

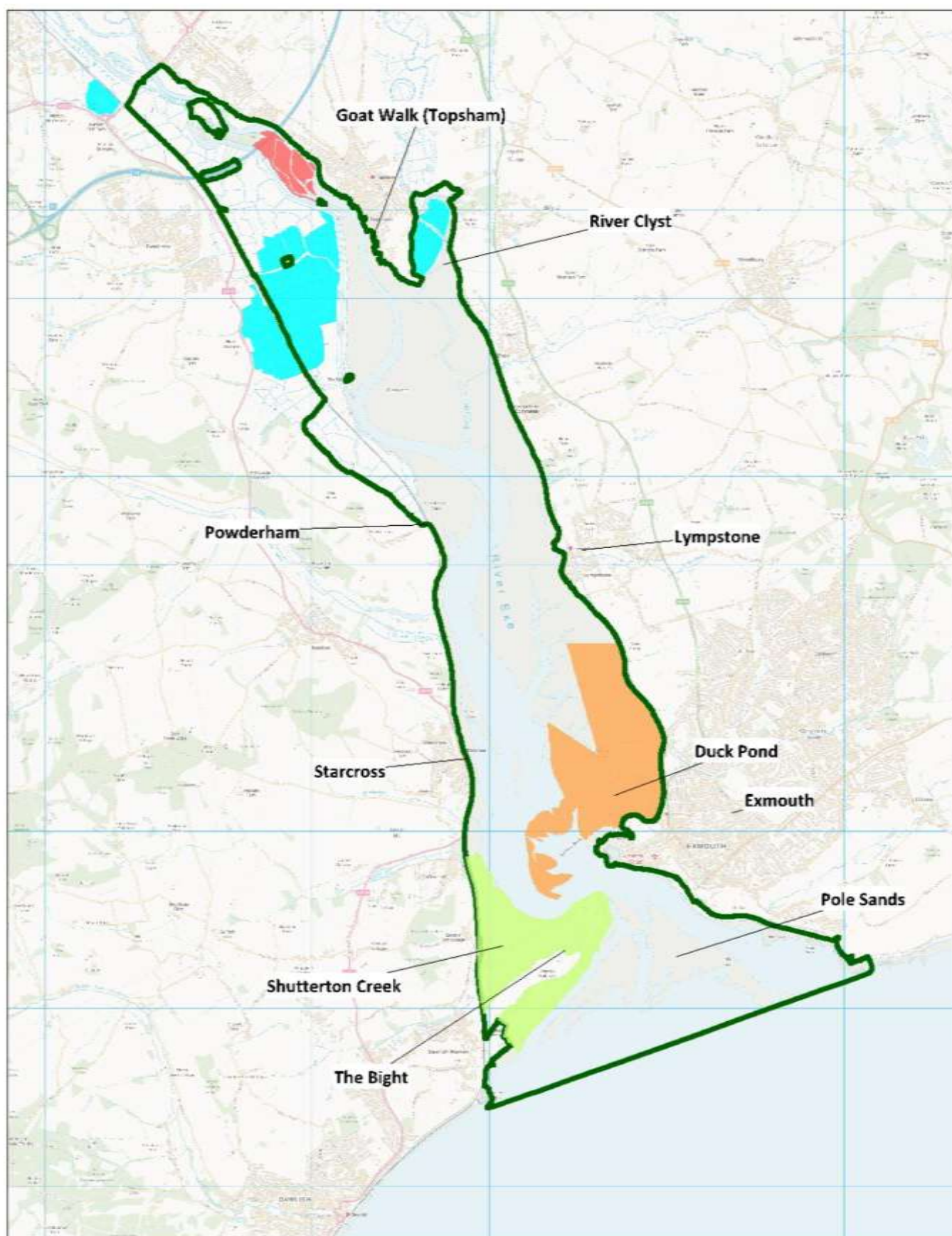


Exe Disturbance Study Map Annex



Liley, D., Cruickshanks, K., Waldon, J.
& Fearnley, H.

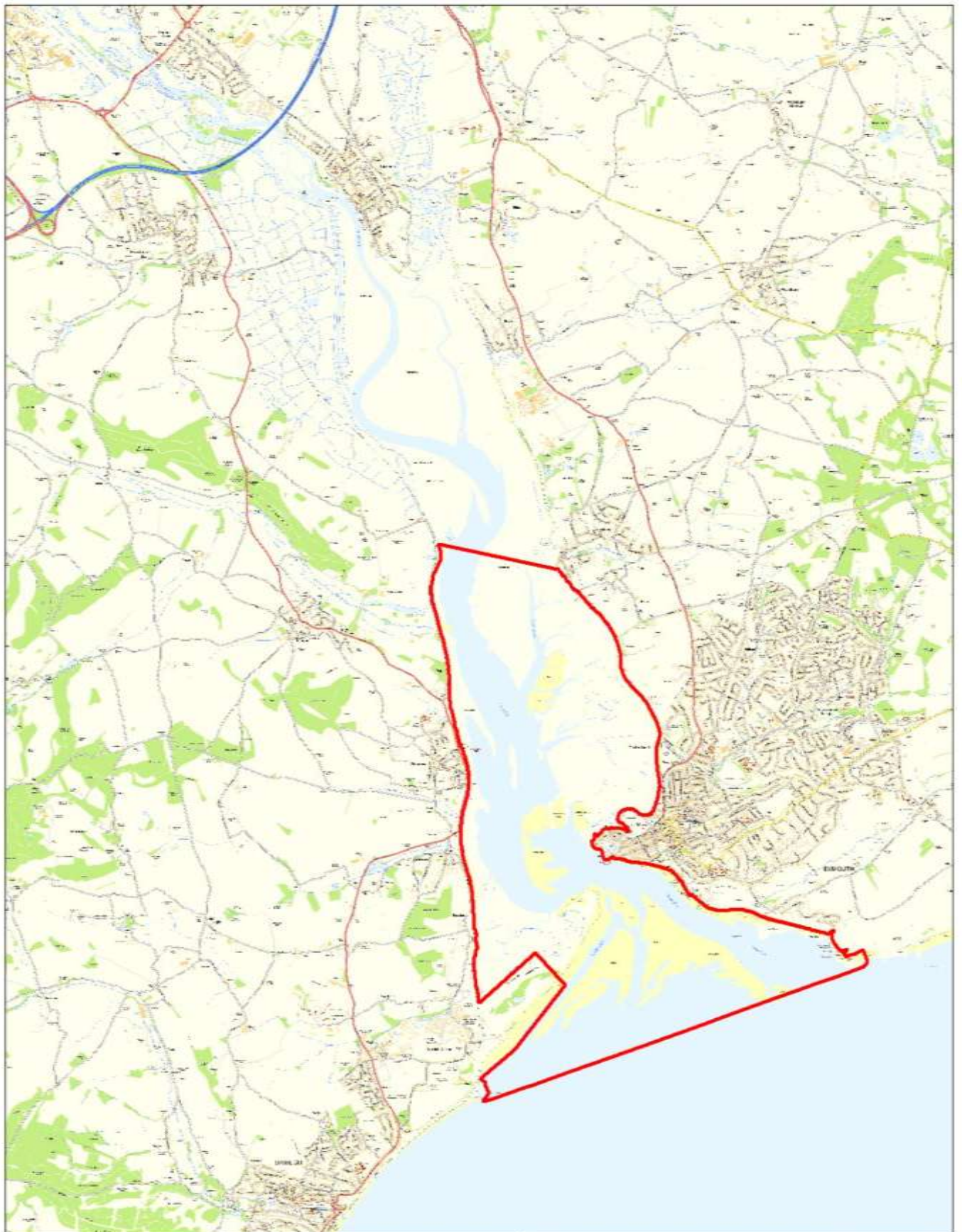
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Map 1. Exe Estuary SPA, relevant reserves and key locations mentioned in the text

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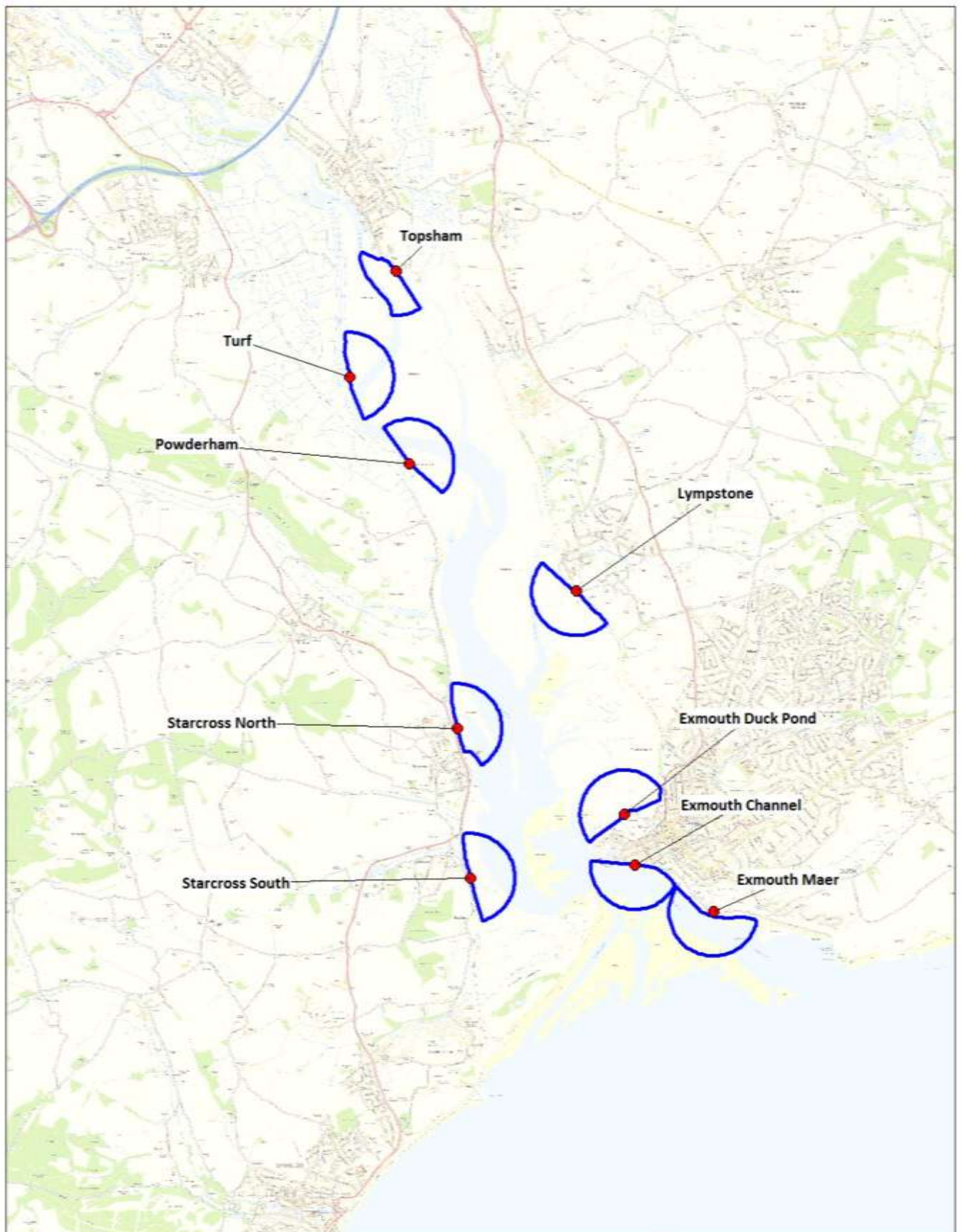




