

EIMR Conference April 2014

Seabird surveys in high energy sites;
marrying best practise and guidance

Digger Jackson & Simon Pinder



Current norms for boat-based surveys

To inform EIA & HRA:

- Surveys at approx. monthly intervals over a 2-year period (i.e., 24 replicates);
- Use ESAS line transect method;
- A vessel that gives 5m eye height and has good stability (>20m length);
- Sea-state 0 to 4 (0 to 3 for mammals);
- Similar for basic monitoring.

- *Guidance on survey and monitoring in relation to marine renewables deployments in Scotland. Volume 4. Birds.* Unpublished draft report to Scottish Natural Heritage and Marine Scotland. (2011). Authors: D Jackson & P Whitfield.
- COWRIE guidance for offshore wind farms.

The study

Study data

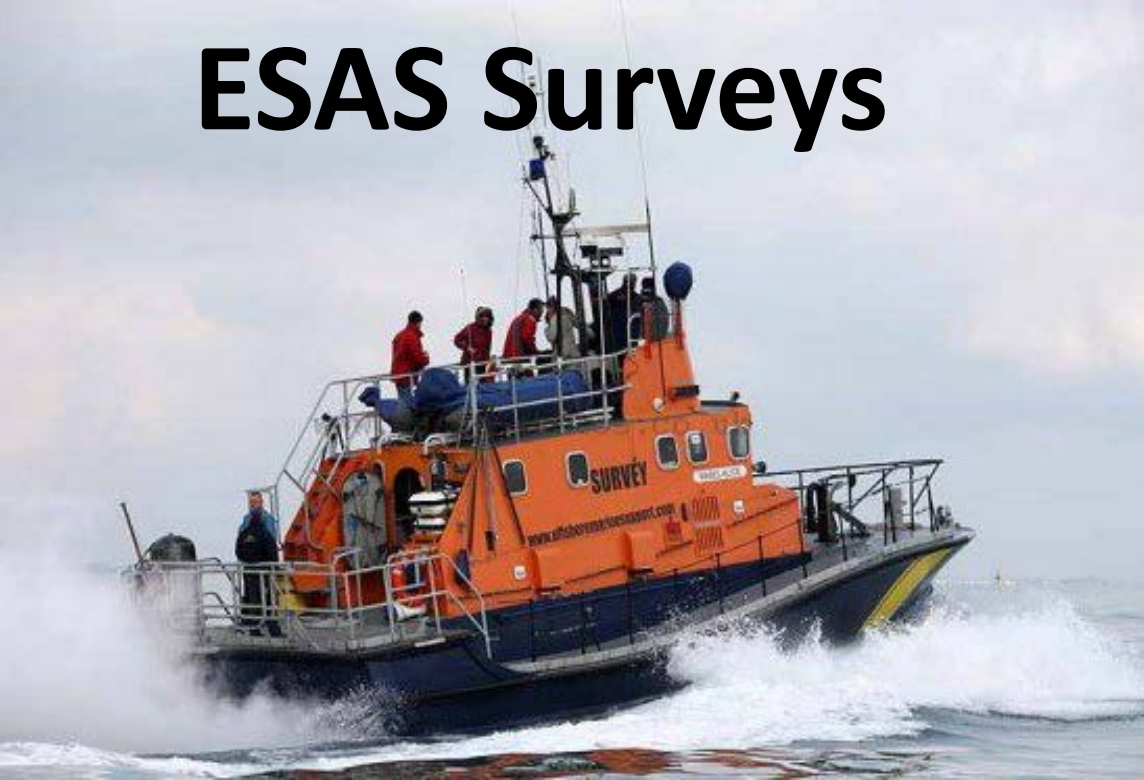
- **NRP's ESAS surveys between 2009 and 2014;**
- **8 sites (3 wind, 4 tide, 1 wave), varying in exposure and size;**
- **Each requires 1 to 2 days effort to cover.**

Examine likelihood of:

- 1. completing a survey each month;**
- 2. making good a missed survey next month;**
- 3. multi-month data gaps developing.**

