

HOW DO WE START TO UNDERSTAND THE COST OF COMPLIANCE AND ITS LONG TERM CONSEQUENCES TO EBFM?

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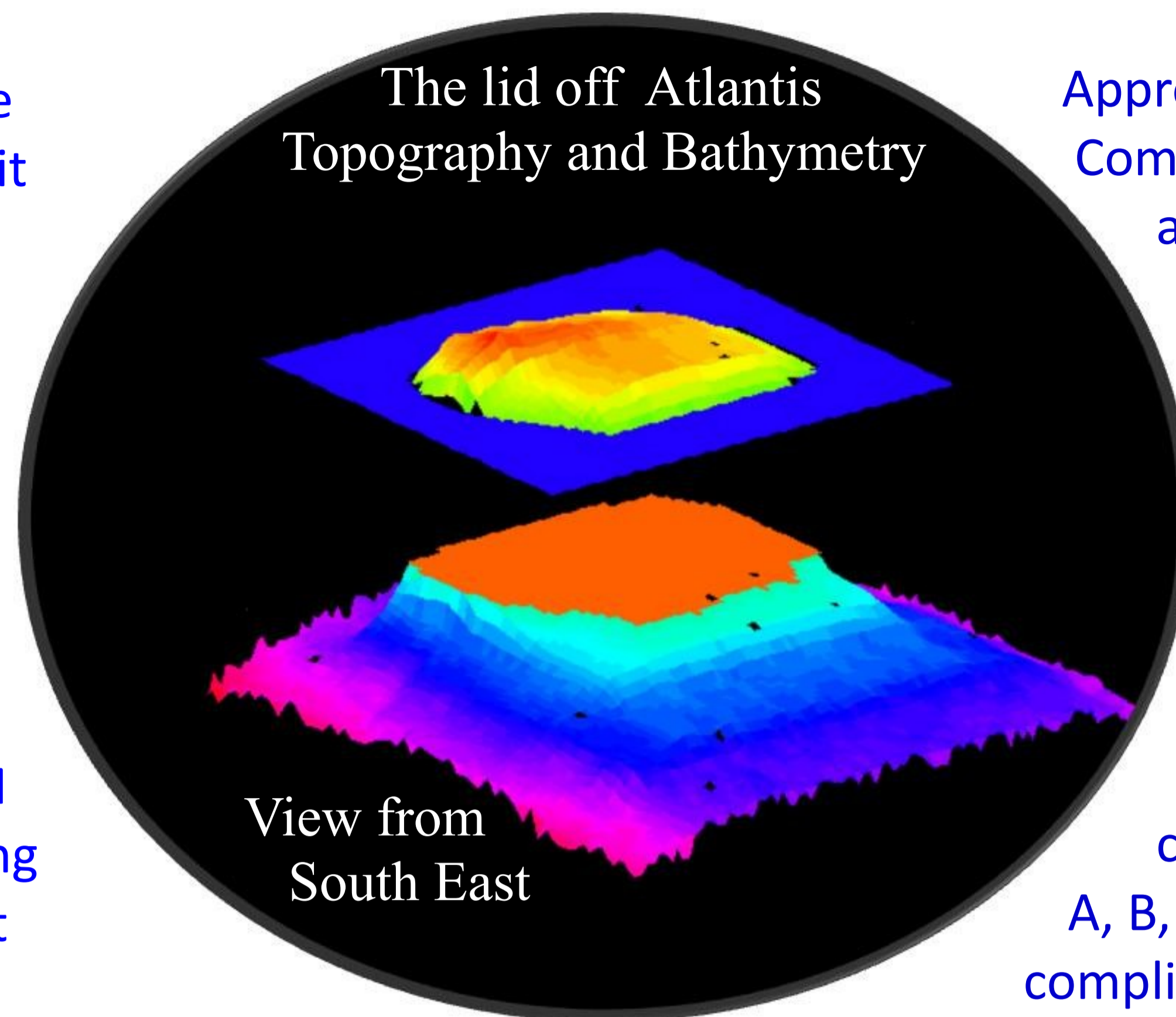
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Background:

In the course of the MAREFRAME Atlantis case study consultations with Atlanto Stakeholders it was clear that-

- 1.They were concerned with EBFM issues.
- 2.But their attention was mainly focused on short term issues. In particular on the Landings Obligation (LO) and its possible effect on compliance.