**Map 2. Survey Area
(Total counts of people)**

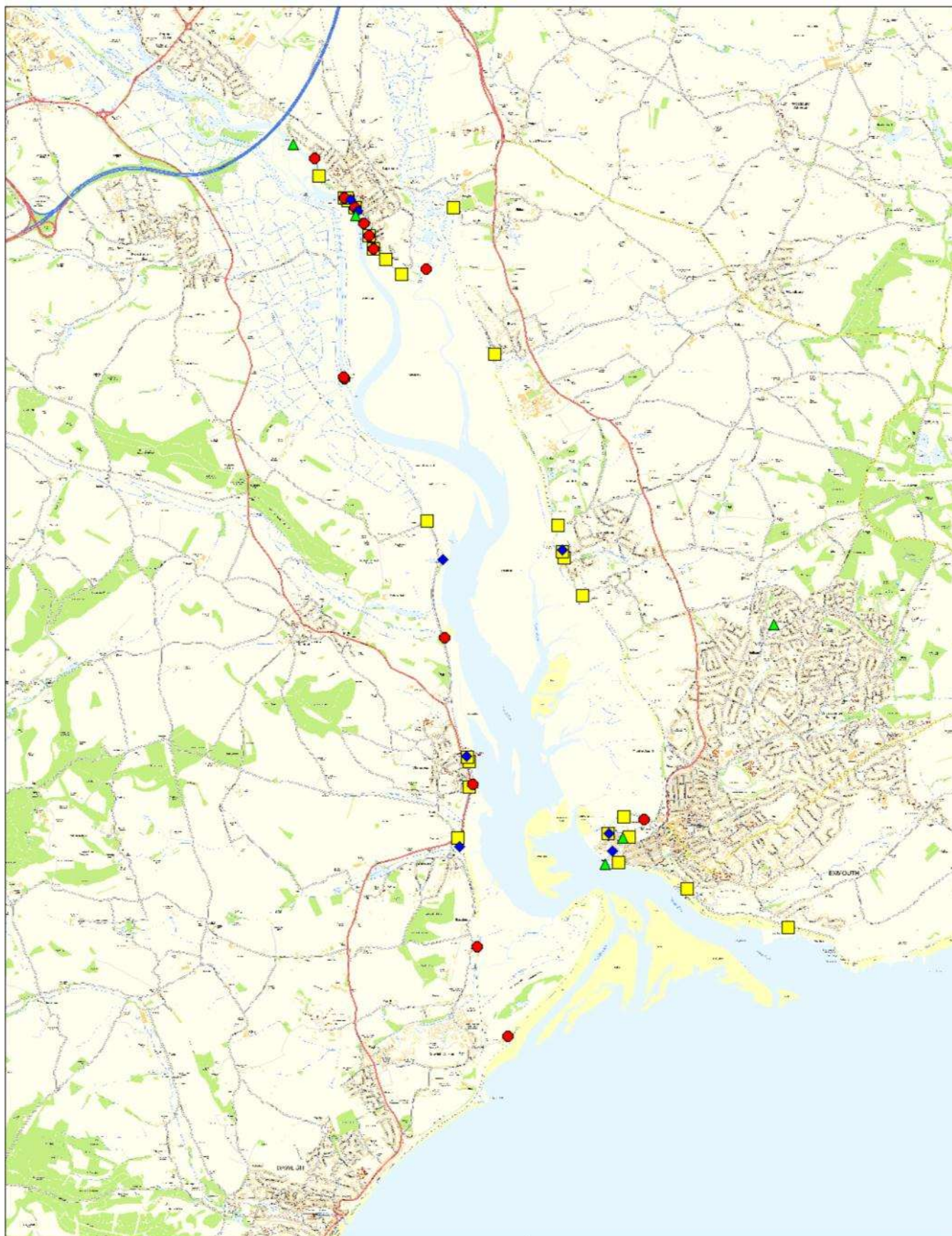


Recording area for total counts of people



**Map 3. Bird Survey Locations
(Standard Watches)**

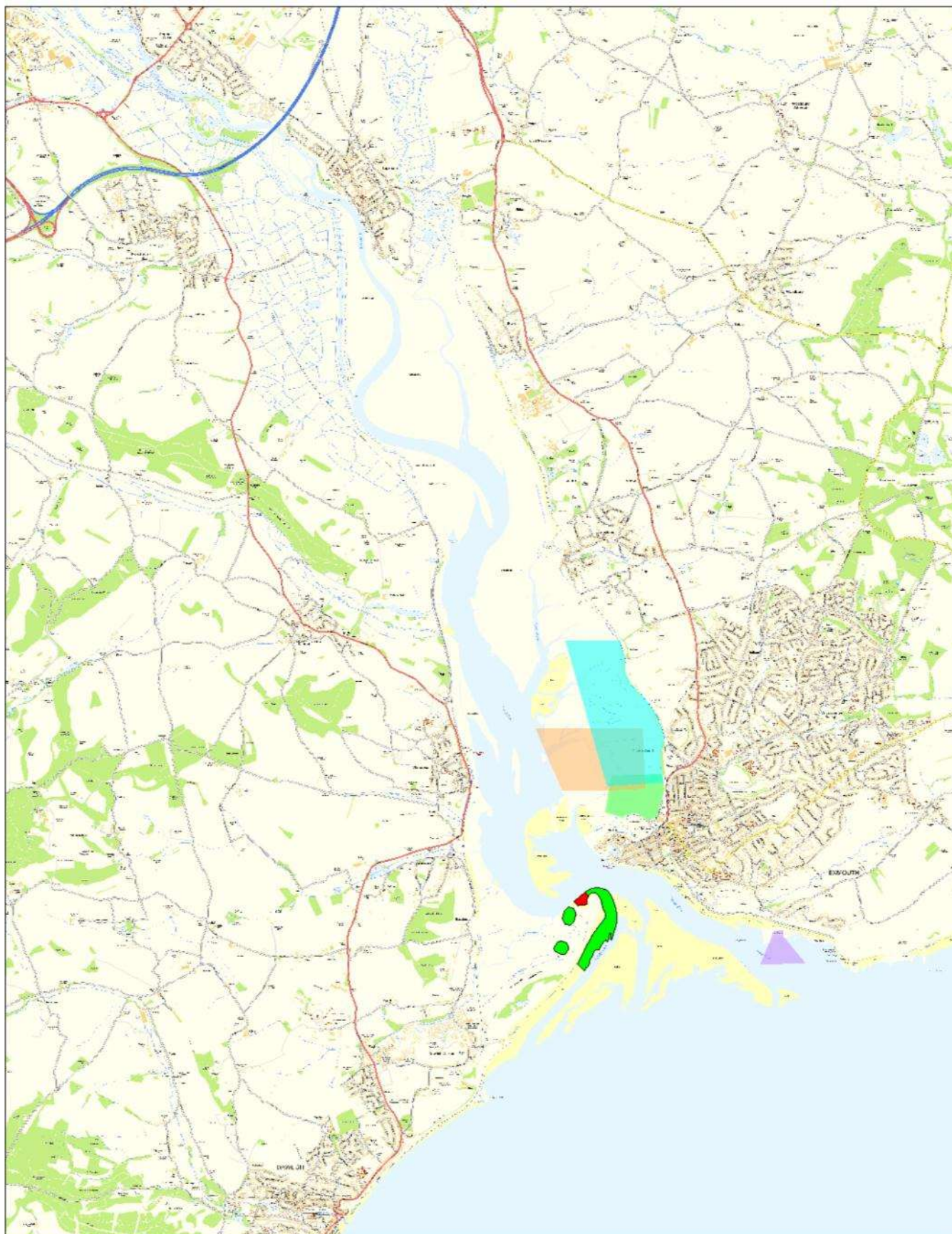
- Survey Point
- Recording area (500m max)



**Map 4. Infrastructure relating to boating/
water access**

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- Slipway
- Other water access
- ◆ Main Boating Clubs
- ▲ Boat Yard



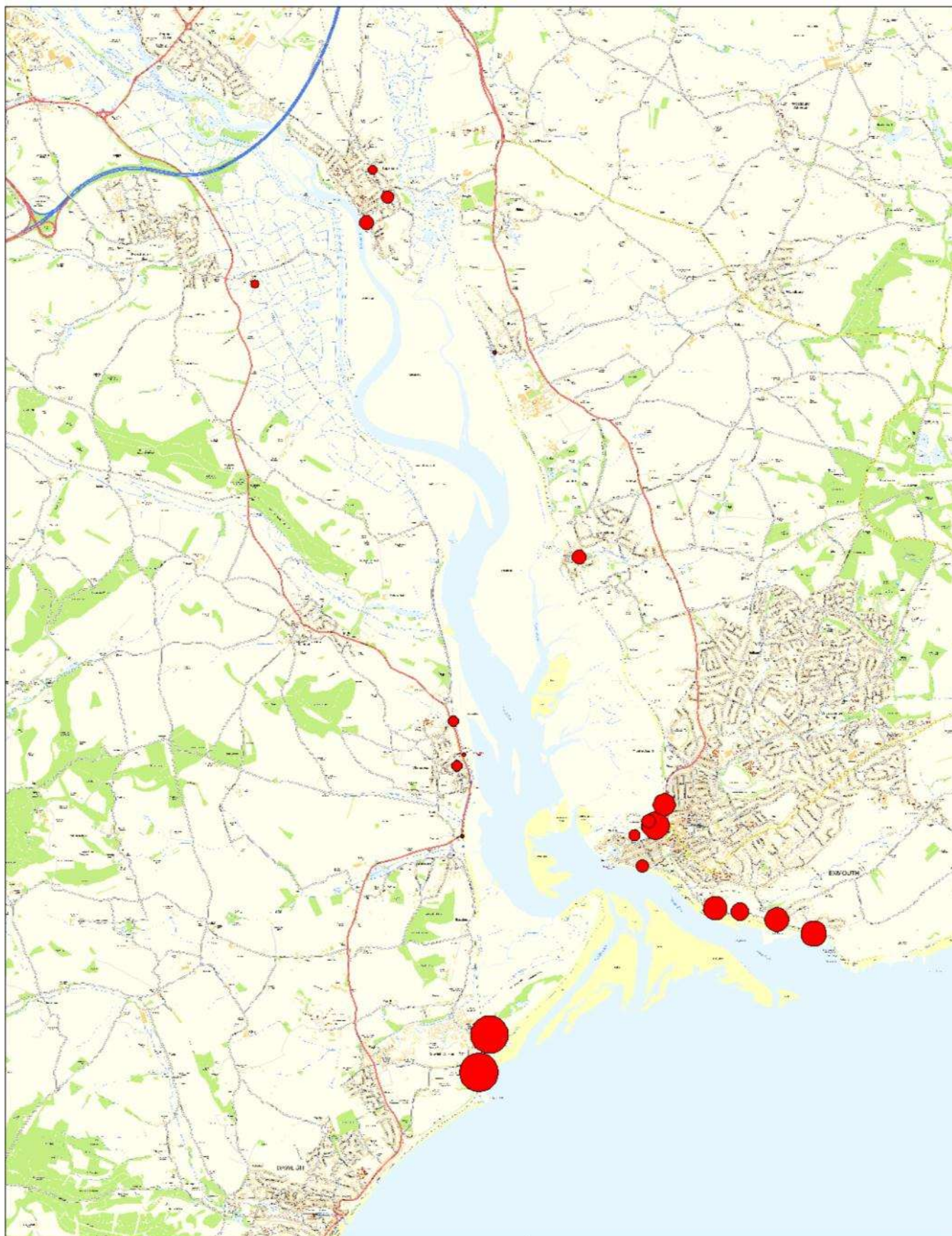
Map 5. Current zoning relating to water-based recreation

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- | | | | |
|---|-----------------|---|----------------------------------|
|  | Jet skiing area |  | Powerboating area |
|  | Water ski area |  | Vol. kite surfing exclusion zone |

Landing at Dawlish Warren

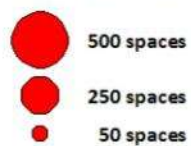
- | | |
|---|--------------------------|
|  | defined landing area |
|  | voluntary exclusion zone |



Map 6. Car-parking

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Parking Capacity





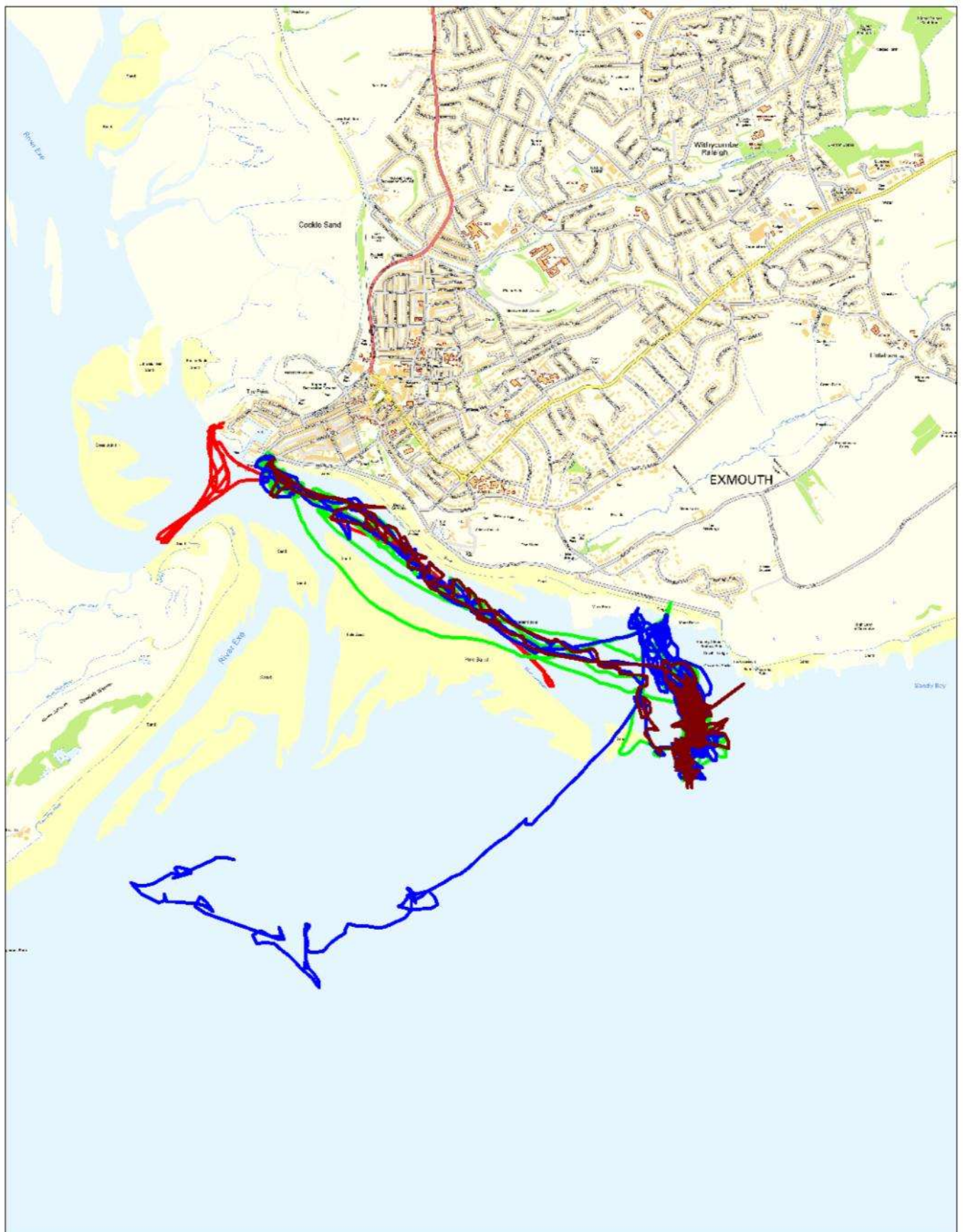
Map 7. Paths and Cycle Routes

Adapted from Exe Estuary Explorer leaflet and
Exe Estuary Partnership website

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- Cycle route, off road
- Footpath, off road

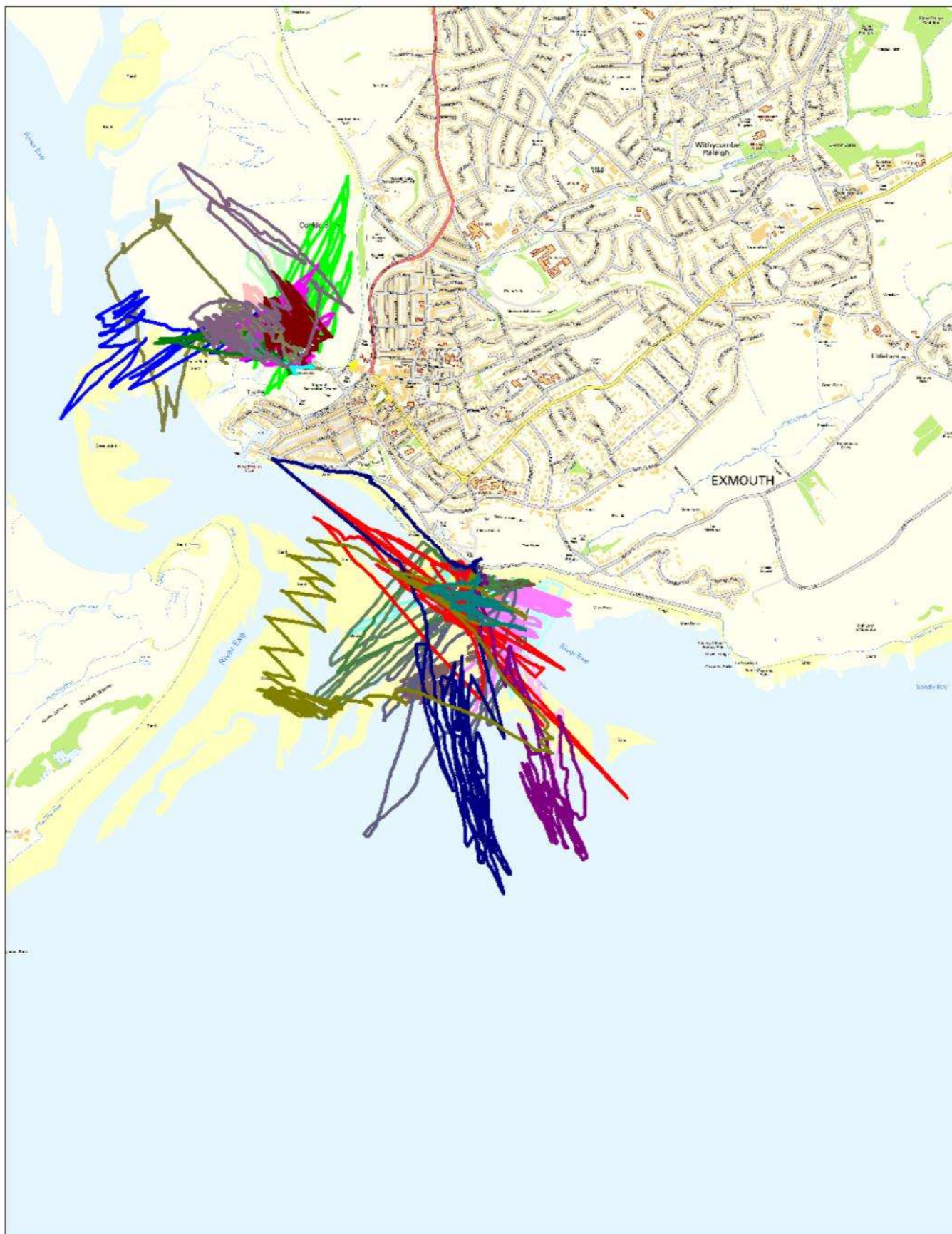
Note that these routes are not necessarily
Public Rights of Way



Map 8. GPS routes: Jet skiers

Four different routes shown, collected on two dates, March 2010. Colours show different routes.

