

Environmental law

International Baccalaureate · IB Diploma · Environmental Systems
and Societies · HL

Scope and prerequisites

This handout covers selected HL topics for the course first assessed in 2026; it is not the whole syllabus.

Prerequisites: read the stated quantities and units, and use arithmetic and the model conditions below.

The examples are original and fictional: they are not real measurements or real student investigations.

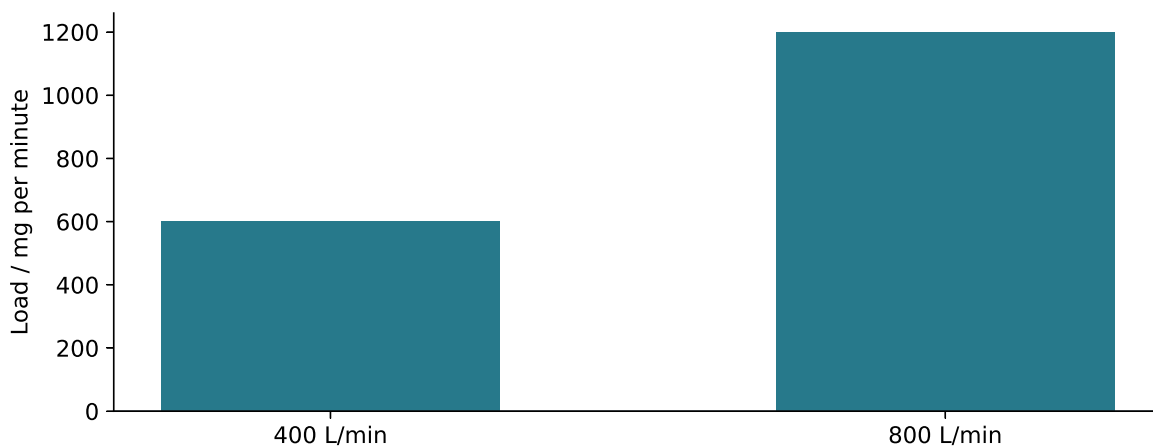
Environmental law: rules, evidence and enforcement

■ What would explain this observation?

- Two catchments have the same discharge limit but different water quality. A legal rule can influence behaviour only through its coverage, implementation and **enforcement**.
-

■ Build the model

- Environmental law defines obligations and permissions within a **jurisdiction**.
- A discharge permit may specify a concentration, a total load, monitoring and consequences of non-compliance.
- International agreements require implementation through institutions; signing an agreement alone does not show that an environmental outcome has improved.
- enforcement: Implementation of rules through monitoring and consequences.
- jurisdiction: The geographical or institutional scope of an authority.



A concentration limit is not a load limit: the same 1.5 mg/L at double the flow doubles the load

■ Choose evidence that can test it

- Distinguish the legal instrument from the evidence about its effect.
- A concentration limit can be satisfied while total pollutant load rises if flow increases.
- Evaluate monitoring coverage, detection probability, incentives, access to justice and effects on different groups.
- An observed change after a policy is compatible with an effect but also with rainfall, industrial changes or other interventions.

In the lab: Use an attributed historical or clearly fictional permit and paired monitoring data. Identify the regulated activity, responsible authority, geographical boundary and date. Compare upstream/downstream and before/after observations where available, document sampling gaps, and discuss whose evidence or costs are excluded. Do not present this classroom model as advice about current local law.

■ Work from known quantities

- Known: a fictional permit caps discharge at 2 mg/L.
- A monitored discharge is 1.5 mg/L at 400 L/min.
- Load = concentration $\times$ flow = 600 mg/min.
- At the same concentration and 800 L/min the load is 1,200 mg/min.
- Both concentration observations satisfy the fictional cap, while the second transports twice the mass.

Your turn: A discharge contains 1.2 mg/L at 500 L/min. Calculate transported mass per minute.

■ Check the conclusion and its limits

- Compliance with one indicator does not prove ecological safety or fair enforcement.
- Compare actual outcomes with the policy objective and consider both administrative feasibility and affected communities.

Not true: A concentration-compliant discharge necessarily has a small total pollutant load. Concentration compliance limits how strong the discharge is, not how much total mass flows. Load = concentration x flow, so a compliant concentration at very high flow can deliver a large pollutant load.

Key:

- Environmental law defines obligations and permissions within a jurisdiction.
- Distinguish the legal instrument from the evidence about its effect.
- Watch for: compliance with one indicator does not prove ecological safety or fair enforcement.

■ Write from a load of 800 mg per minute

- A discharge is 0.8 mg per litre at 1,000 litres per minute.
- Find the load. Meeting a concentration limit does not prove the total load is small.

■ Write from a lower concentration but a higher load

- A second discharge is 0.5 mg per litre but flows at 2,400 litres per minute.
- Find the load: $0.5 \times 2,400 = 1,200$ mg per minute – the cleaner-looking discharge carries the bigger load.

■ Write from a daily load

- The first discharge (0.8 mg per litre at 1,000 litres per minute) runs all day.
- Find the daily load: $800 \times 60 \times 24 = 1,152,000$ mg – about 1.2 kg per day for one pipe.