



SoNA vs WHO

What have we learnt since WHO guidelines have been issued

HCNF Communities Presentation July 13th 2022
Dave Gilbert and Stephen Clark

Survey of Noise Attitudes (SoNA 2014)

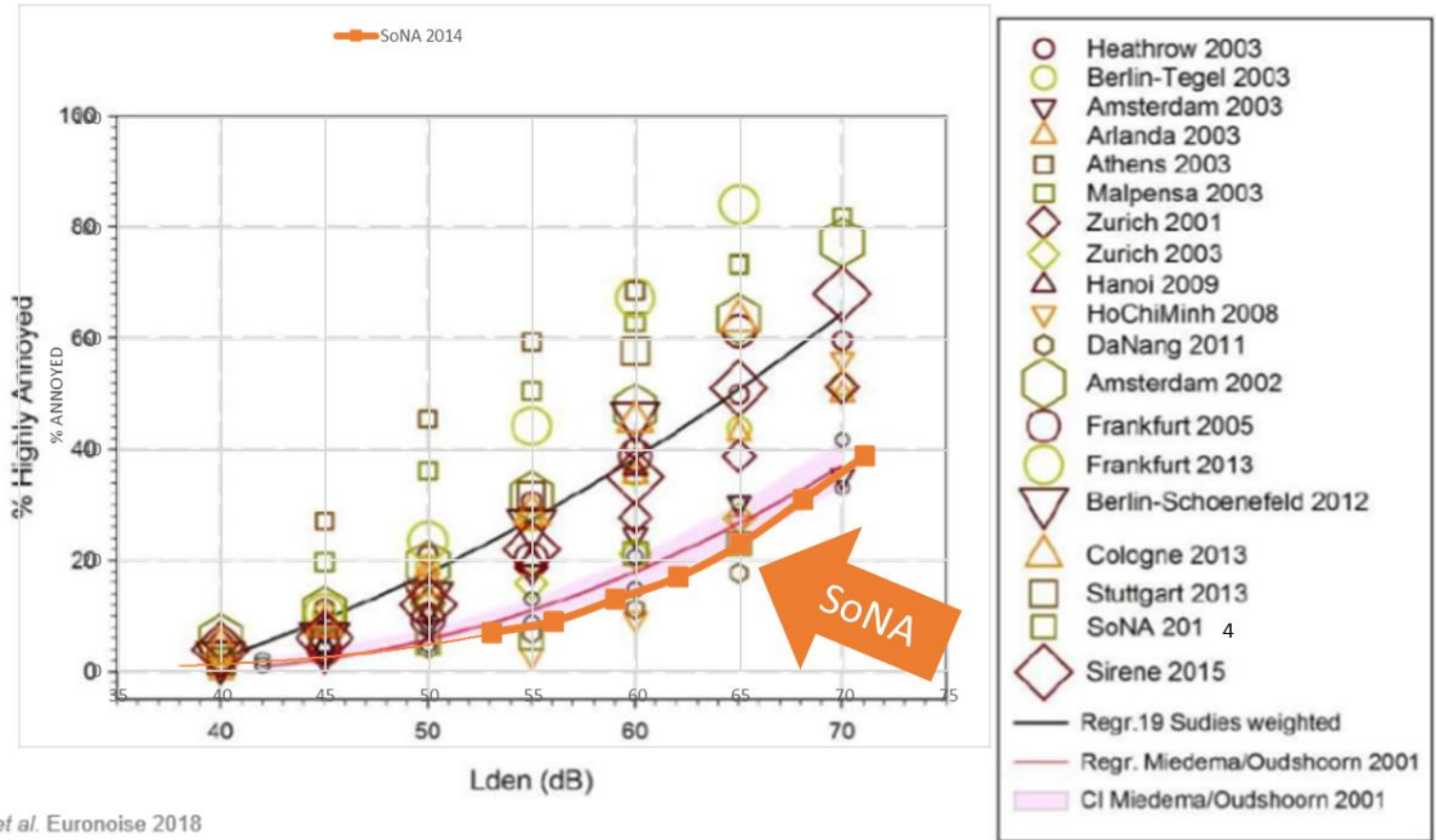
- It was good to hear DfT say at the last HCNF that the learnings from the ICCAN work on SoNA will be used in new surveys
- It is therefore worth sharing some of these learnings to create trust with communities that the new survey will include these learnings
- Reminder - SoNA 2014 presently is used to set UK Government Aviation Policy noise annoyance levels so is fundamental in accessing the monetised health and annoyance impacts so it is critical that the input data and analysis is robust
- For any consultation to be worthwhile and increase trust - robust evidence is required for significant annoyance and lowest observable adverse effect levels (LOAEL)