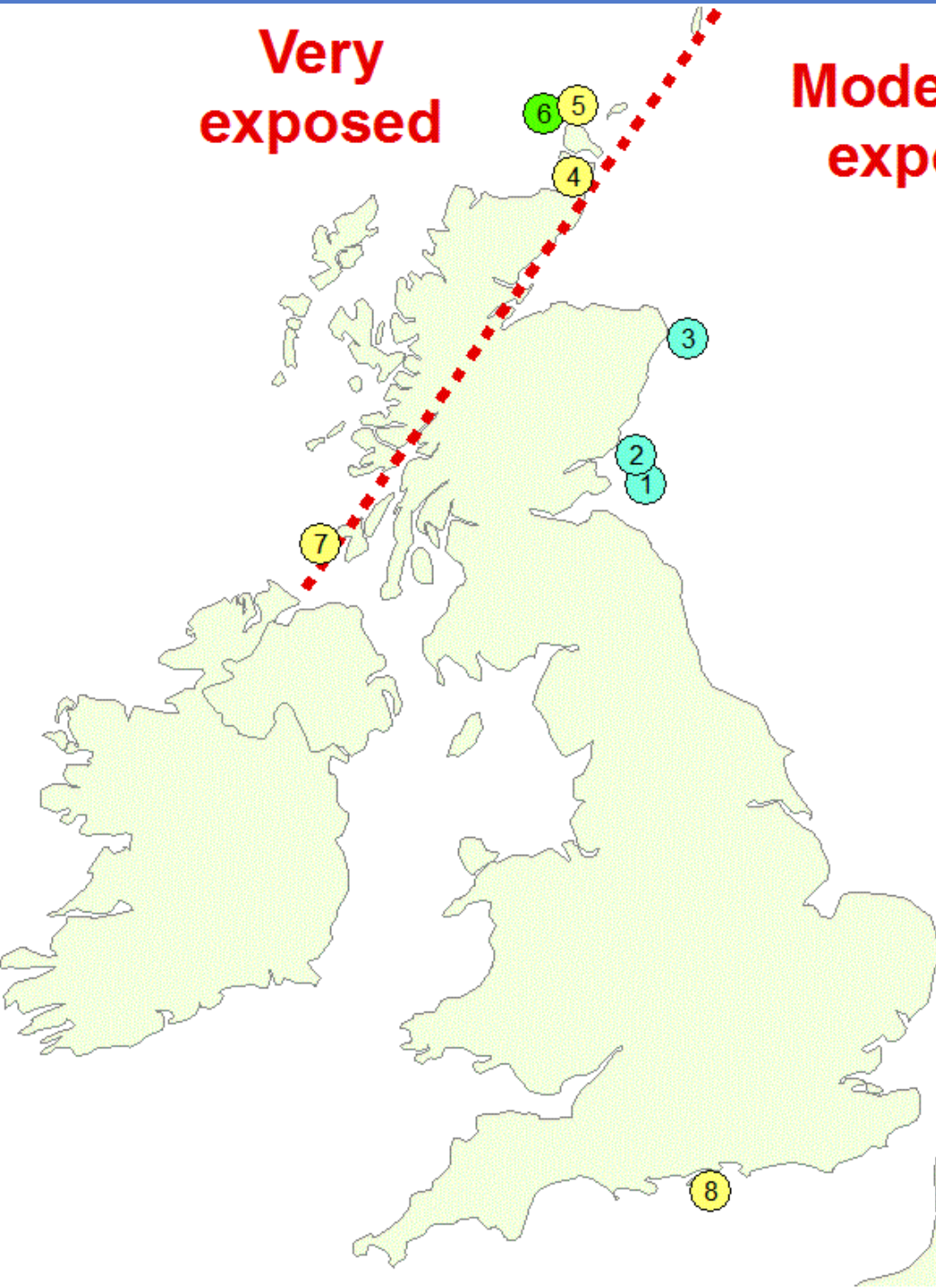
Discuss causes and implications

ESAS Surveys






Very exposed

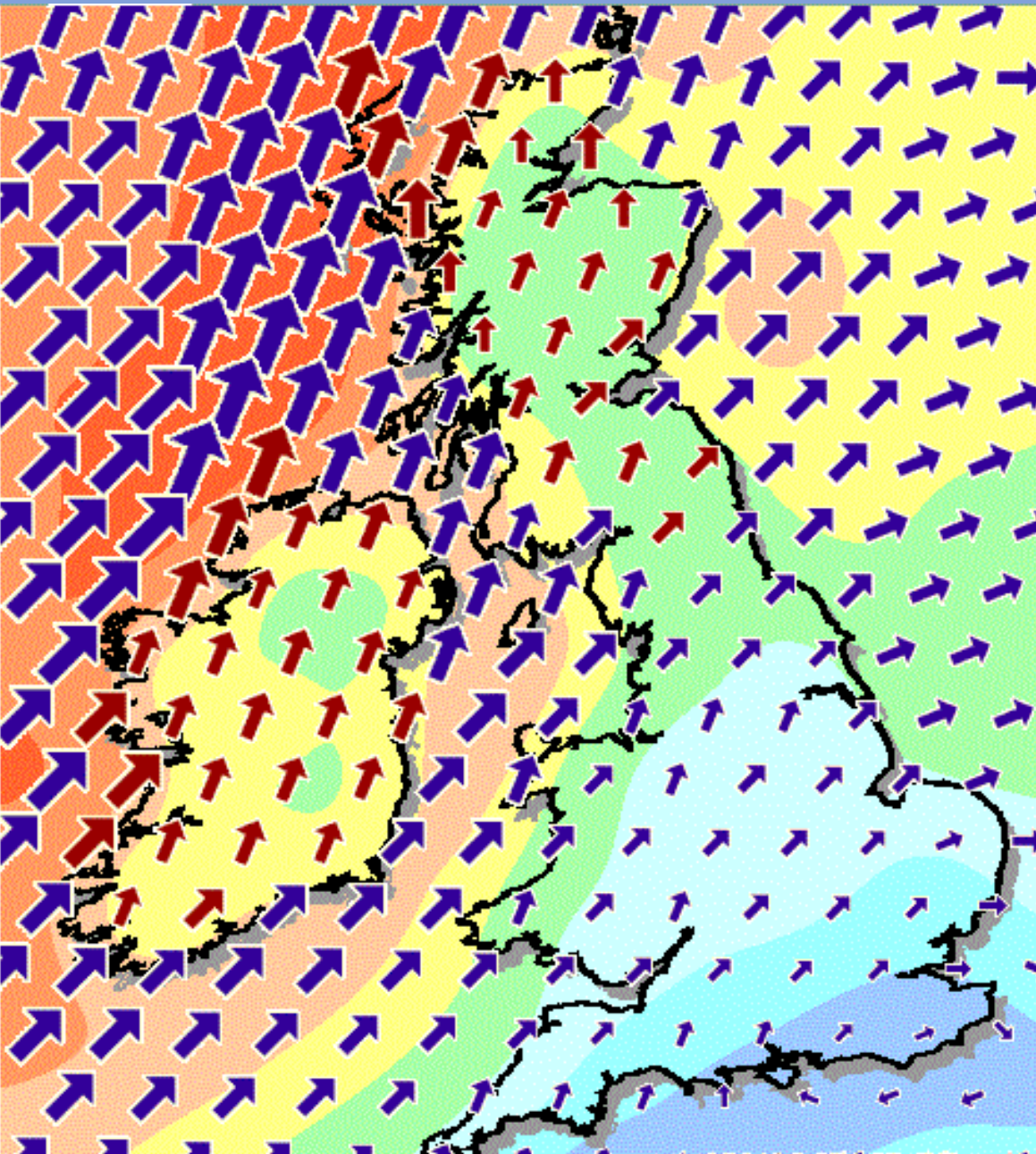