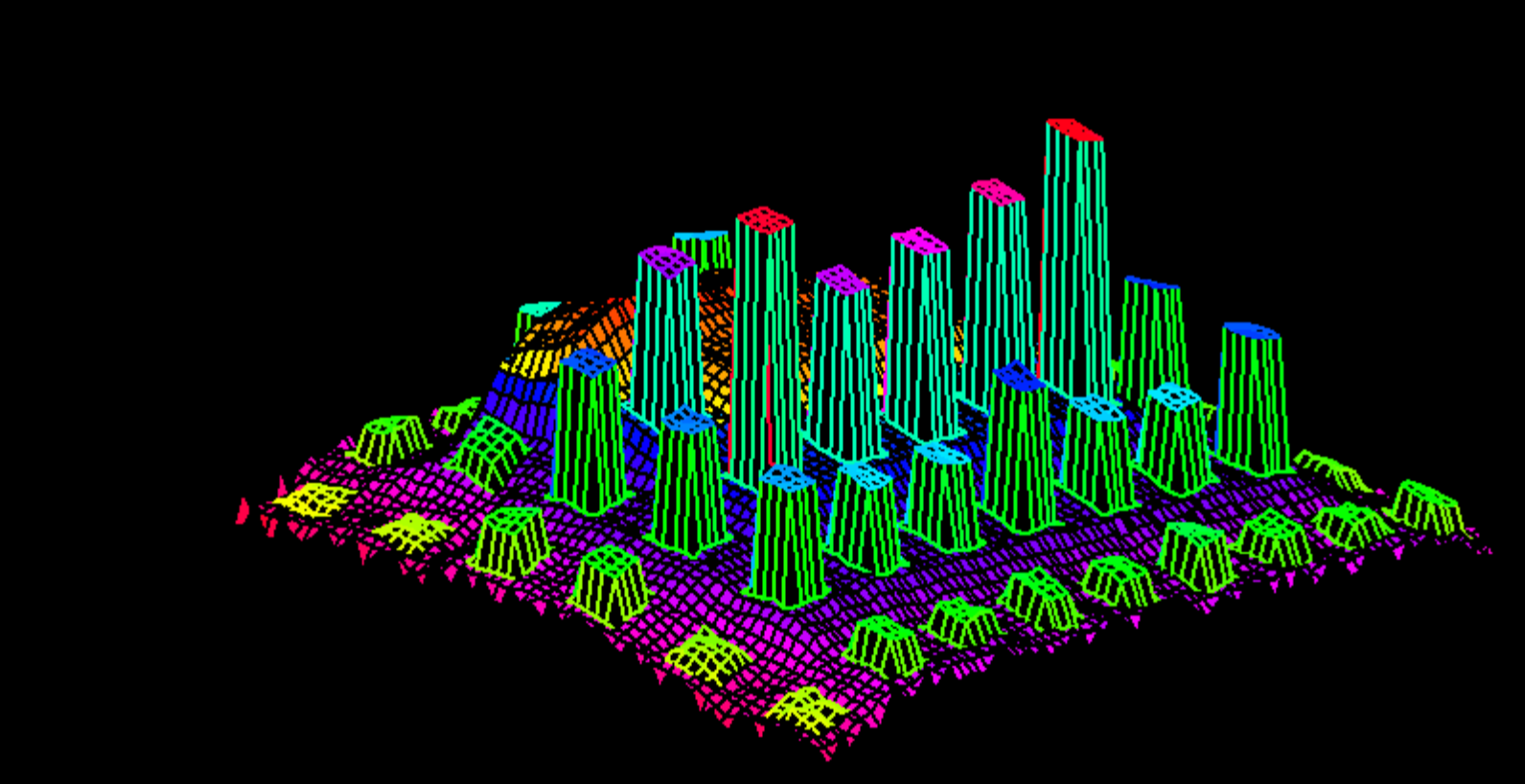
The Atlantis Board of Commerce (ABC) noted that reductions in compliance would have implications for the long term success of EBFM measures and asked for this preliminary scoping study to investigate the problem in the context of the Atlantis offshore demersal roundfish