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Map 9. GPS routes: Kite Surfing

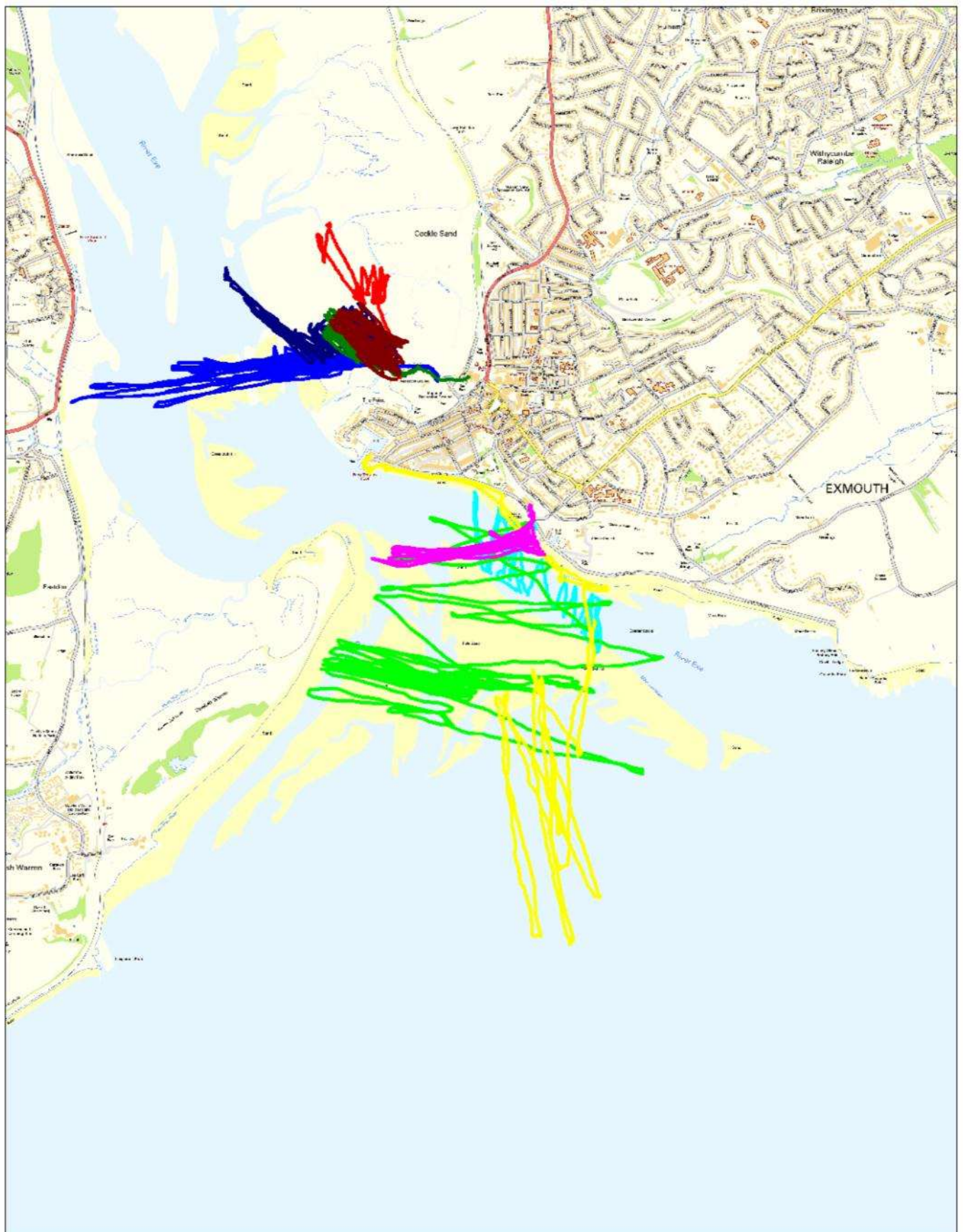
36 different routes shown, collected on 11 dates, 2009-2011. Colours show different routes.

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Map 10. GPS routes: Kite Surfing
4 selected routes only

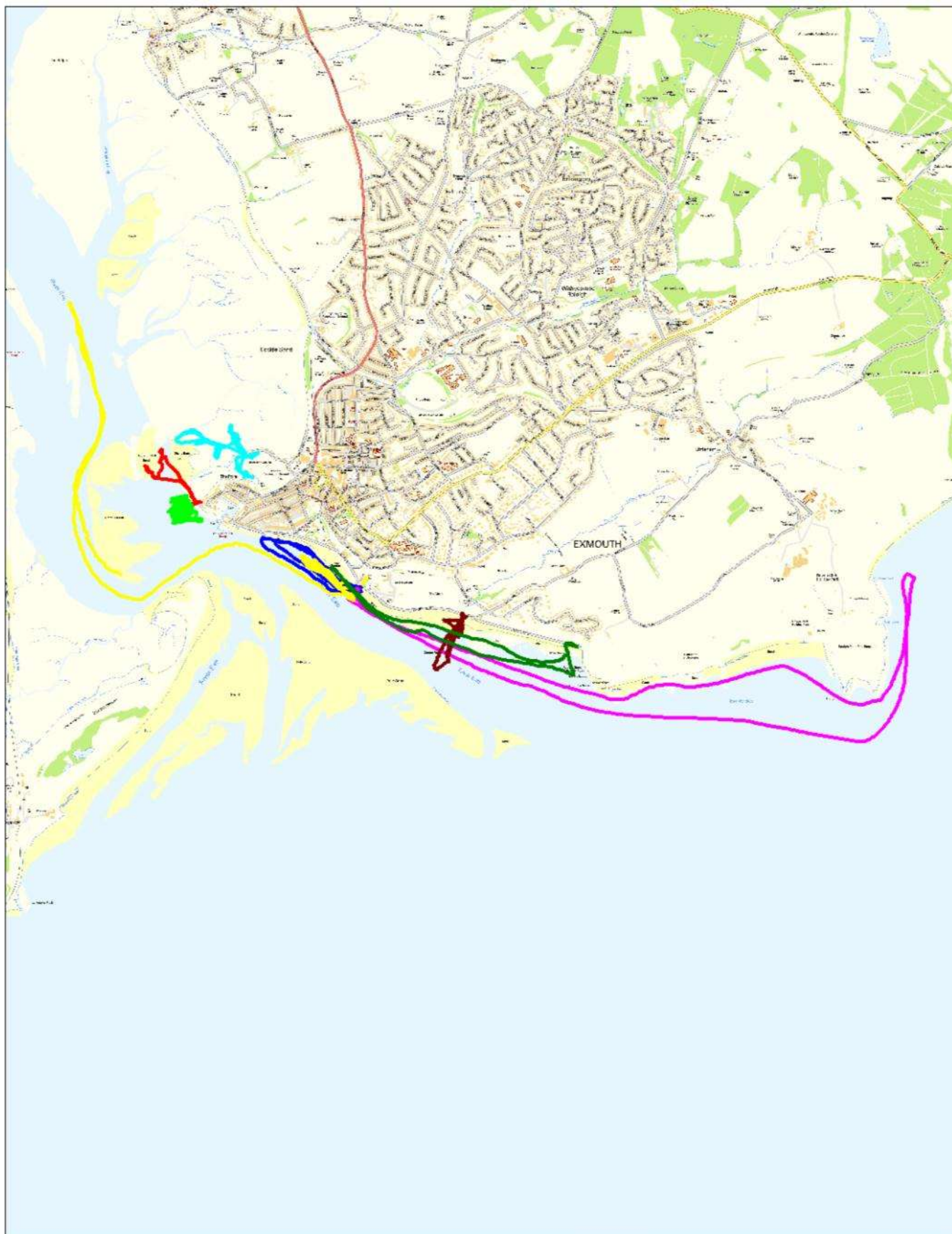
- 01/09/2009 (S-w wind)
- 04/09/2009 (N-w wind)
- 14/03/2010 (N wind)
- 20/11/2010 (E wind)



Map 11. GPS routes: Windsurfing

9 different routes shown, collected on 5 dates, 2009-2011. Colours show different routes.

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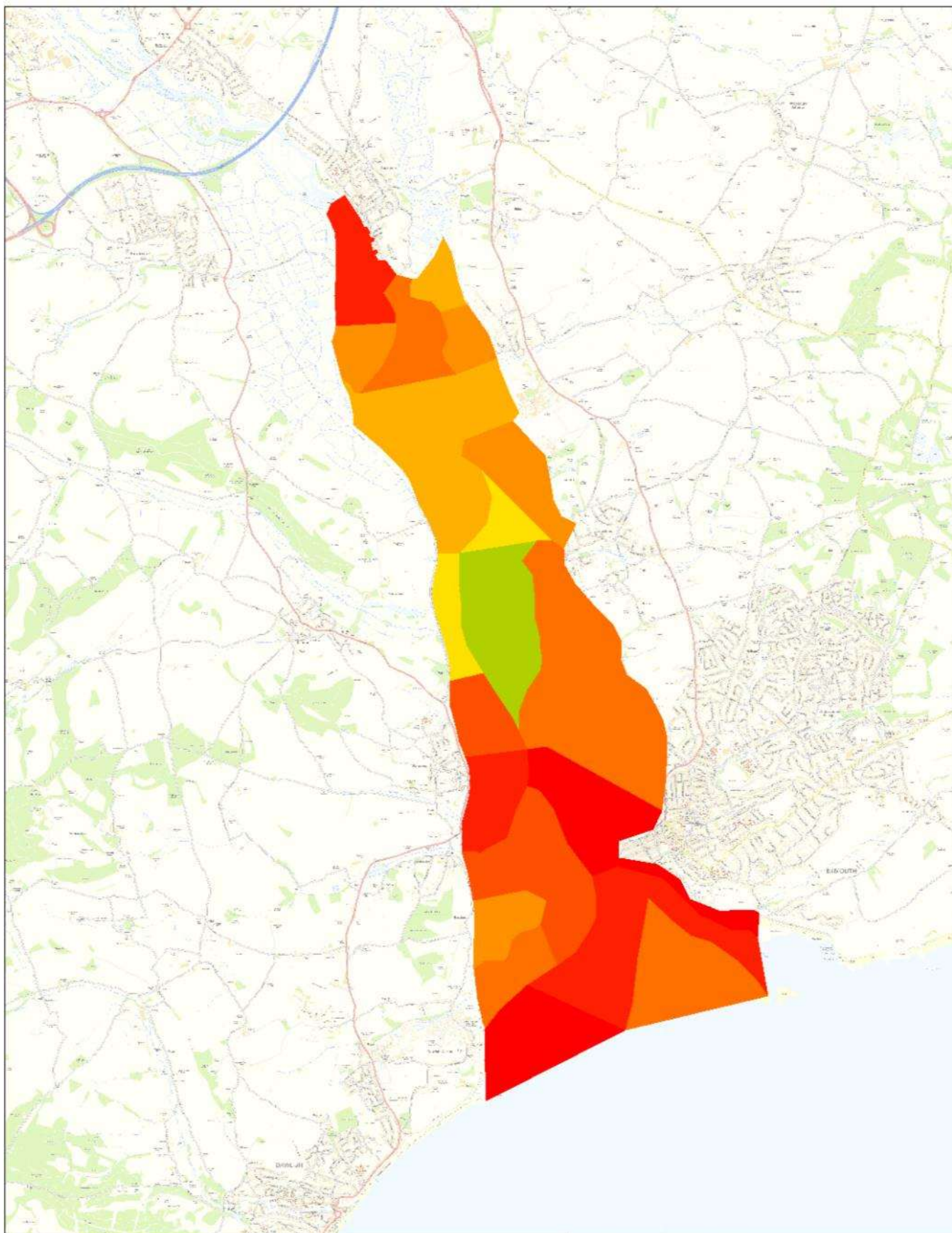


Map 12. GPS routes: Canoes/Row/P'dleboards

10 different routes shown, collected on 8 dates, 2009-2011. Colours show different activities/dates.

Contains Ordnance Survey data. © Crown copyright and database right 2011.

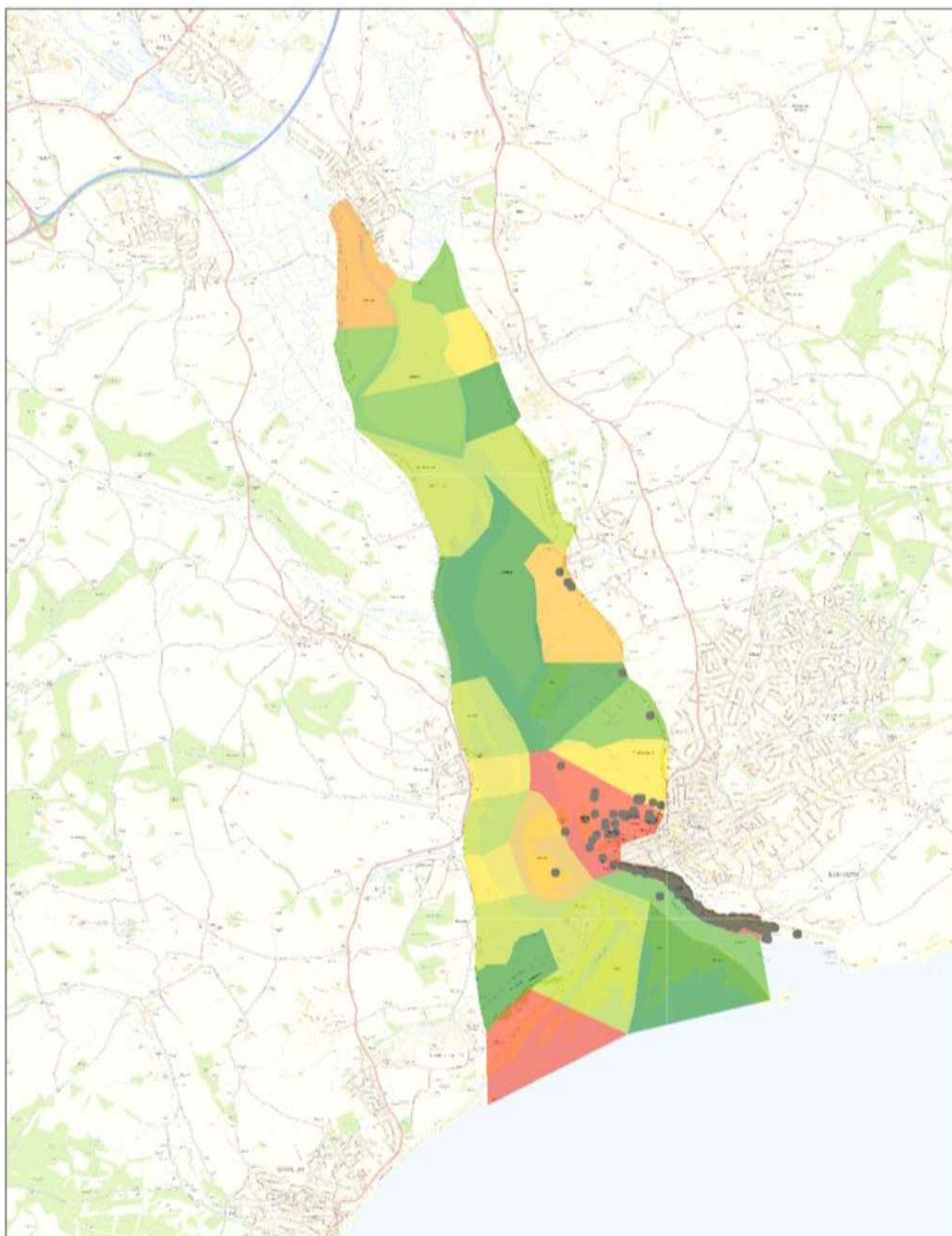
- Canoe/ row 11/10/2009 (1)
- Canoe/ row 14/3/2010 (2)
- Canoe/ row 28/3/2010 (1)
- Canoe/ row 04/04/2010 (1)
- Canoe/ row 11/4/2010 (2)
- Canoe/ row 10/10/2010 (1)
- Paddleboard 18/6/2010 (1)
- Paddleboard 27/6/2010 (1)



Map 13. Matrix Scores:
Overall score for 'busy-ness'

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4.5 to 5 (3)	2.5 to 3 (4)
4 to 4.5 (5)	2 to 2.5 (5)
3.5 to 4 (4)	1.5 to 2 (3)
3 to 3.5 (7)	1 to 1.5 (1)