Moderately exposed



Location of survey sites

-  Tide
-  Wave
-  Wind

Sea conditions forecasts

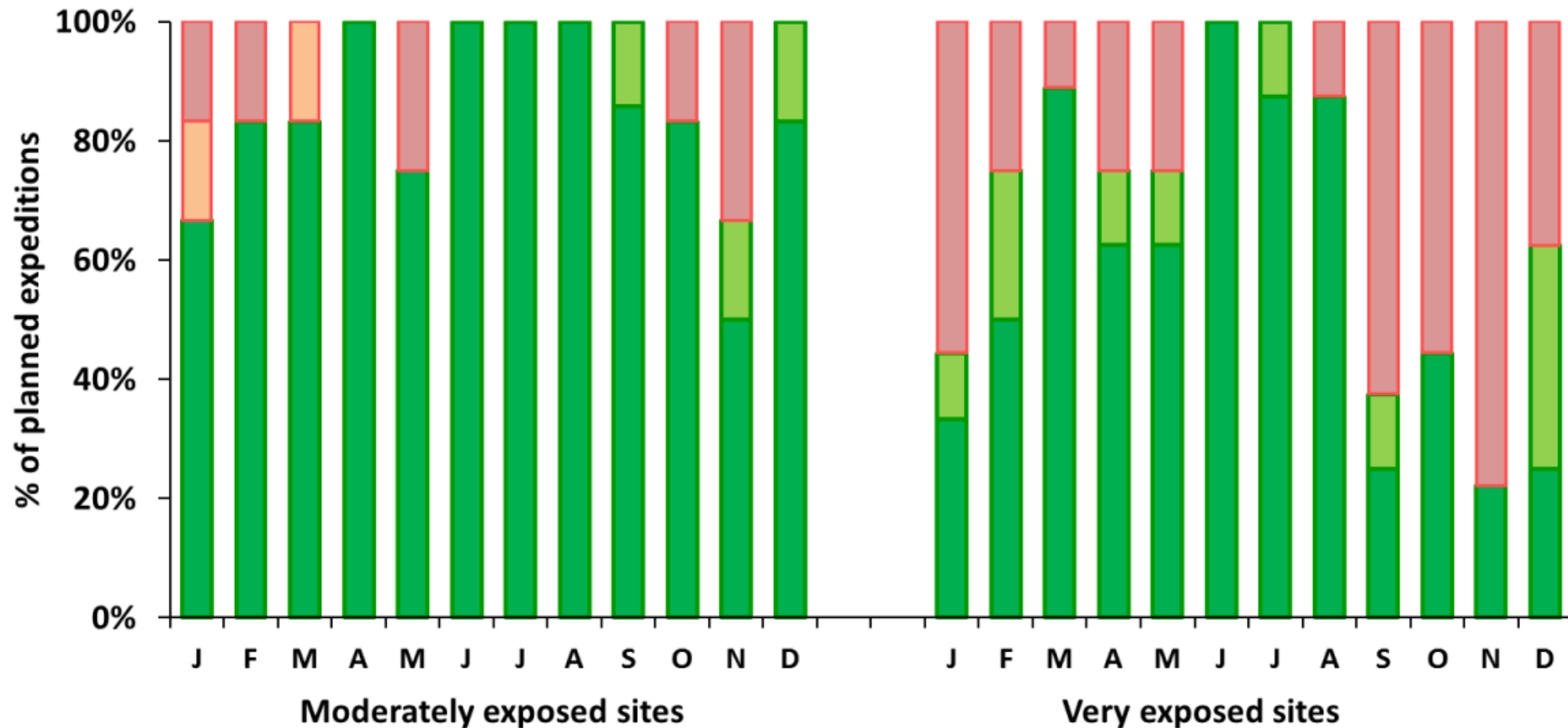


- **Very good accuracy 24 hrs ahead;**
- **Reasonable accuracy 48 hrs ahead;**
- **Mobilisation call typically made 18 to 36 hours ahead.**