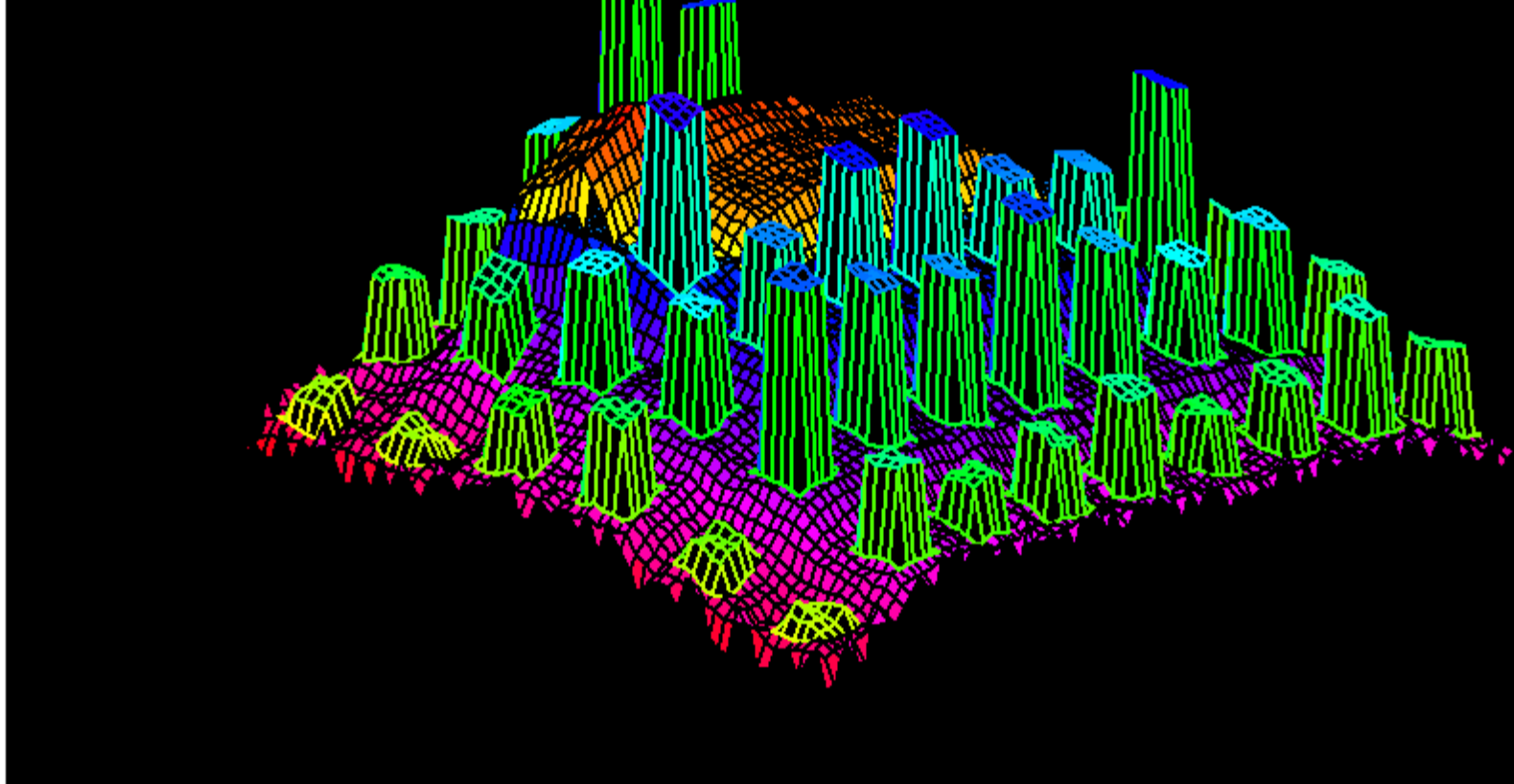
Approach:

Compliance is a complex amalgam of economic, social and governance factors. The cost of compliance (the profit forgone by complying) is often an important factor. Here we model the likely differences in the short term profit of compliance and non-compliance behaviour. But no judgment is made as to the actual behaviour likely under the Landings Obligation (LO). The model describes optimal behaviour under either option. This is based upon the areal availability by size of cod, haddock and saithe in Atlantos waters. (Figures A, B, C) Results include the short term cost of compliance and the longer term consequences of non-compliance with the LO.