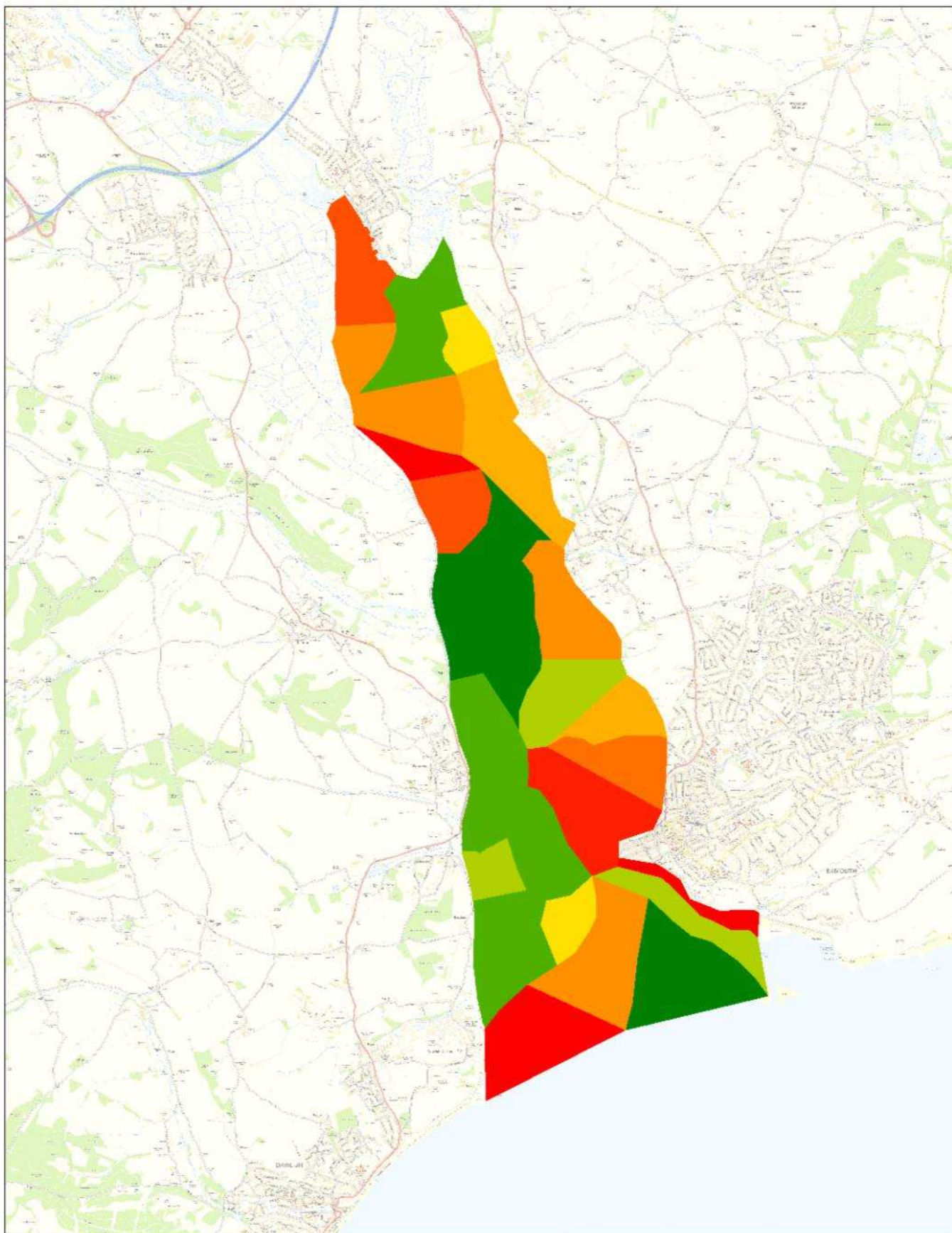


**Map 14. Matrix Scores:
Dogs off-leads on intertidal**

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4 to 4.5 (3)	1 to 1.5 (9)
2.5 to 3 (1)	0.5 to 1 (5)
2 to 2.5 (2)	0 to 0.5 (8)
1.5 to 2 (4)	

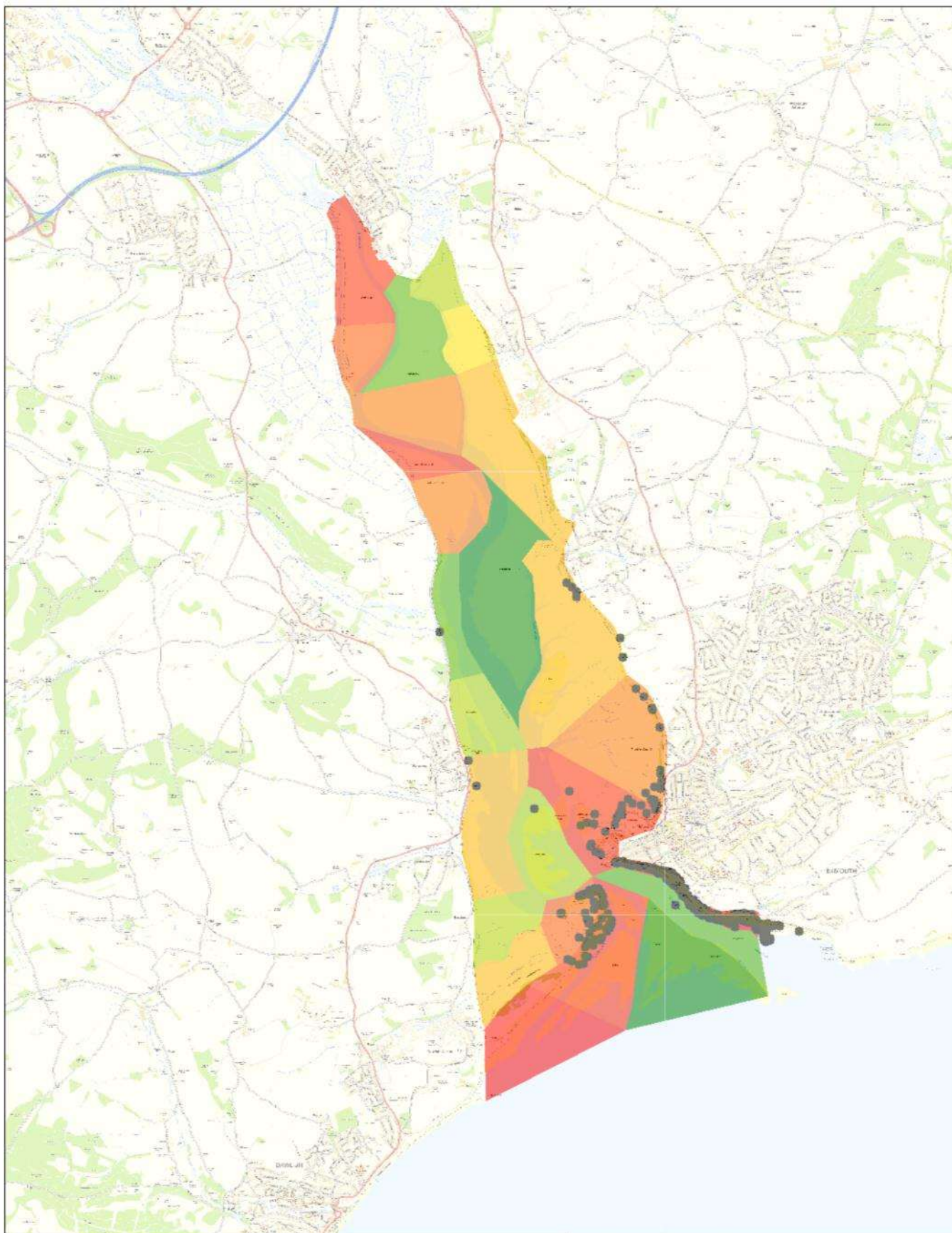
Dots show observations of dogs off lead from total counts (i.e. for the areas of Lympstone only)



**Map 15. Matrix Scores:
Dog walking along shore**

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4.5 to 5 (3)	2 to 2.5 (3)
4 to 4.5 (1)	1.5 to 2 (2)
3.5 to 4 (2)	1 to 1.5 (3)
3 to 3.5 (1)	0.5 to 1 (8)
2.5 to 3 (4)	0 to 0.5 (5)

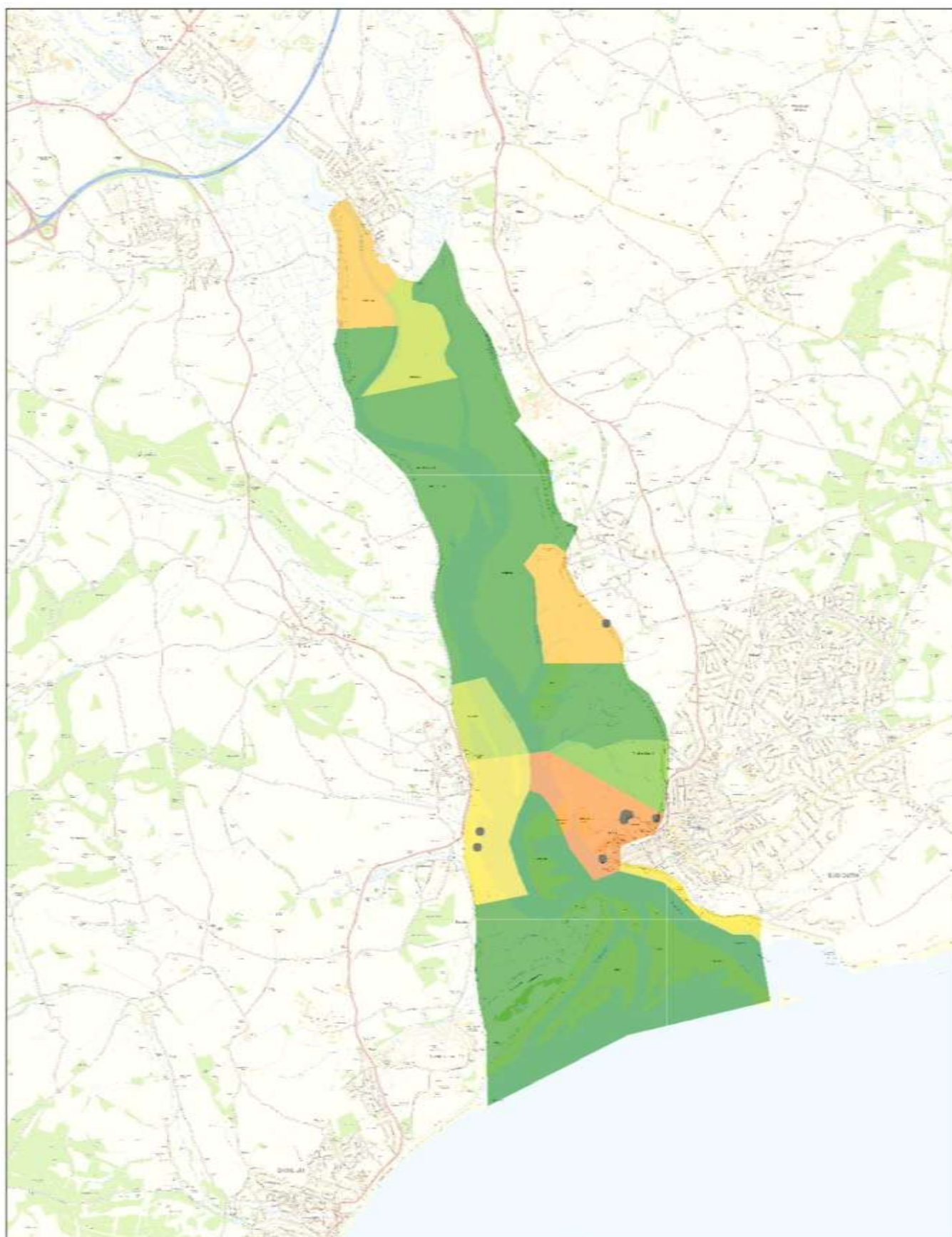


**Map 16. Matrix Scores:
Walking**

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4.5 to 5 (2)	1.5 to 2 (1)
4 to 4.5 (4)	1 to 1.5 (4)
3.5 to 4 (2)	0.5 to 1 (4)
3 to 3.5 (4)	0 to 0.5 (3)
2 to 2.5 (8)	

Dots show observations of walkers from total counts (i.e. for the area s. of Lymington only)

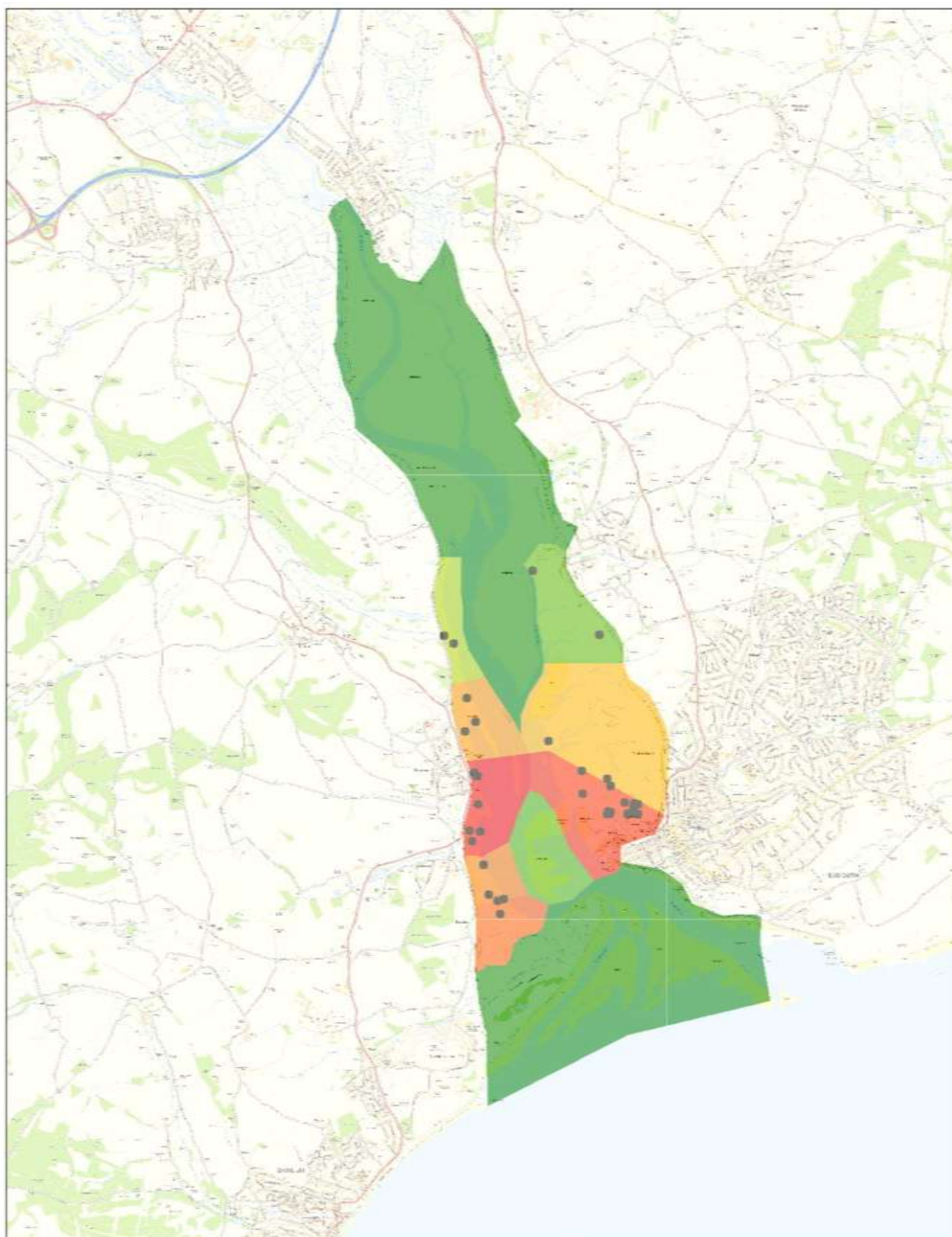


**Map 17. Matrix Scores:
Motor-vehicles on intertidal/sea-wall**

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3 to 3.5 (1)	1 to 1.5 (2)
2 to 2.5 (2)	0.5 to 1 (1)
1.5 to 2 (4)	0 to 0.5 (22)

Dots show observations of vehicles from total counts (i.e. for the area s. of Lymestone only)