1. Likelihood of achieving survey aims in each month

Percentage of planned visits successfully achieved each month

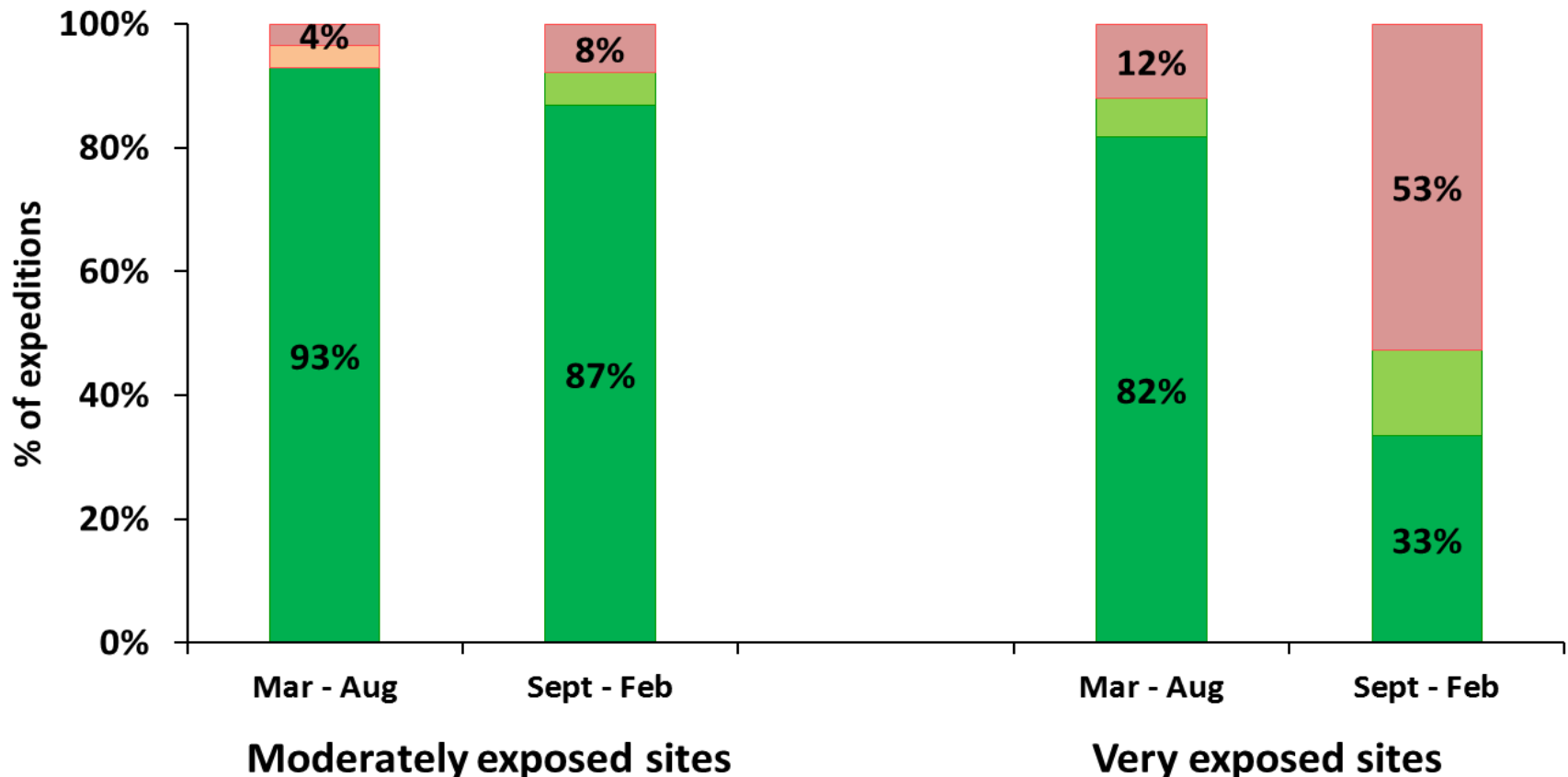
<25% of transects 25-50% of transects 50-75% of transects >75% of transects



1. Likelihood of achieving survey aims each month simplified

Percentage of planned monthly survey visits successfully achieved

■ <25% of transects ■ 25-50% of transects ■ 50-75% of transects ■ >75% of transects