Reminder - Recent and old studies show SoNA as an outlier

Aviation – additional studies

The most recent evidence (including post WHO sources) shows the divergence between SoNA and current international research even more markedly.

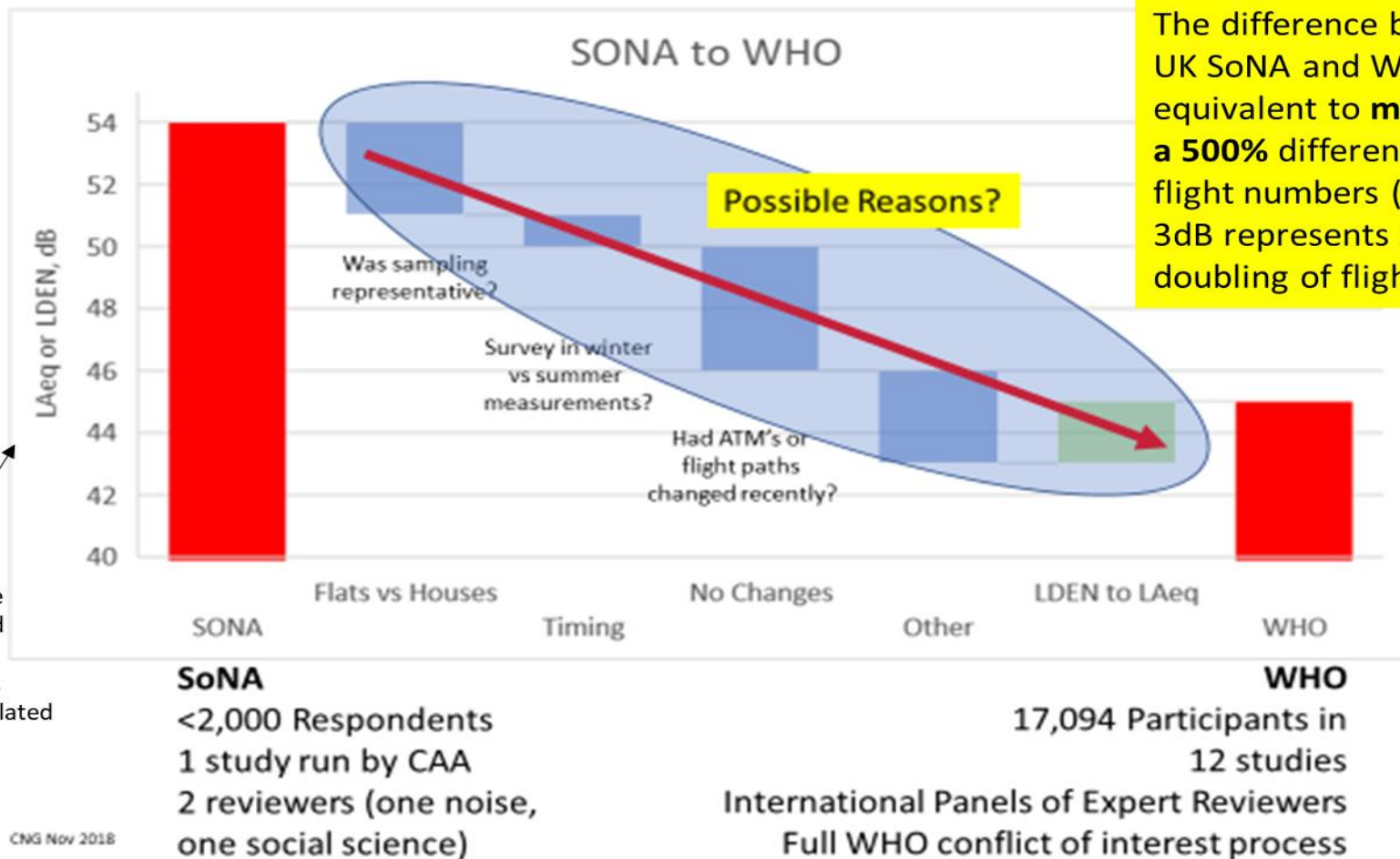
SoNA is an outlier (the mauve curve is based on a 20 year old research)