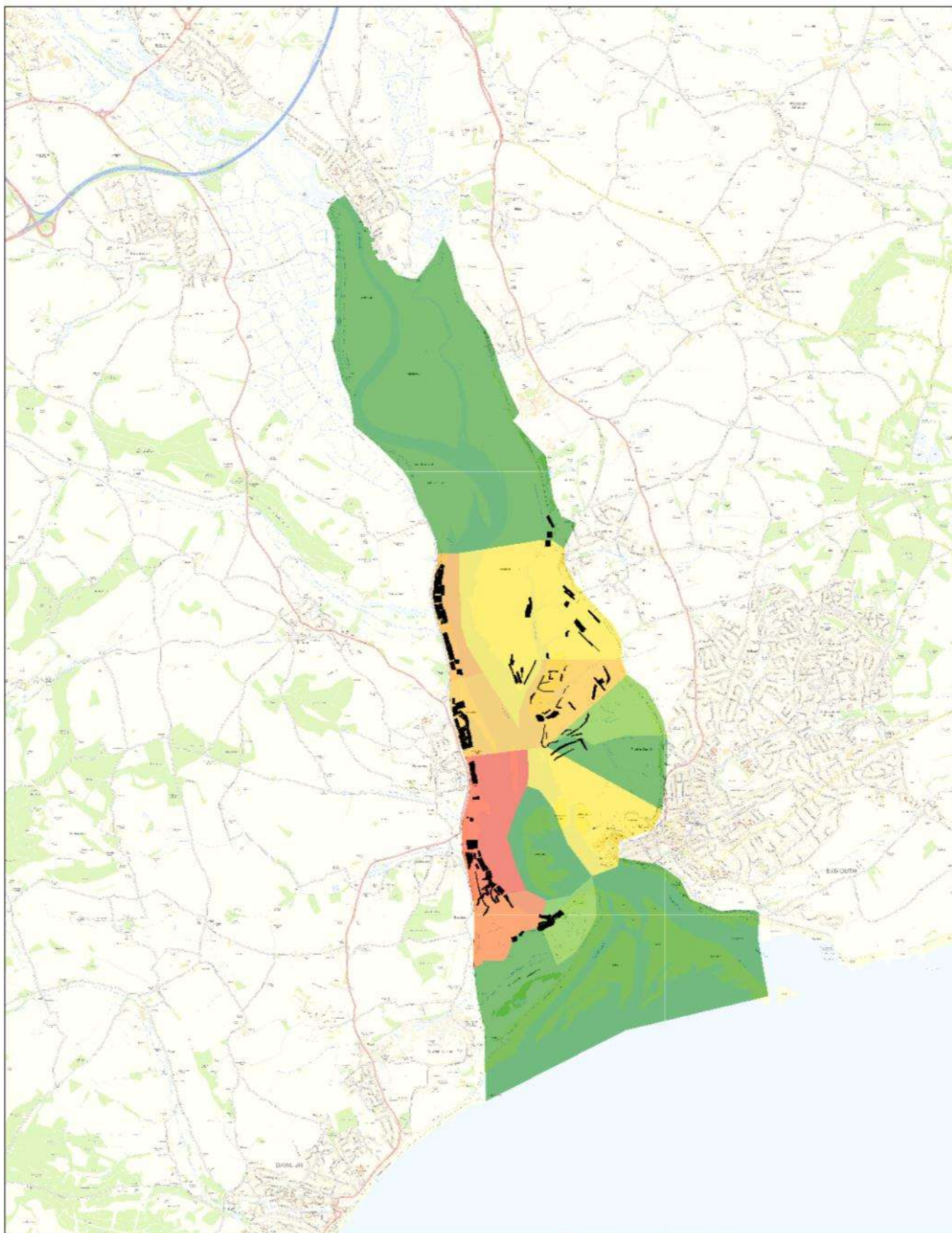


**Map 18. Matrix Scores:
Bait-digging**

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4.5 to 5 (2) 2 to 2.5 (3)
 4 to 4.5 (1) 1 to 1.5 (2)
 3.5 to 4 (1) 0.5 to 1 (2)
 3 to 3.5 (1) 0 to 0.5 (19)
 2.5 to 3 (1)

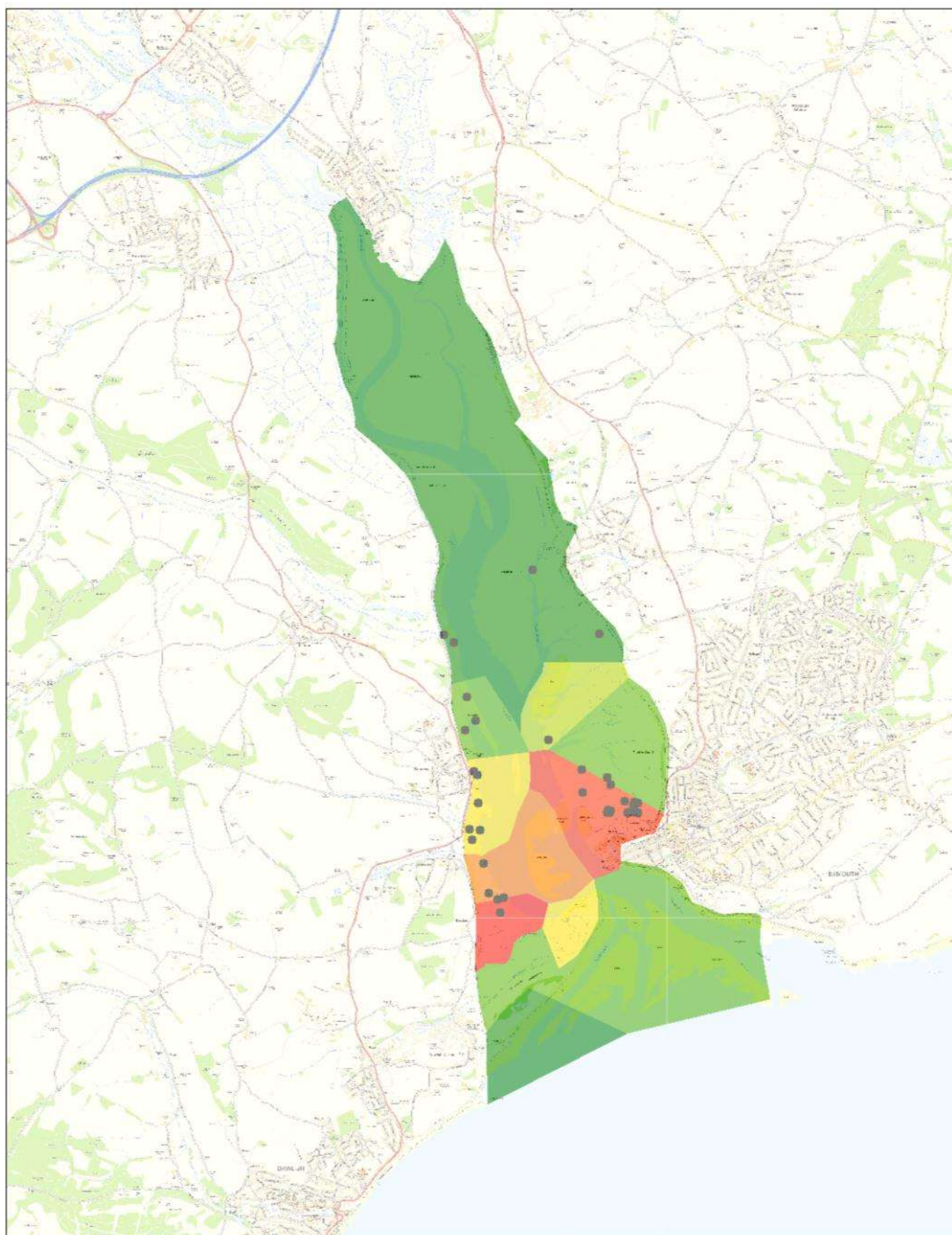
Dots show observations of bait digging/tiling/shellfishing from total counts (i.e. for the area s. of Lymington only)



**Map 19. Matrix Scores:
Crab Tiling**

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Black polygons show actual crab-tiling locations. Data provided by the Exe Estuary Management Partnership.

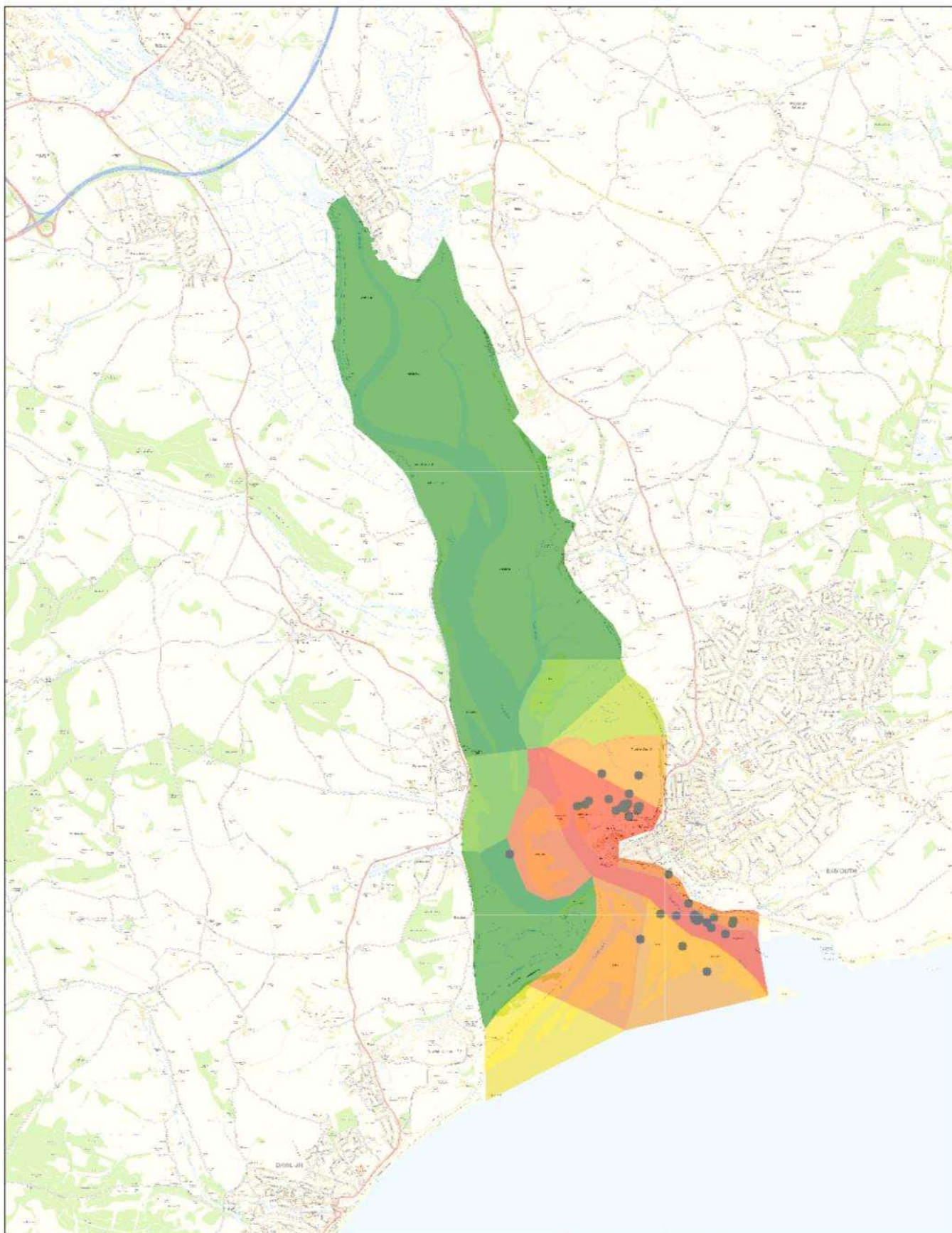


**Map 20. Matrix Scores:
Shell fishing**

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4.5 to 5 (1)	1 to 1.5 (1)
4 to 4.5 (1)	0.5 to 1 (8)
3 to 3.5 (2)	0 to 0.5 (16)
1.5 to 2 (3)	

Dots show observations of bait digging/tiling/shellfishing from total counts (i.e. for the area s. of Lymington only)

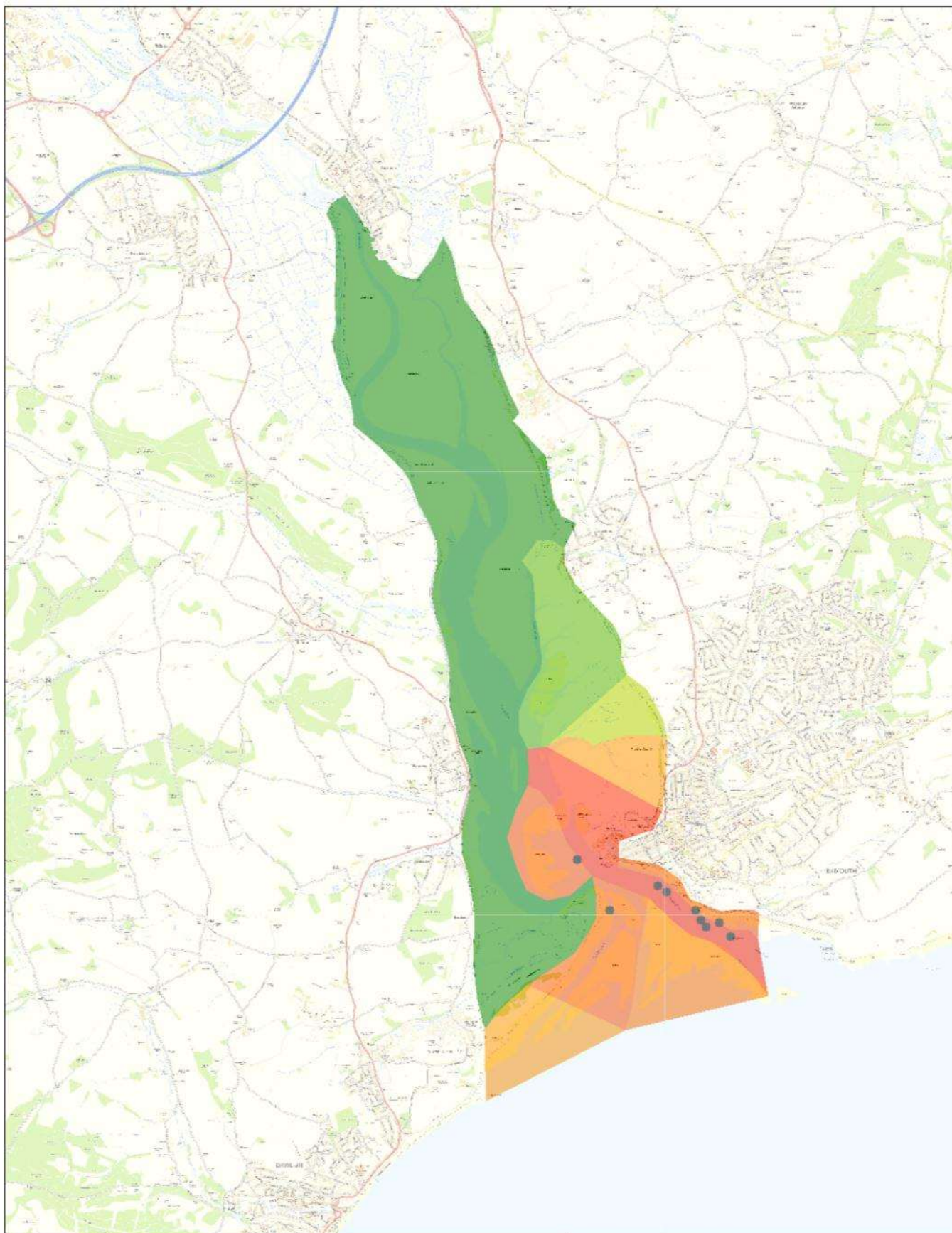


**Map 21. Matrix Scores:
Kite Surfing**

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4 to 4.5 (2)	1.5 to 2 (1)
3.5 to 4 (2)	1 to 1.5 (1)
3 to 3.5 (1)	0.5 to 1 (3)
2.5 to 3 (2)	0 to 0.5 (20)

Dots show observations of kitesurfers from total counts (i.e. for the area s. of Lymington only)