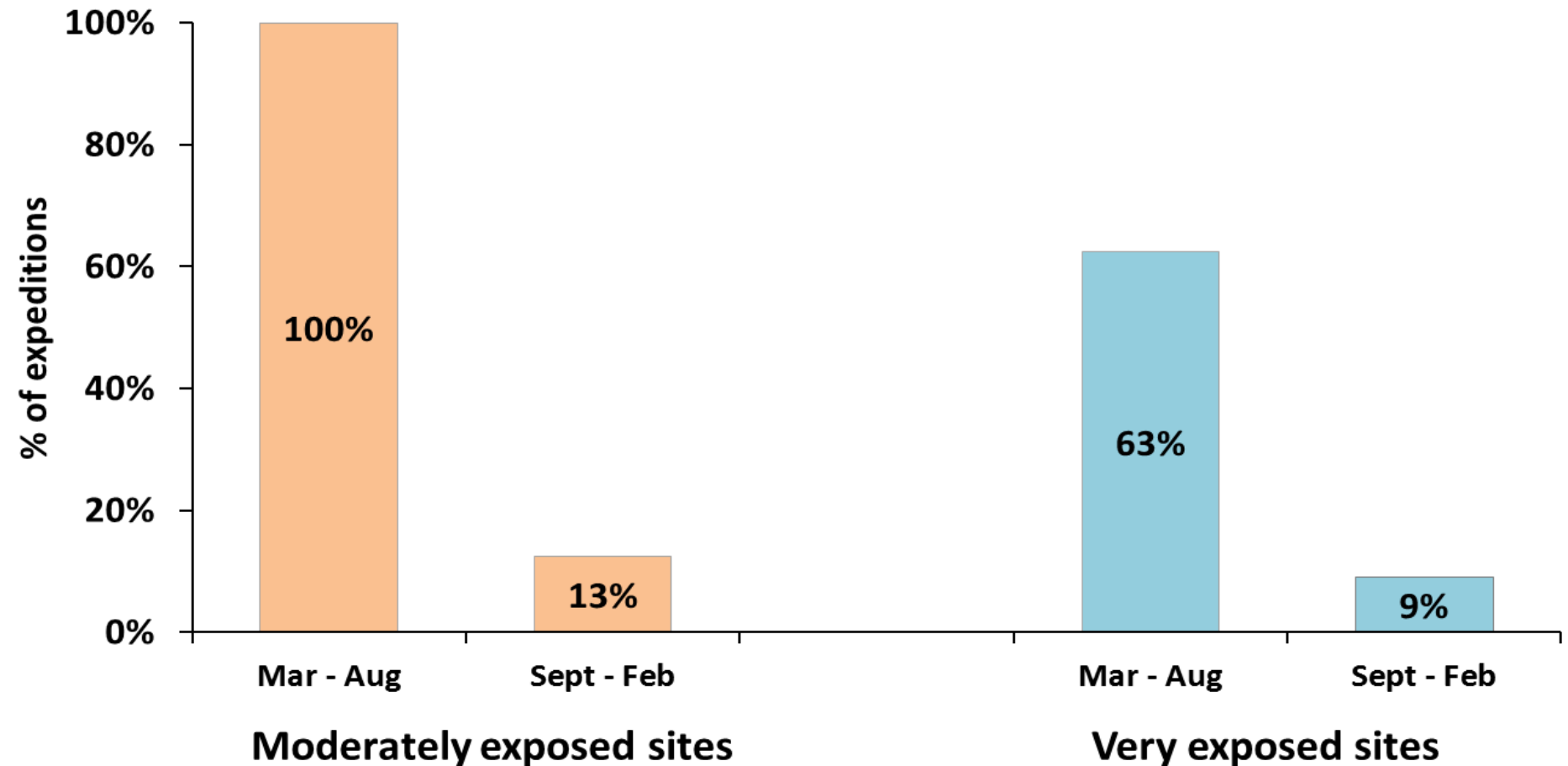


1st conclusion:

The likelihood of being able to undertake a survey is strongly dependent on site exposure and time of the year.

2. Likelihood of catching-up

Likelihood of making good one month's survey effort shortfall during the following month.



2nd conclusion:

The likelihood of catching-up for a missed survey in the following month is strongly dependent on site exposure and time of the year.

3. Likelihood of a data gap

Site type & season	Site years	Chance per site per year of a data gap		
		1-month gap	2-month gap	3-month gap
Moderately exposed sites				
Spring	5	0%	0%	0%
Summer	5	0%	0%	0%
Autumn	6	33%	0%	0%
Winter	6	33%	0%	0%
Very exposed sites				
Spring	8	13%	0%	0%
Summer	8	13%	0%	0%
Autumn	8	63%	13%	38%
Winter	8	13%	25%	25%

3rd conclusion:

