Why are microbial water quality standards so complex?





Human health is a risk management issue

Contamination x

contact =

impact







- Risk is driven by "outliers"
- People don't get sick in "average" water quality



NZ Guidelines

CATEGORY	MEDIAN: E. COLI PER 100 ML	PERCENTAGE OF SAMPLES ABOVE 260: E. COLI PER 100 ML	PERCENTAGE OF EXCEEDANCES OVER 540: E. COLI PER 100 ML	95 [™] PERCENTILE: E. COLI PER 100 ML
Blue	≤ 130	< 20 per cent	< 5 per cent	≤ 540
Green	≤ 130	20-30 per cent	5-10 per cent	≤ 1000
Yellow	≤ 130	20-34 per cent	10-20 per cent	≤ 1200
Orange	>130	>34 per cent	20-30 per cent	>1200
Red	>260	>50 per cent	> 30 per cent	>1200



Implications for catchment modelling?

- Model users want all contaminants understood together
 - not always the same model
 - shared inputs and mitigation options
- Microbiology needs outputs as a distribution
 - previously used Monte Carlo simulations
- Hydrology calibration?
 - focus on averages?
 - or flood events?
- Microbiology calibration
 - lack of data