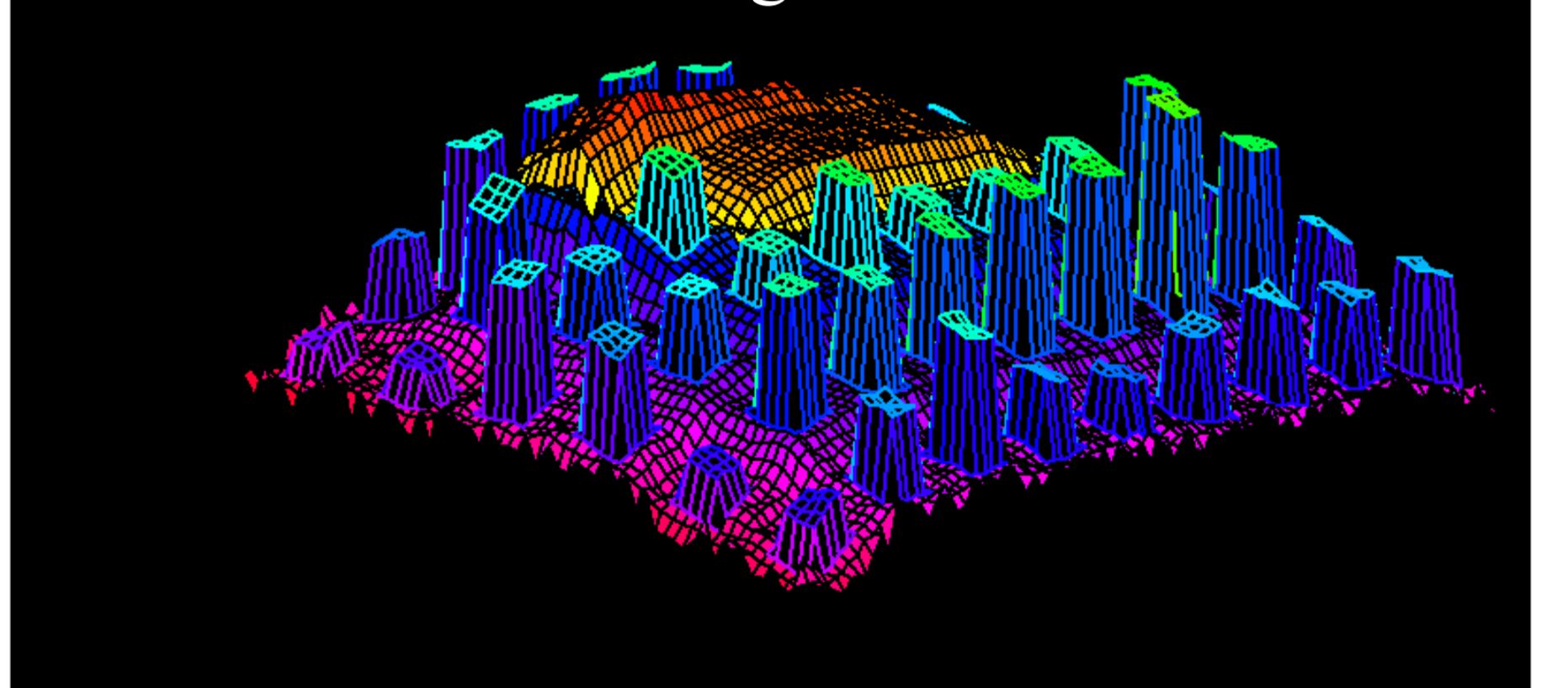
A: Relative catch per day of small cod. Large cod tend to lay somewhat deeper and "discard sizes" more inshore.



B: Relative catch per day of small haddock. Large and "discard sizes" of haddock have similar distributions.



C: Relative catch per day of small saithe. Large saithe lay much deeper and "discard sizes" tight inshore.



