

Table 2. Provisional IOOS core variables that should be measured by the national backbone for detection or prediction of phenomena of interest (Part I) relevant to the seven societal goals of the IOOS (indicated by "X").⁶ The core variables are nearly identical to similar suites of core variables identified in the GOOS/Global Climate Observing System (GCOS) action plan⁴, the EuroGOOS survey^a, the Coastal Ocean Observations Panel (COOP) of the IOC¹⁰, and in the 1999 NORLC report to Congress⁵. Physical variables are ranked high because they are required to achieve all seven societal goals. Variables in bold were also identified by COOP as core variables using a similar procedure.¹⁰ Note that natural hazards such as oxygen depletion and harmful algal blooms are addressed in the ecosystem health category. This list of variables is augmented by data on atmospheric, land-based and anthropogenic forcings in Table 1.

CORE VARIABLES	Weather & Climate	Marine Operations	Natural Hazards	National Security	Public Health	Healthy Ecosystems	Sustained Resources
Salinity	X	X	X	X	X	X	X
Temperature	X	X		X	X	X	X
Bathymetry	X	X	X	X	X	X	X
Sea Level	X	X	X	X		X	X
Surface waves	X	X	X	X	X	X	X
Surface currents	X	X	X	X	X	X	X
Ice distribution	X	X	X	X			
Contaminants				X	X	X	X
Dissolved Nutrients					X	X	X
Fish species						X	X
Fish abundance						X	X
Zooplankton species					X	X	X
Optical properties				X	X	X	X
Heat flux	X					X	X
Ocean color^b	X	X			X	X	X
Bottom character	X	X				X	X
Pathogens				X	X	X	X
Dissolved O₂						X	X
Phytoplankton species	X	X		X	X	X	X
Zooplankton abundance						X	X

^a Fischer, J. and N. Fleming. 1999. Operational oceanography: data requirements survey. EuroGOOS Publ. No. 12, EG99.04, 59 pp. <http://www.ifremer.fr/sismer/program/eurogoos/publications/Pub_12Requirementsurvey.pdf>

^b The term "ocean color" as used here means those measurements of the ocean's visible and near-visible spectral optical characteristics from which a variety of variables can be estimated, including chlorophyll-a concentrations, turbidity, and dissolved organic matter.