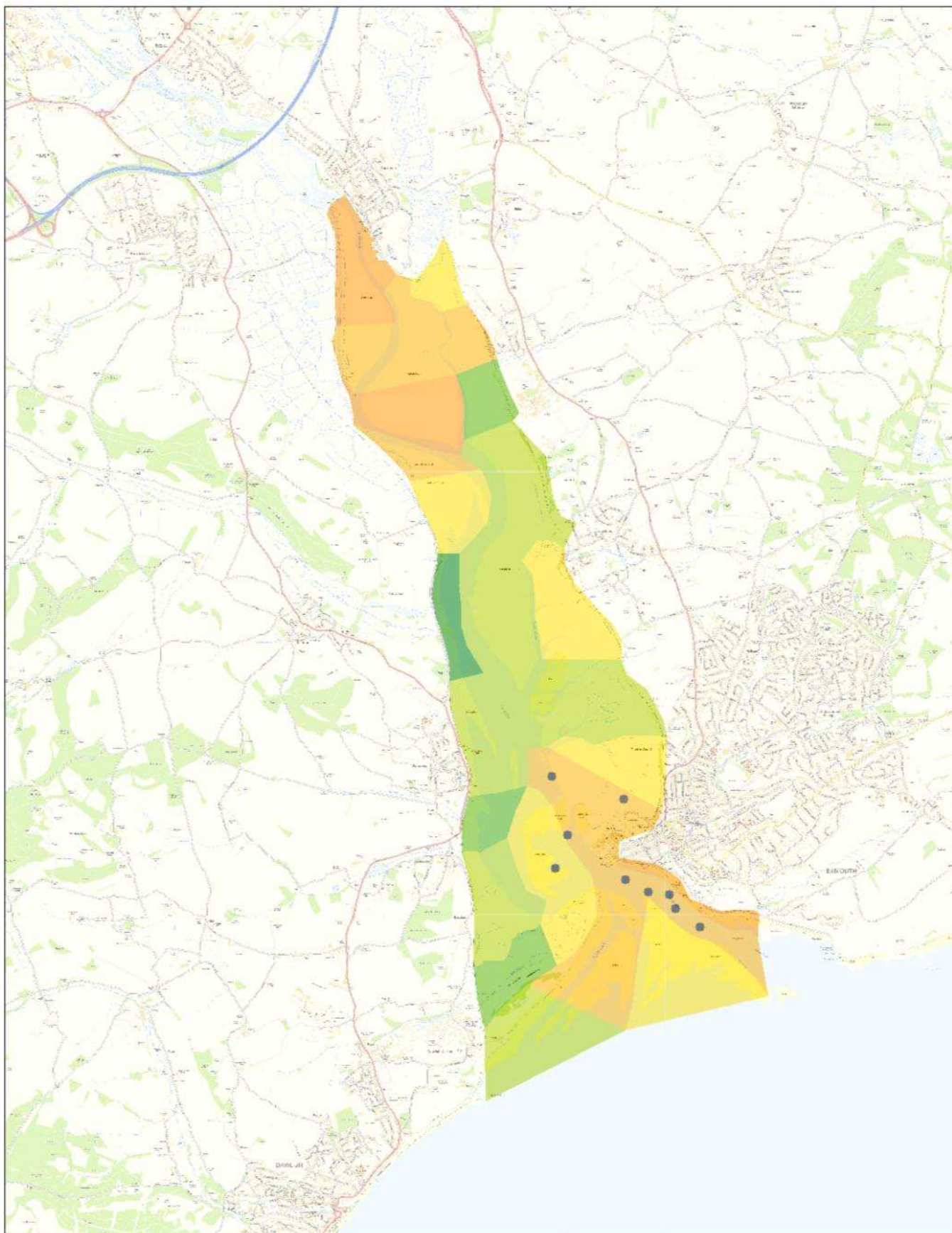


**Map 22. Matrix Scores:
Windsurfing**

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4 to 4.5 (2)	1 to 1.5 (1)
3.5 to 4 (3)	0.5 to 1 (2)
3 to 3.5 (1)	0 to 0.5 (21)
2.5 to 3 (2)	

Dots show observations of windsurfers from total counts (i.e. for the area s. of Lymington only)

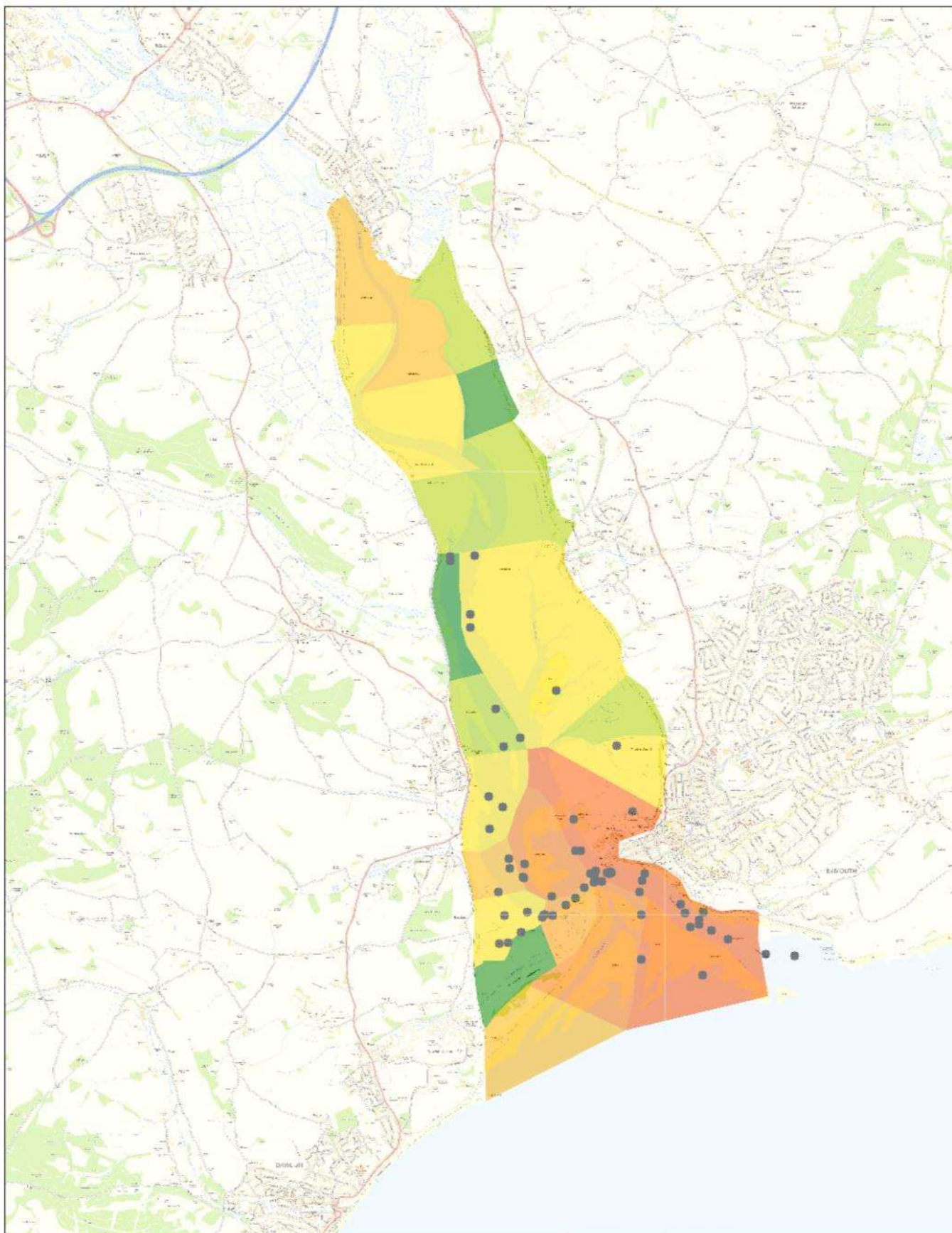


**Map 23. Matrix Scores:
Canoes/kayaks**

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2.5 to 3 (3)	1 to 1.5 (10)
2 to 2.5 (7)	0.5 to 1 (3)
1.5 to 2 (7)	0 to 0.5 (2)

Dots show observations of canoes/kayaks from total counts (i.e. for the area s. of Lymington only)

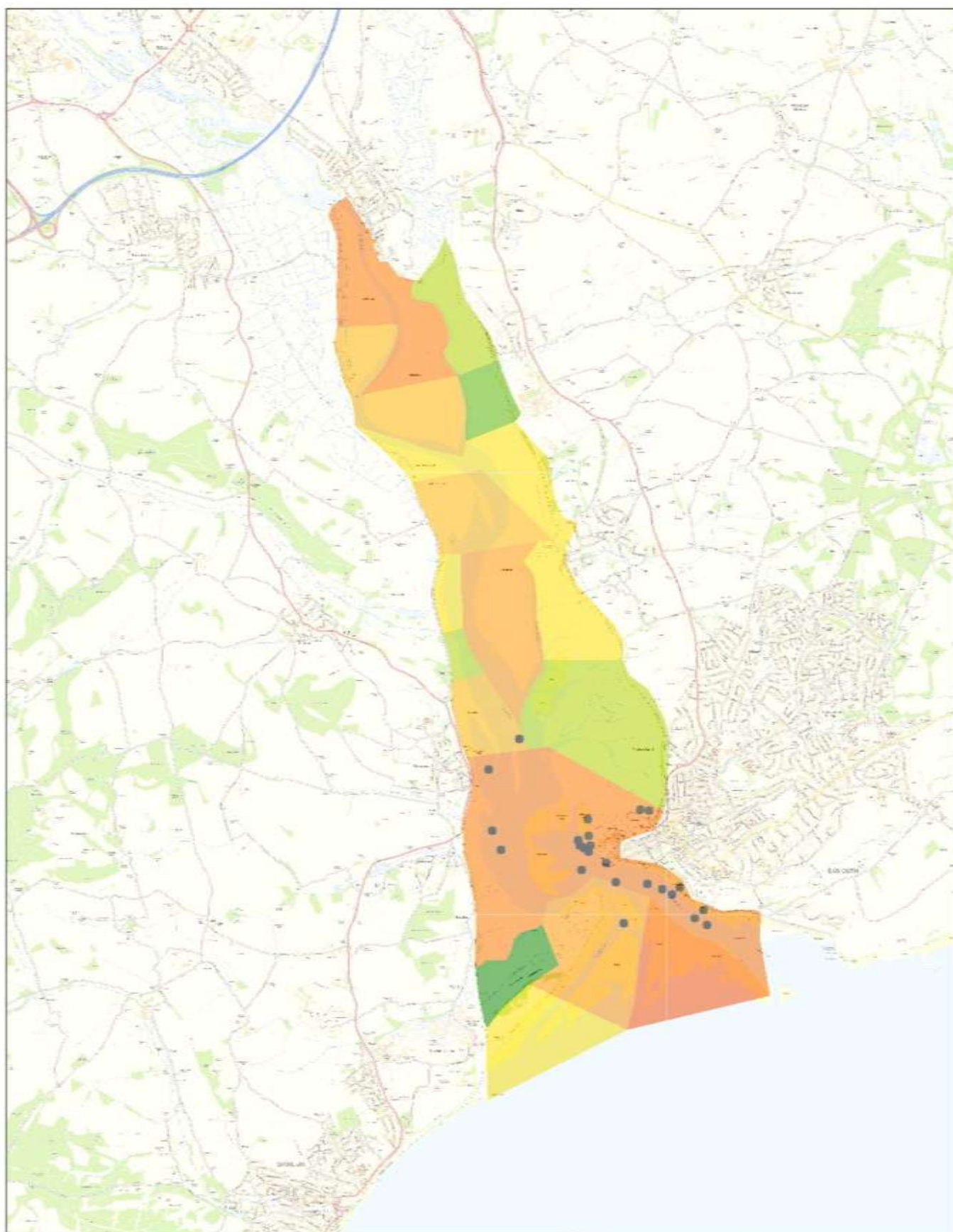


**Map 24. Matrix Scores:
RIBs/small boats on outboard motor**

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3.5 to 4 (4)	1.5 to 2 (10)
3 to 3.5 (2)	1 to 1.5 (7)
2.5 to 3 (1)	0 to 0.5 (4)
2 to 2.5 (4)	

Dots show observations of motor-powered boats from total counts (i.e. for the area s. of Lymstone only)

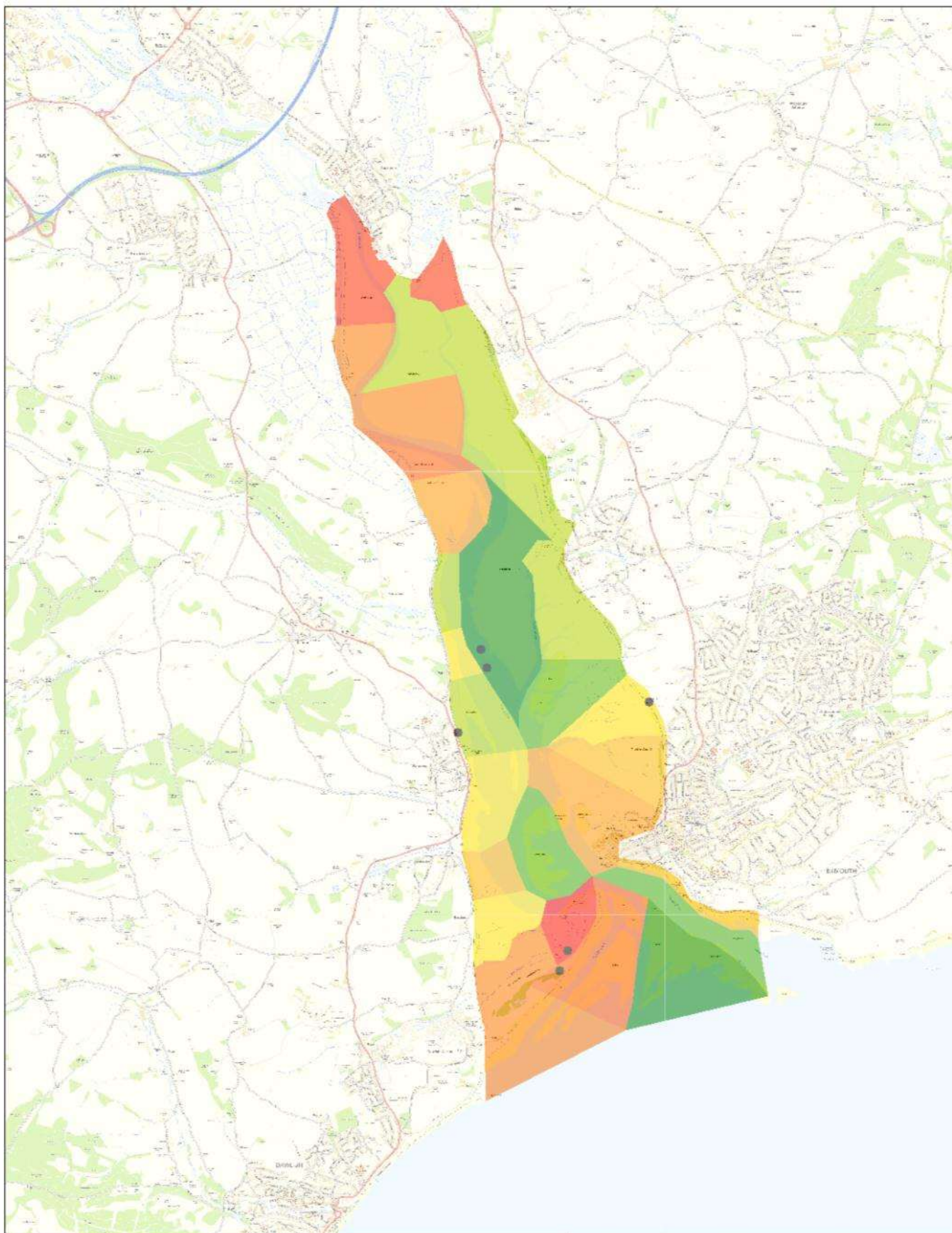


**Map 25. Matrix Scores:
Other boats, sailing etc.**

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3.5 to 4 (1)	1.5 to 2 (5)
3 to 3.5 (10)	1 to 1.5 (6)
2.5 to 3 (3)	0.5 to 1 (1)
2 to 2.5 (5)	0 to 0.5 (1)

Dots show observations of sail and row boats from total counts (i.e. for the areas of Lympstone only)