Guski *et al.* Euronoise 2018

Recap Previous request/proposal - slide presented at HCNF meeting Nov 2018

Proposed Project – Part 1. Independent Consultant to advise most likely reasons for differences

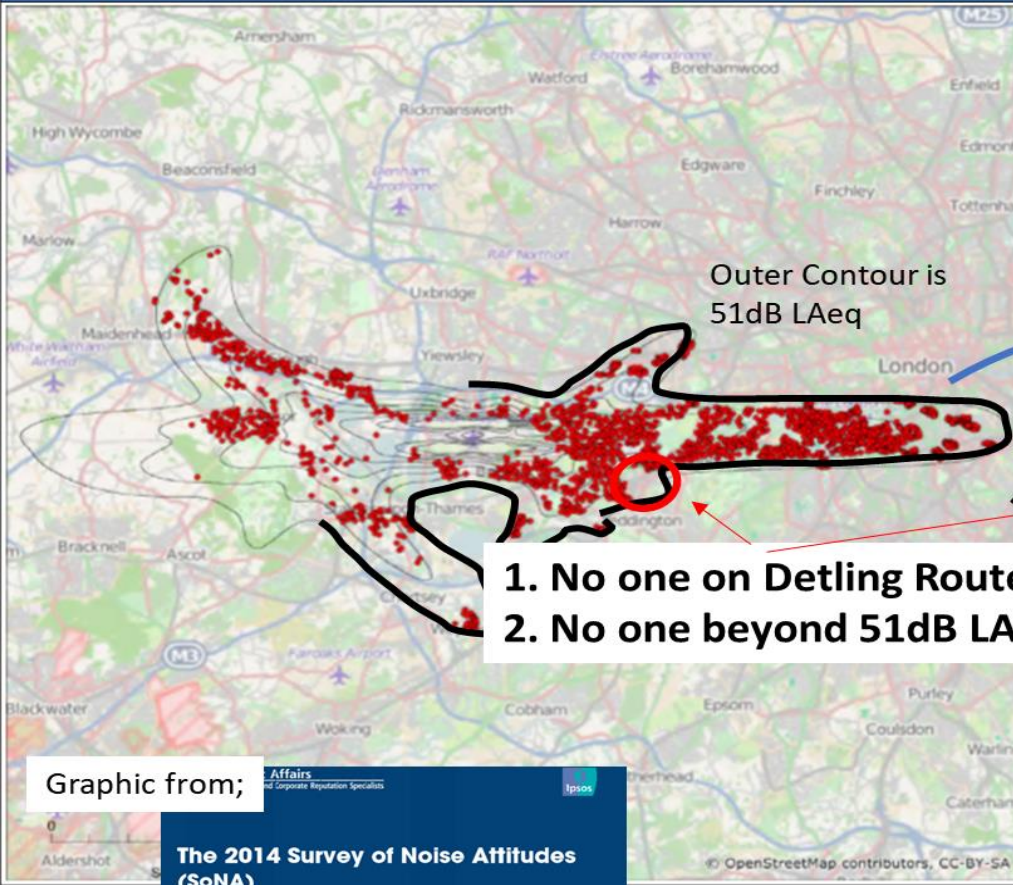


Acronyms
LAeq/LDEN are Average Sound energy Levels (not loudness). Energy is calculated from loudness x event length