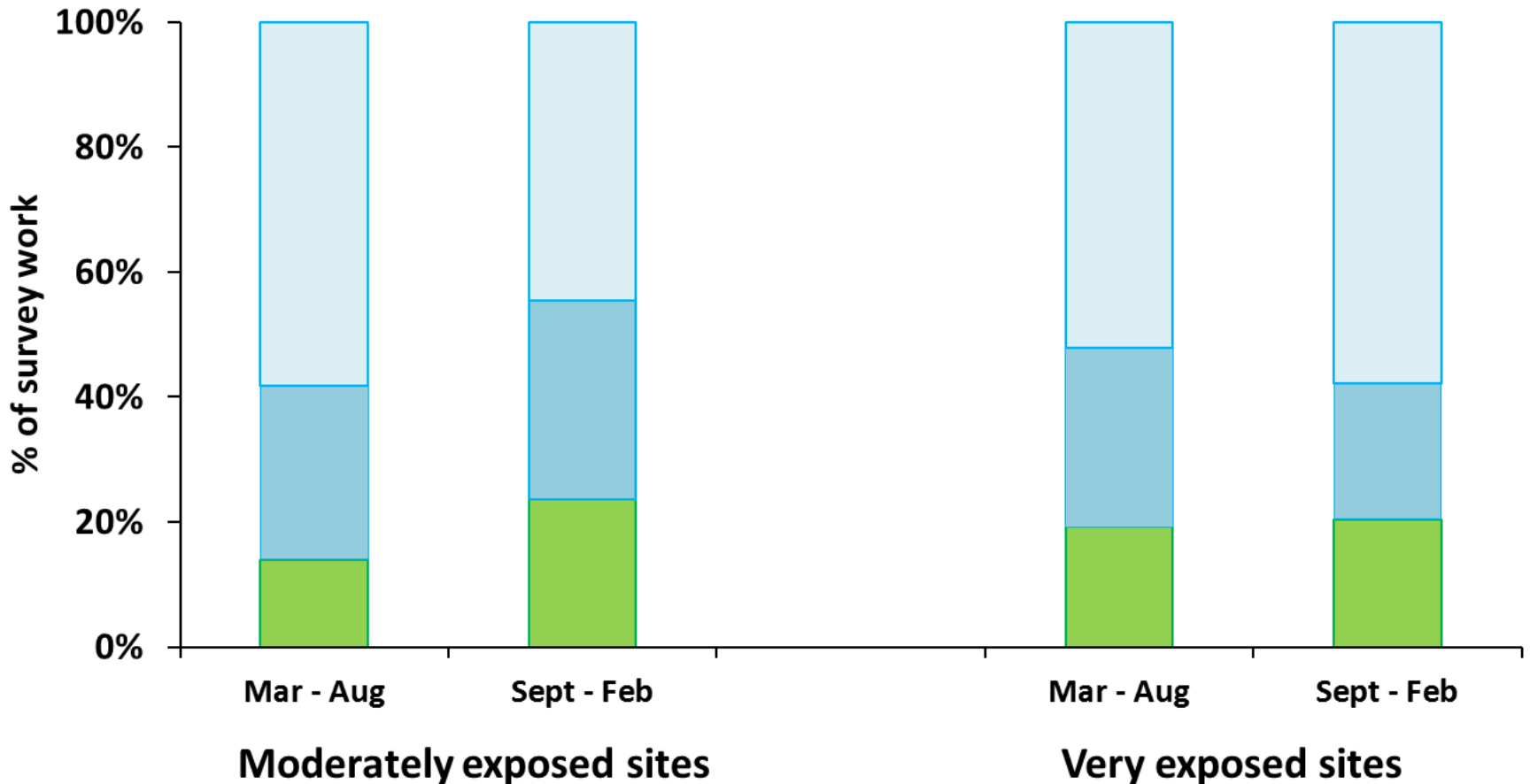
The likelihood of a multi-month data gap developing in a survey year is strongly dependent on site exposure and time of the year.

At least one 2-3 month data gap is almost inevitable for very exposed sites during autumn and winter over a two-year survey programme.

4. Sea conditions during surveys

Comparison between moderately exposed and very exposed sites of sea state conditions each season at the time of ESAS survey work.

Exellent (SS 0, 1, 2) Very good (SS 2-3, 3) Good (SS 3-4, 4, 4-5)



4th conclusion:

In practise, sea conditions at the time of survey were much the same irrespective of time of year or site exposure.

Survey opportunities and constraints

Reasons for no survey

- **Major - lack of survey opportunities due to unsuitable conditions**, e.g. strong winds leading high sea state and large swell (long fetch) - unavoidable;
- **Minor - missed opportunities** - avoidable;

Factors

- Surveyor/vessel mobilisation time, greater for remote sites;
- Inaccurate forecasts (failure to predict good conditions);
- Time for swell to settle;
- Availability of suitable local vessels;
- Cost of larger (more stable) vessels;
- Small scale of projects;
- Winter daylight.

Monthly surveys are impractical in autumn and winter at very exposed sites, especially small sites, as multi-month data gaps are inevitable.

New guidance might re-examine

- **How many replicates for decision maker confidence? (offshore autumn and winter seabird interest is typically lower than in breeding season.) - Analyse existing data.**
- **Threshold upper sea state - with a significantly bigger vessel (say 40m+) it is practical to survey in sea state 5 and large swell, but likely to be prohibitively expensive.**
- **Other methods also have pros and cons.**

The End

Thanks for listening

n r p NATURAL RESEARCH
PROJECTS LIMITED