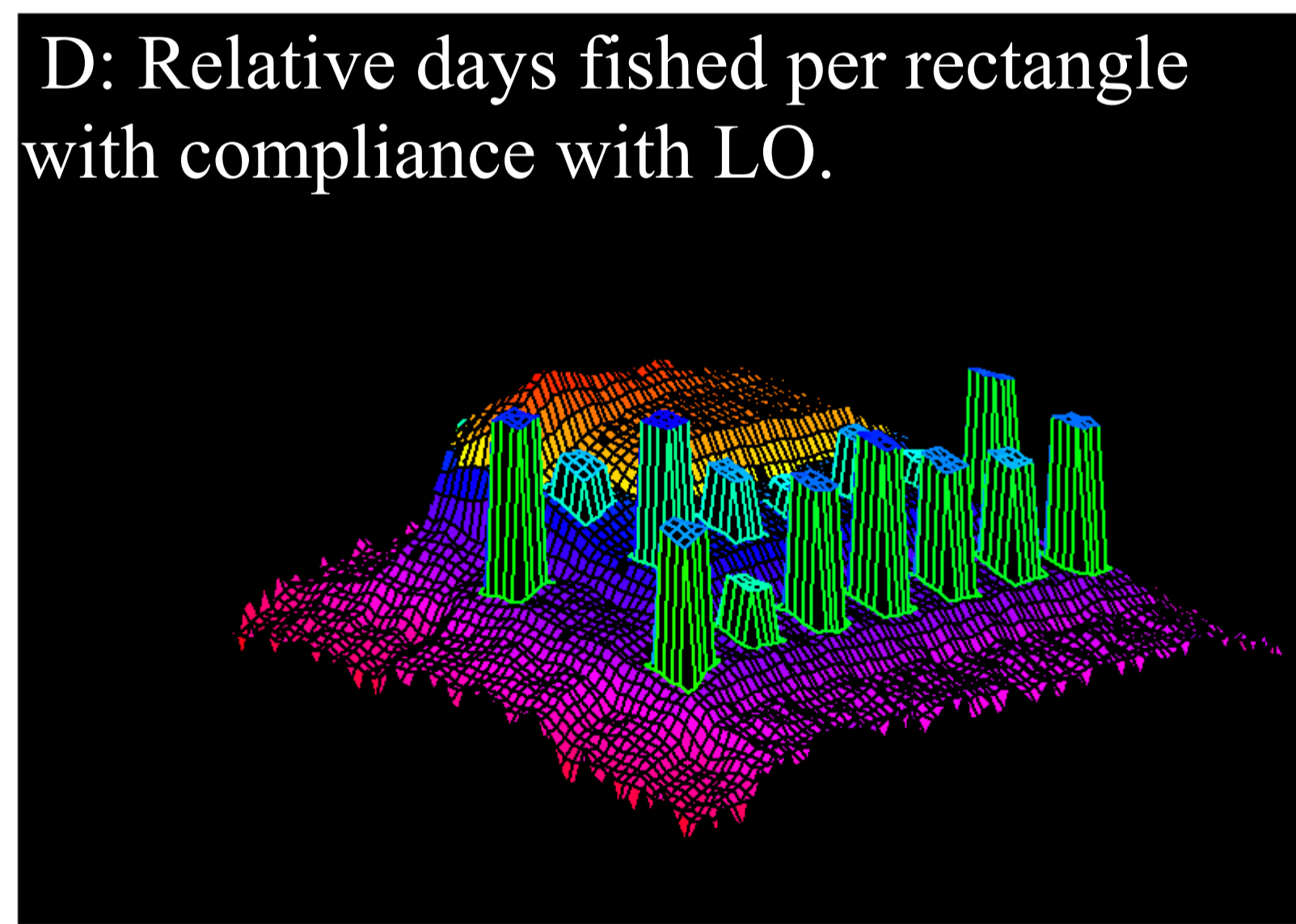
Rules:

- 1.Under the compliance hypothesis no fish are discarded and all landed fish count equally towards binding TAC's.
- 2.Under the non-compliance hypothesis, zero value fish and over quota commercial sized fish will be discarded if this allows greater profit. The same sized TACs are still binding on landings.
- 3.In both cases the fleet, if it wishes, may increase mesh size and change fishing patterns to obtain the most profitable outcome.
- 4.There is an industry backed rule that statistical rectangles are closed after a maximum annual effort of 5000 days fishing.