CNG Nov 2018

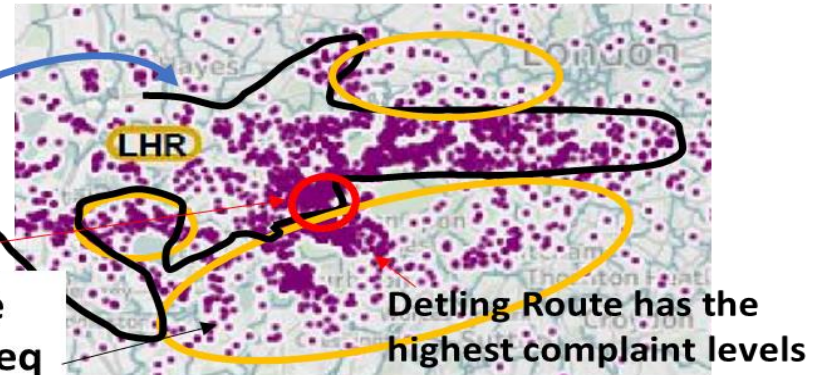
Reason 1 - SoNA did not sample all people clearly affected by Noise

Figure 14 - Total Achieved Interviews –Heathrow Airport



SoNA 2014 did not plan to cover areas where there is noise sensitivity below 51dB

Extract from Complaints (purple spots) mapping (to support feedback we request LHR provide contours on these complaints maps – black line is indicative)



SoNA has not considered any sampling below 51dB Even at 51dB it found 7% HA annoyance levels which is therefore not a LOAEL level. 16 more HA people would have made this the Significantly annoyed level.

Reason 2 – SoNA was undertaken in Winter

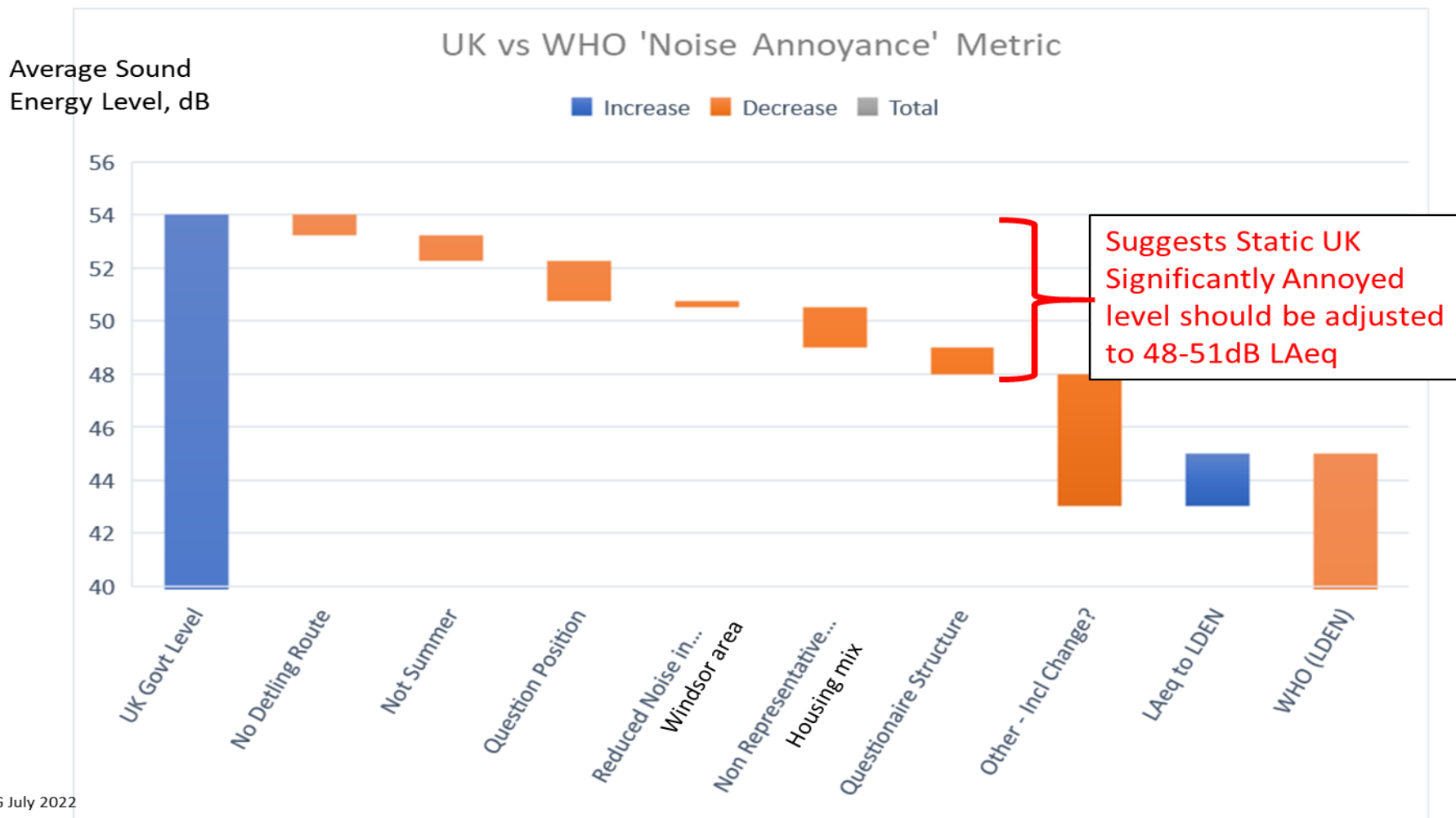
In winter there is less traffic and respondents were asked to recall summer experience