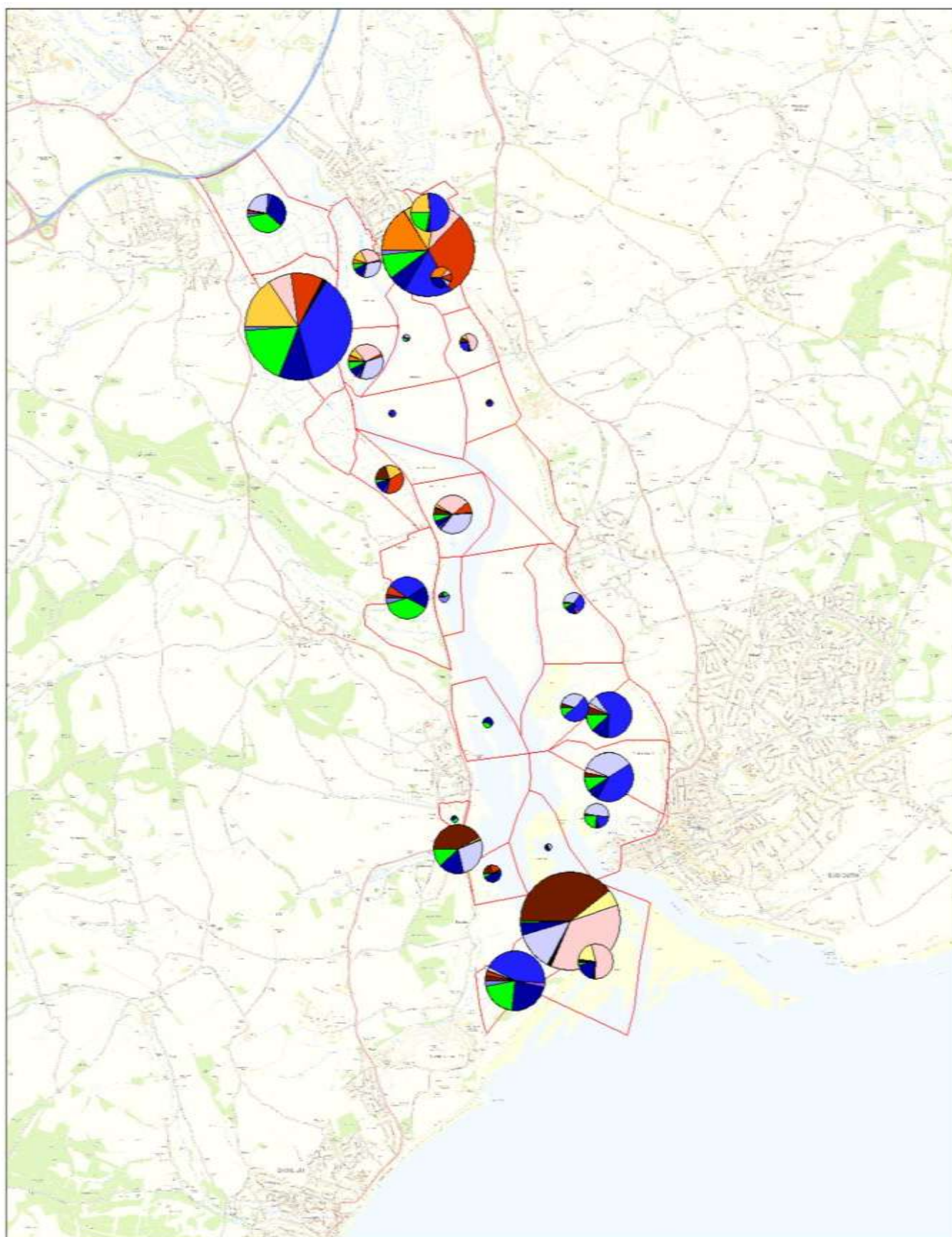


**Map 26. Matrix Scores:
Birdwatching**

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4.5 to 5 (1)	2 to 2.5 (3)
4 to 4.5 (2)	1.5 to 2 (5)
3.5 to 4 (2)	1 to 1.5 (7)
3 to 3.5 (4)	0.5 to 1 (3)
2.5 to 3 (2)	0 to 0.5 (3)

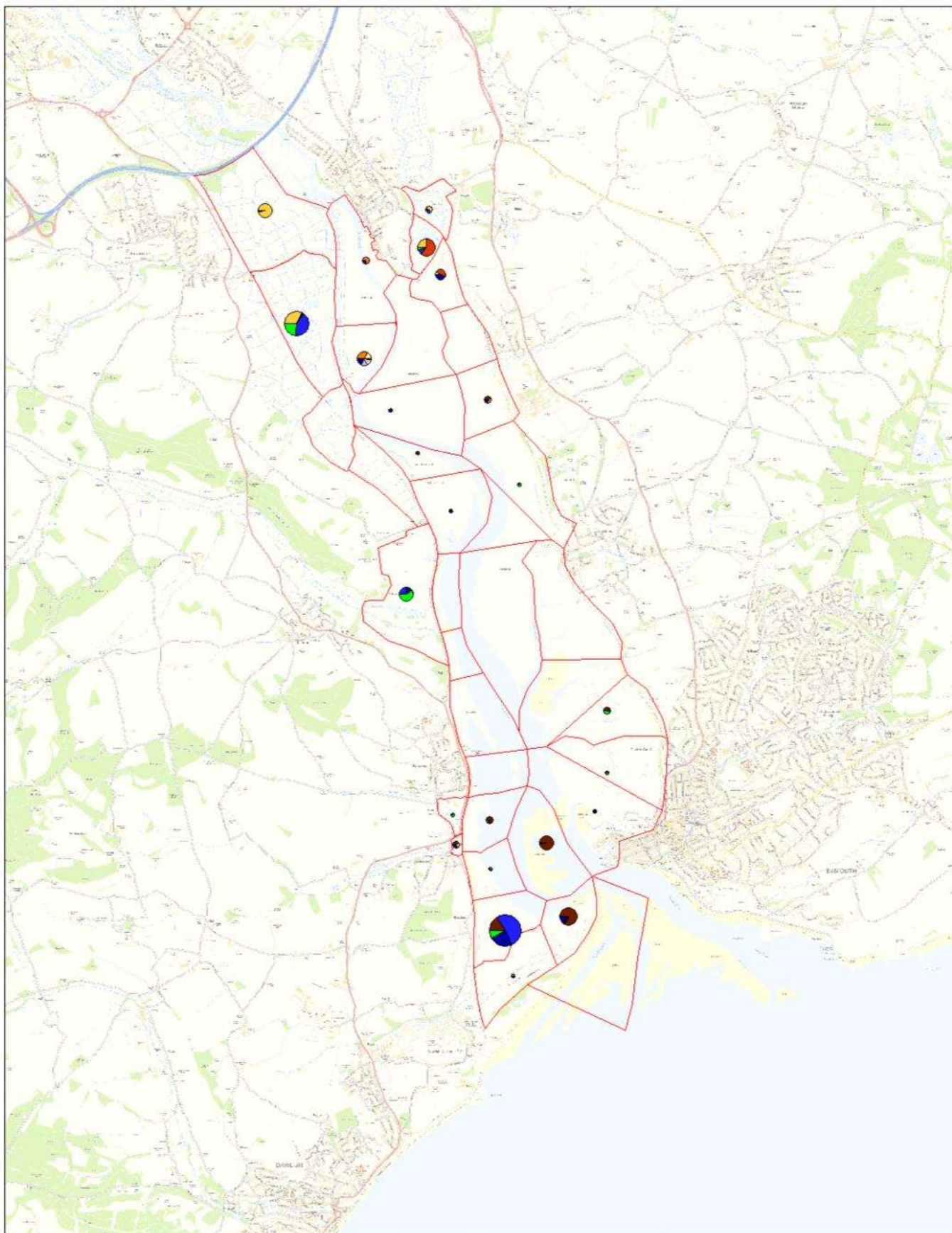
Dots show observations of birdwatchers
from total counts (i.e. for the area
s. of Lymington only)



**Map 27. WEBS data:
High tide**

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**Map 28. WEBS data:
Falling tide, roosting**

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1,000

500

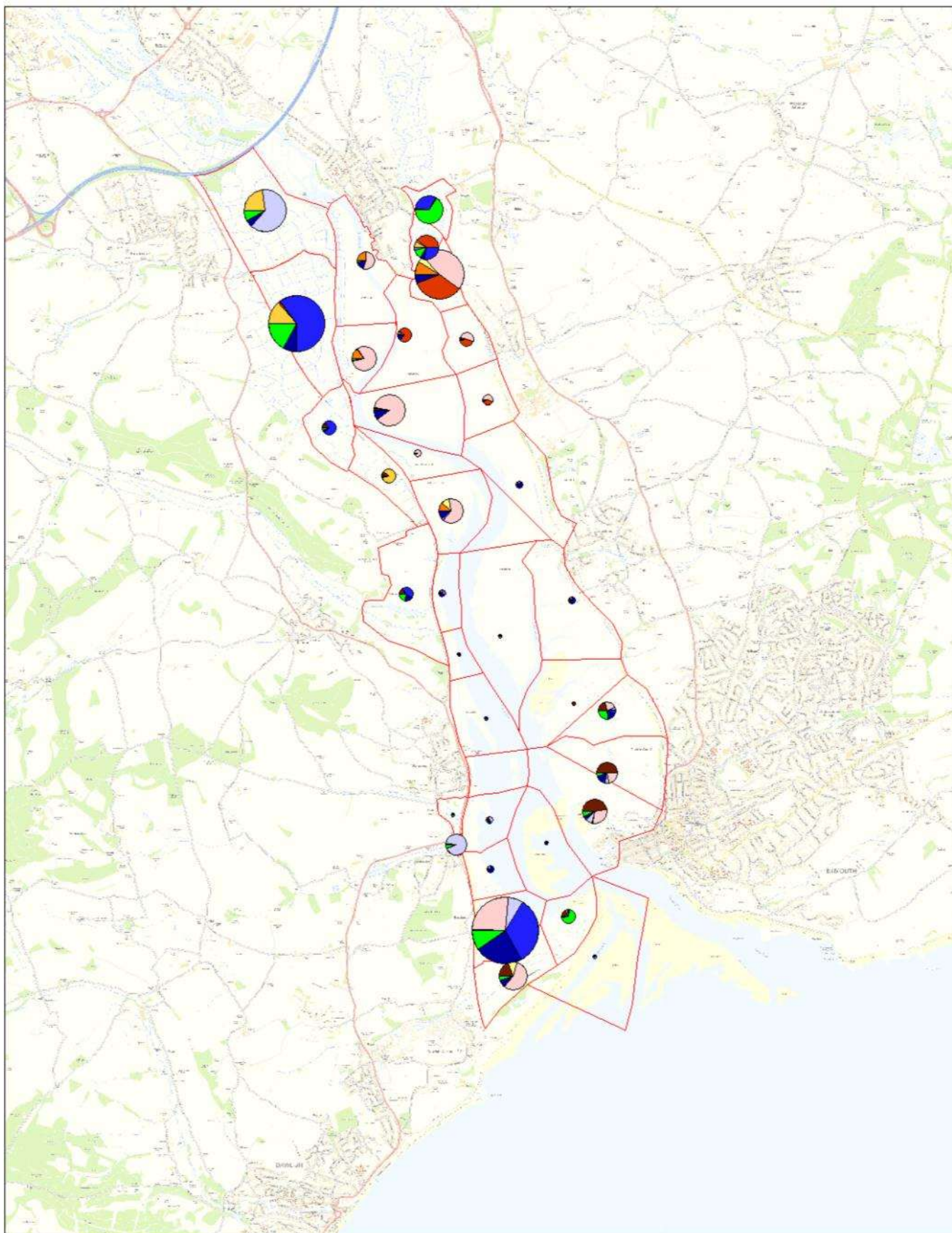
100

Oystercatcher
Avocet
Grey Plover
Lapwing

Dunlin
Black-tailed Godwit
Cormorant
Brent Goose

Wigeon
Red-breasted Merganser
Slavonian Grebe
Whimbrel

Other Waders
Other Waterfowl
Other Species



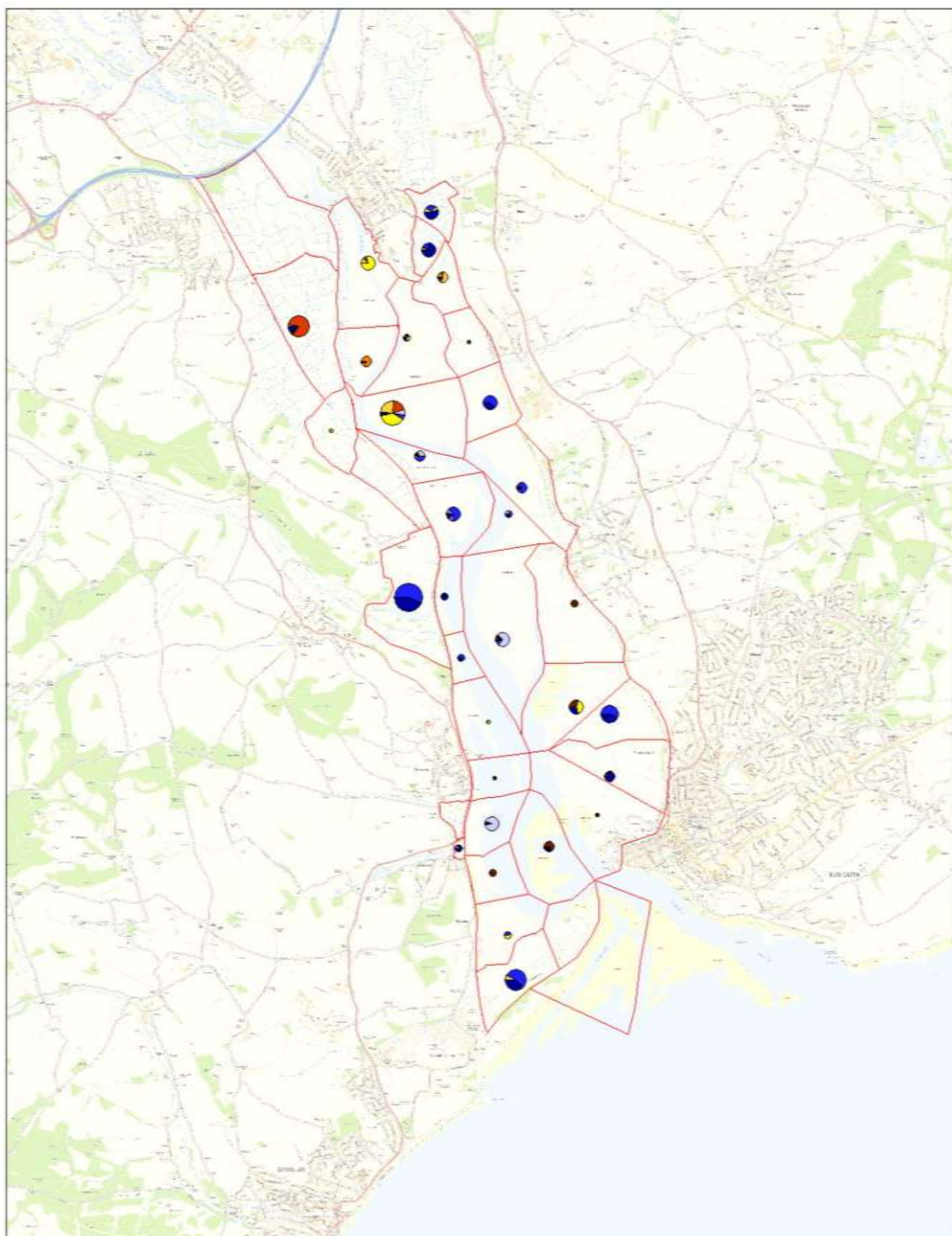
**Map 29. WEBS data:
Falling tide, feeding**

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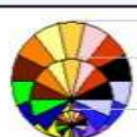
2,000
1,000
200

- | | | | |
|---------------|---------------------|------------------------|-----------------|
| Oystercatcher | Dunlin | Wigeon | Other Waders |
| Avocet | Black-tailed Godwit | Red-breasted Merganser | Other Waterfowl |
| Grey Plover | Cormorant | Slavonian Grebe | Other Species |
| Lapwing | Brent Goose | Whimbrel | |

