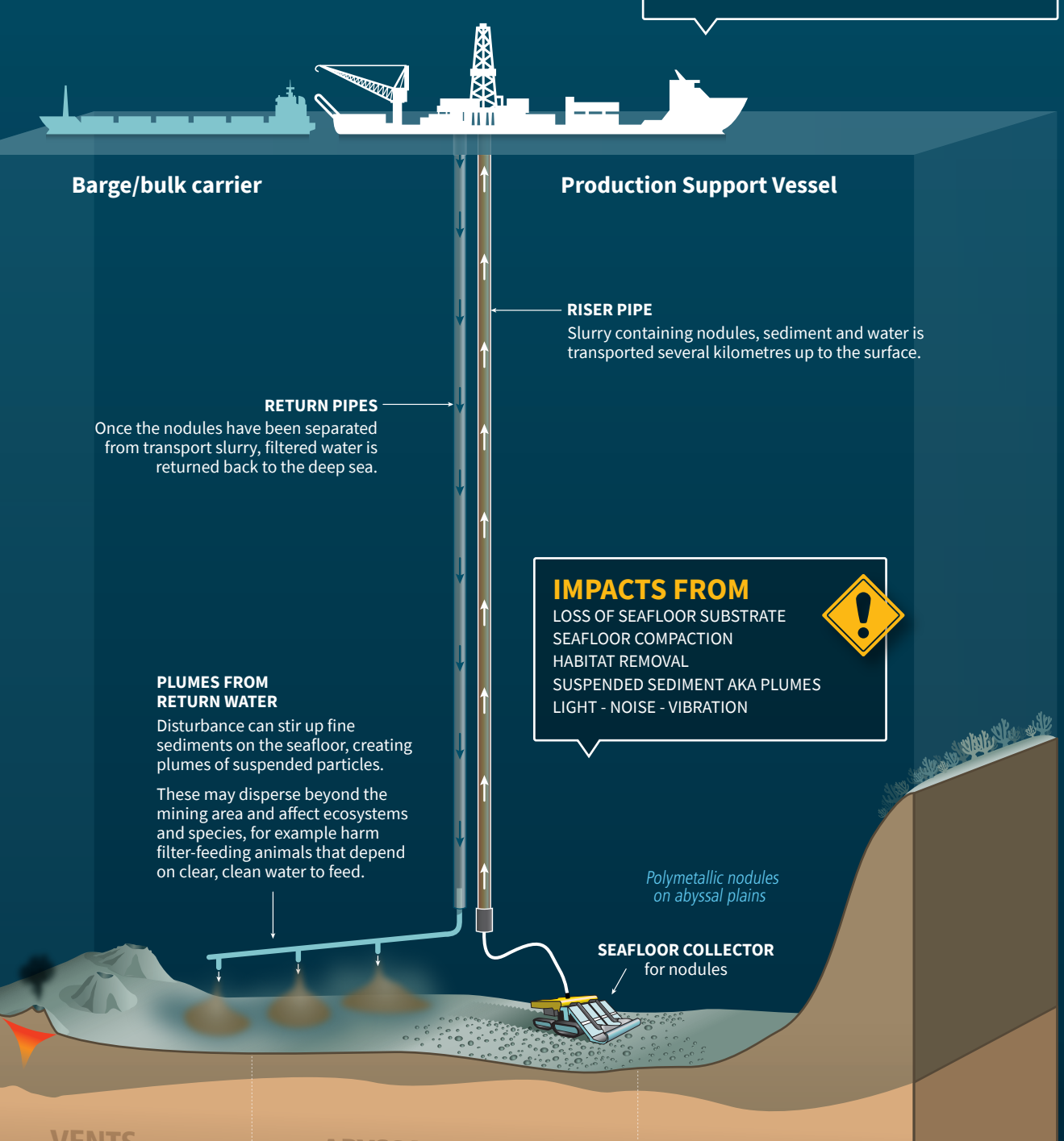
Exploitation

Construction and operation of mining, processing and transportation systems

Commercial recovery of desposits and subsequent processing

POSSIBLE IMPACTS FROM

- **LIGHTS**, which can disrupt creatures' biological processes linked to natural light, such as spawning events.
- **NOISE**, which can disturb creatures that use sound to search for food and mates.
- **OPERATIONAL DISCHARGES/EMISSIONS COMPARABLE TO DRILL SHIPS AND DREDGERS**, which can pollute the surrounding water.



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