CNG July 2022

SoNA vs WHO. Dave Gilbert and Stephen Clark (Teddington Action Group). Noise and Airspace Community Forum 13/07/2022.

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We now have a better understanding what the differences are from previous work and the learnings from the ICCAN survey development process



Strength of evidence

Box 1 GRADE interpretations of quality of evidence

- **High quality:** further research is very unlikely to change the certainty of the effect estimate
- **Moderate quality:** further research is likely to have an important impact on the certainty of the effect estimate and may change the estimate
- **Low quality:** further research is very likely to have an important impact on the certainty of the effect estimate and is likely to change the estimate
- **Very low quality:** any effect estimate is uncertain

← WHO assessment of their work
← SoNA (not stated but evidence suggests around this level of reliability)

The following five factors are used for downgrading the quality of evidence by one or two levels:

- study limitations or risk of bias in all studies that make up the body of evidence
- inconsistency of results between studies
- indirectness of evidence in the studies
- imprecision of the pooled effect estimate
- publication bias detected in a body of evidence.

The following three factors are used for upgrading the quality of evidence:

- high magnitude of the pooled effect
- direction of residual confounding and biases opposes an effect (i.e. when all plausible confounders are anticipated to reduce the estimated effect and there is still a significant effect)
- exposure–response gradient.

This suggests WHO levels are more robust than SoNA 2014 but still need further work
A key area is to extend the understanding of annoyance to other metrics - as LAeq is limited
ICAO also recognise LAeq only explains a third of annoyance

Conclusions

- Clear reasons why SoNA 2014 underestimated noise sensitivity

Future surveys must;

- Survey in the summer
- Include annoyance questions at the beginning of the survey (not in the centre and end)
- Choose a UK indicative mix of households
- Survey to at minimum 45dB LAeq (16hr day)
- Include any areas with complaints (as these may not be described by average sound energies 'LAeq')
- Evaluate additional metrics that can better describe annoyance

- The DfT must adjust the Significantly Annoyed Level & LOAEL Static levels
- Change creates increased noise sensitivity. This is 'The elephant in the room' - not properly integrated into decision making nor airspace change planning and must be assessed at minimum using sensitivity analysis

Questions

- As part of their duty of care how will HCNF DfT representatives make sure IGCBN use these learnings in their assessment to ;
 - i) Reduce the level for significant noise annoyance in the UK
 - ii) Choose a lower LOAEL
- Given the high impact of change on annoyance and the lack of evidence to say it will or will not return to static levels will the DfT advise the use of sensitivity analysis?