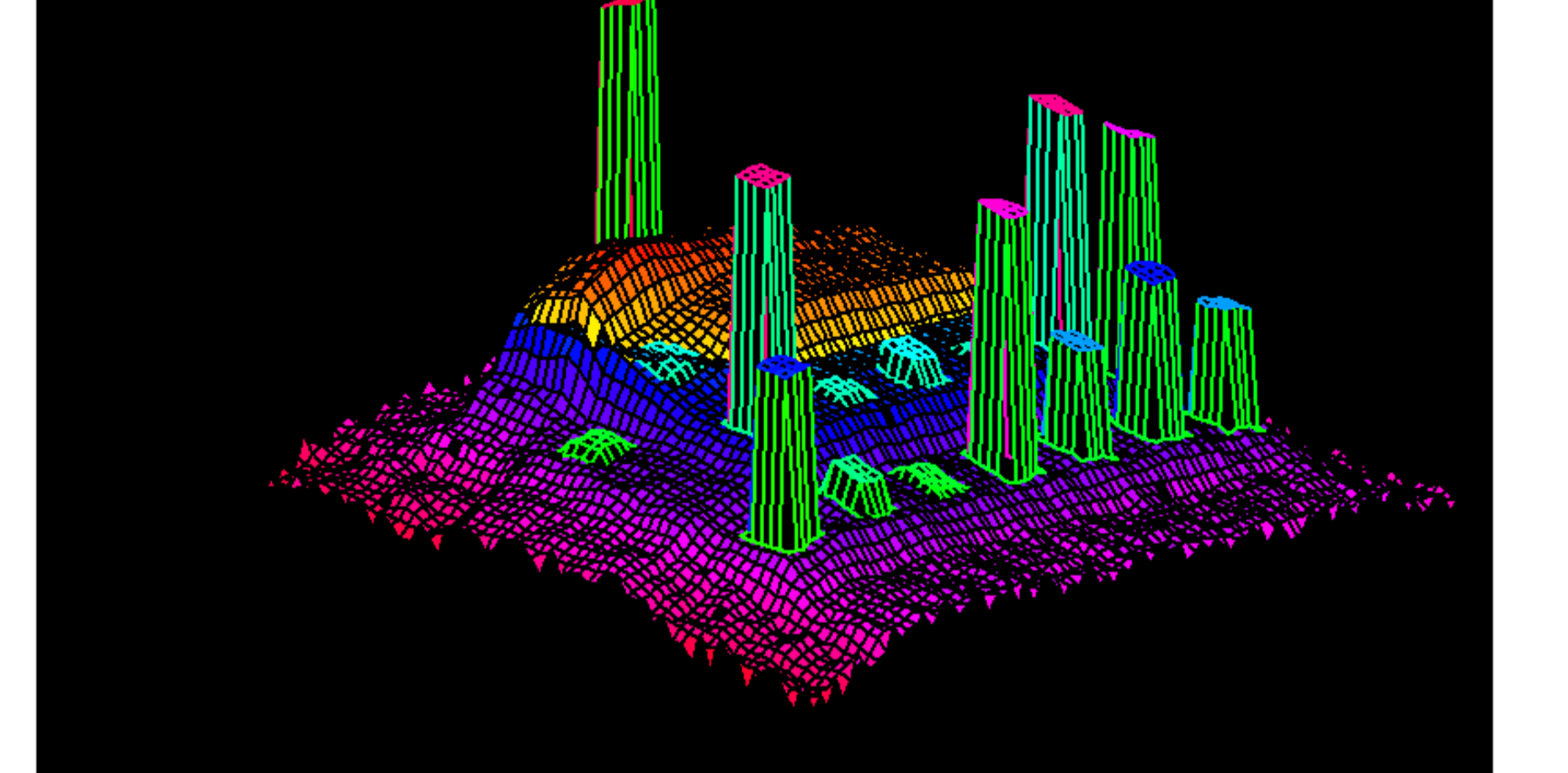
Results 1:

Figures D, E show relative fishing effort by rectangle for the two hypotheses. Note! There are markedly different distributions for the two hypotheses and that non-compliance allows more fishing.

D: Relative days fished per rectangle with compliance with LO.



E: Relative days fished per rectangle with non-compliance with LO.



Behaviour	compliant	non compliant	% increase
total days fished	13829	18720	35%
landed wt. 1000 Tonnes	117	112	-4%
landed value million€	117	157	34%
costs million€	76	103	35%
profit million€	41	54	33%
total discards 1000 Tonnes	35	50	43%
Cod discards 1000 T.	11	16	45%
Haddock discards 1000T.	18	22	22%
Saithe discards 1000T.	7	12	71%

Results 2:

The table shows the main differences in outcome between the two hypotheses. With non-compliance the hours fished, the landings value and the profit are all increased by about 35% and discarded catch by 43%. The cost of compliance is about 13million €.

Conclusions:

At 13million € the wages of sin are substantial! But the overall increase in profit from non-compliance (35%) was less than expected in a year where high haddock discards were anticipated. The Atlantis Board of Commerce believe that a targeted inspection of inshore waters, coupled with industry led temporary closures and a social inclusion policy in decision making will serve to encourage compliance. This is important because non-compliance would increase fishing mortality on these species by 35%, discards would increase by 43% and bottom disturbance would increase on some vulnerable grounds.

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