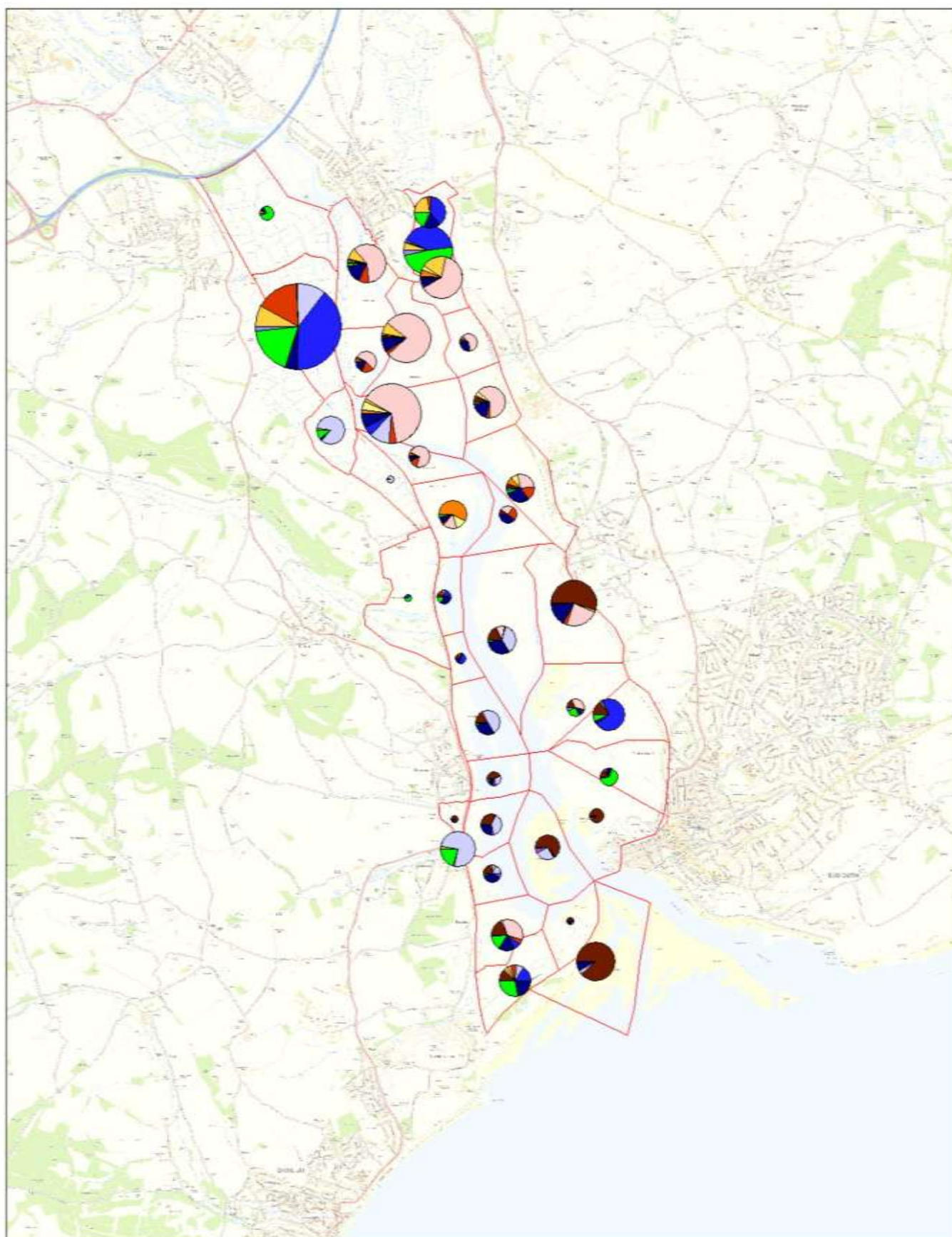


**Map 30. WEBS data:
Low tide, roosting**

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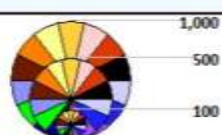


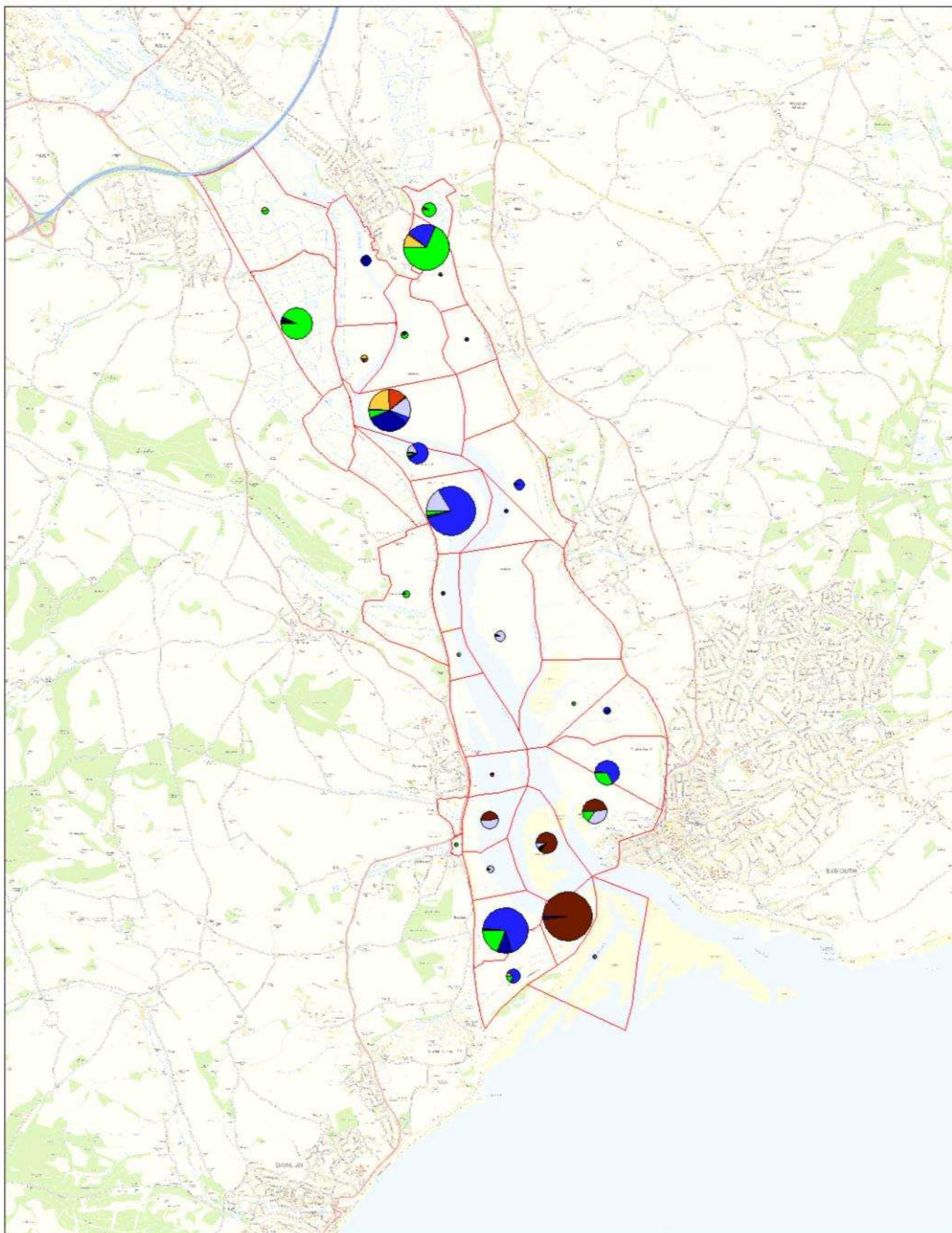
- | | | | |
|---------------|---------------------|------------------------|----------------|
| Oystercatcher | Dunlin | Wigeon | Other Wildfowl |
| Avocet | Black-tailed Godwit | Red-breasted Merganser | Other Species |
| Grey Plover | Cormorant | Slavonian Grebe | |
| Lapwing | Brent Goose | Other Waders | |



**Map 31. WEBS data:
Low tide, feeding**

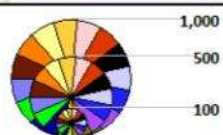
Contains Ordnance Survey data.
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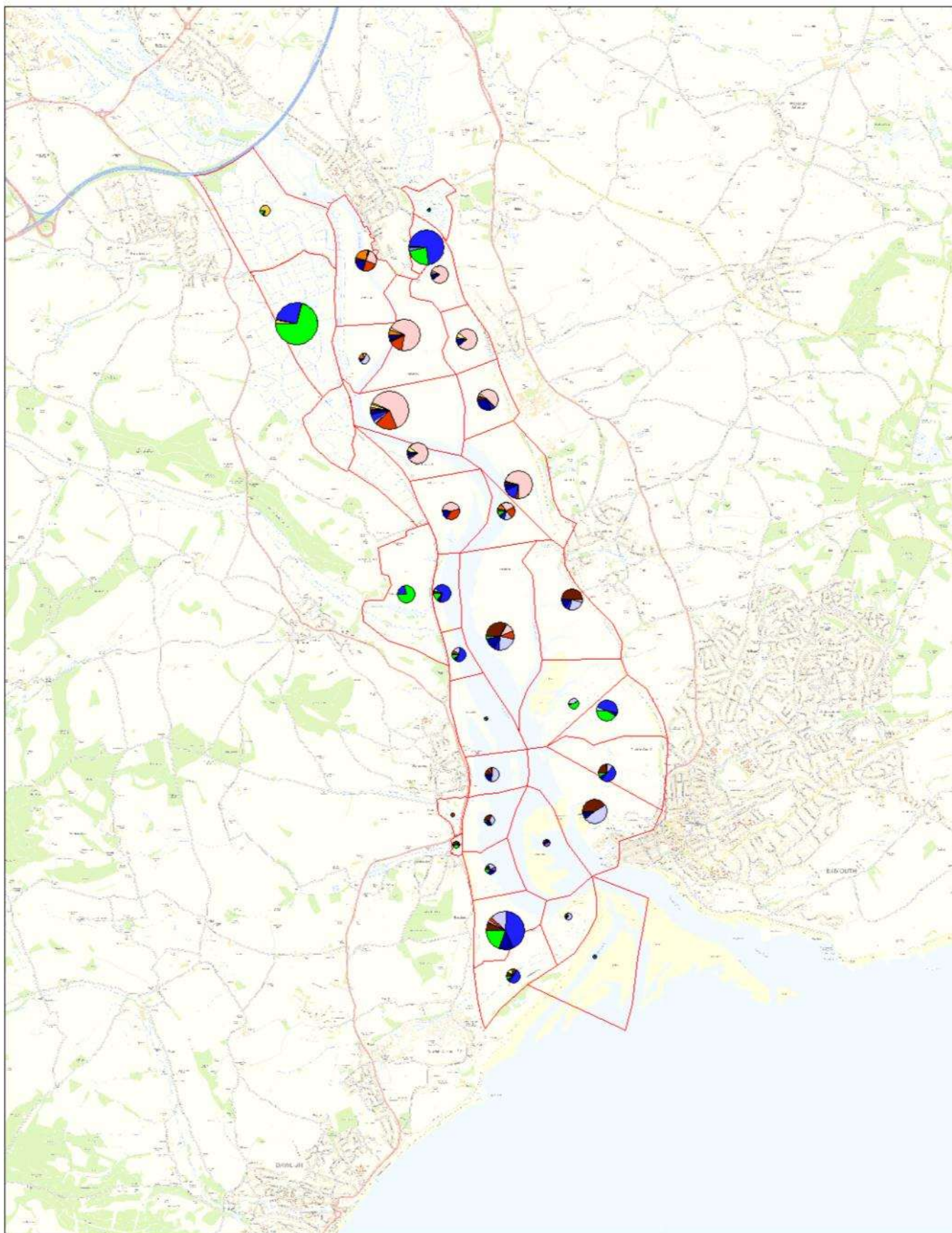


**Map 32. WEBS data:
Rising tide, roosting**

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- | | | | |
|---------------|---------------------|------------------------|----------------|
| Oystercatcher | Dunlin | Wigeon | Other Waders |
| Avocet | Black-tailed Godwit | Red-breasted Merganser | Other Wildfowl |
| Grey Plover | Cormorant | Slavonian Grebe | Other Species |
| Lapwing | Brent Goose | Whimbrel | |



**Map 33. WEBS data:
Rising tide, feeding**

Contains Ordnance Survey data.
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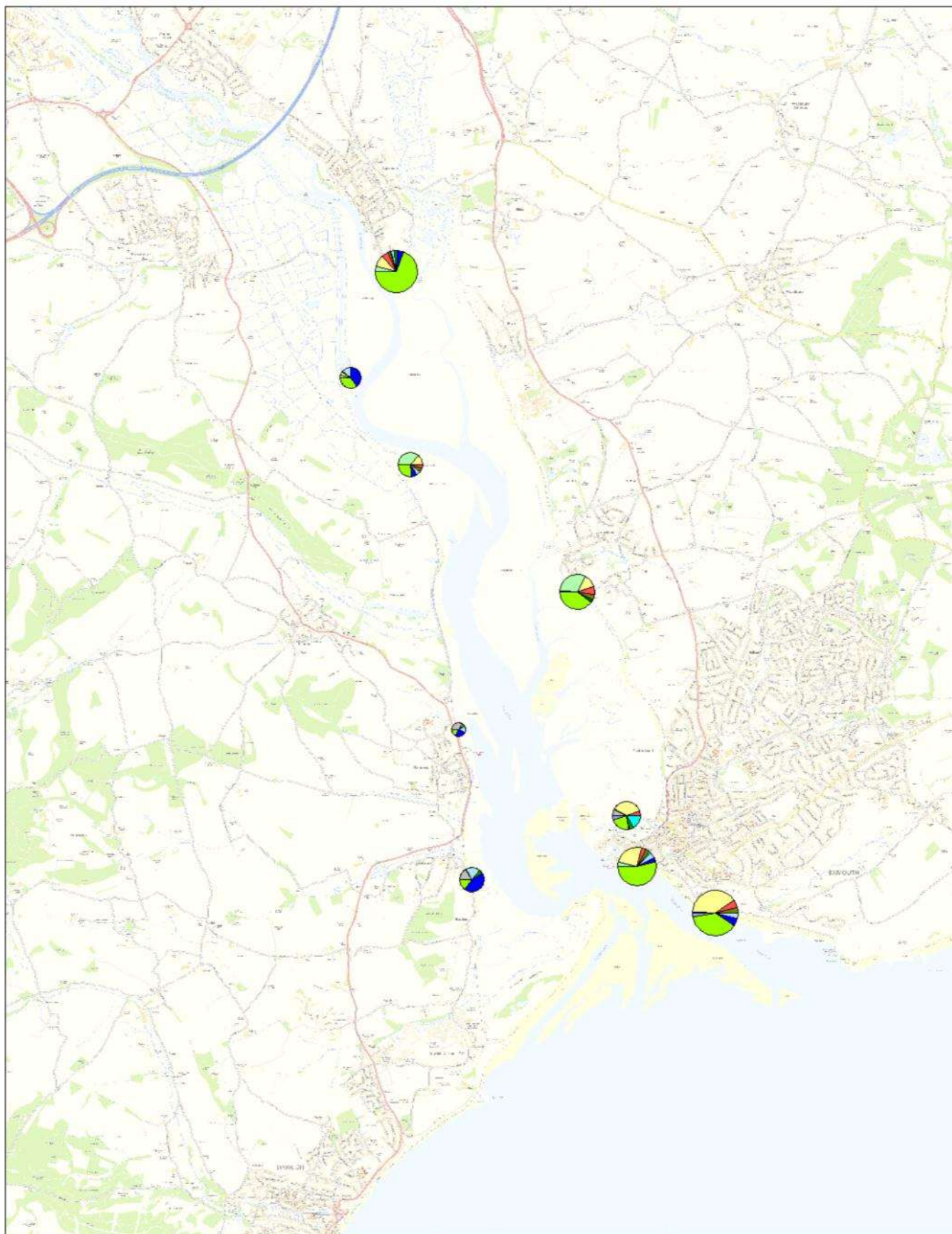
1,000
500
100

Oystercatcher
Avocet
Grey Plover
Lapwing

Dunlin
Black-tailed Godwit
Cormorant
Brent Goose

Wigeon
Red-breasted merganser
Slavonian Grebe
Whimbrel

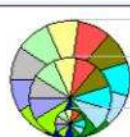
Other Waders
Other Wildfowl
Other Species



Map 34. Standard watch diary data

Graduated pie-charts give rates per hour for commonly recorded activities

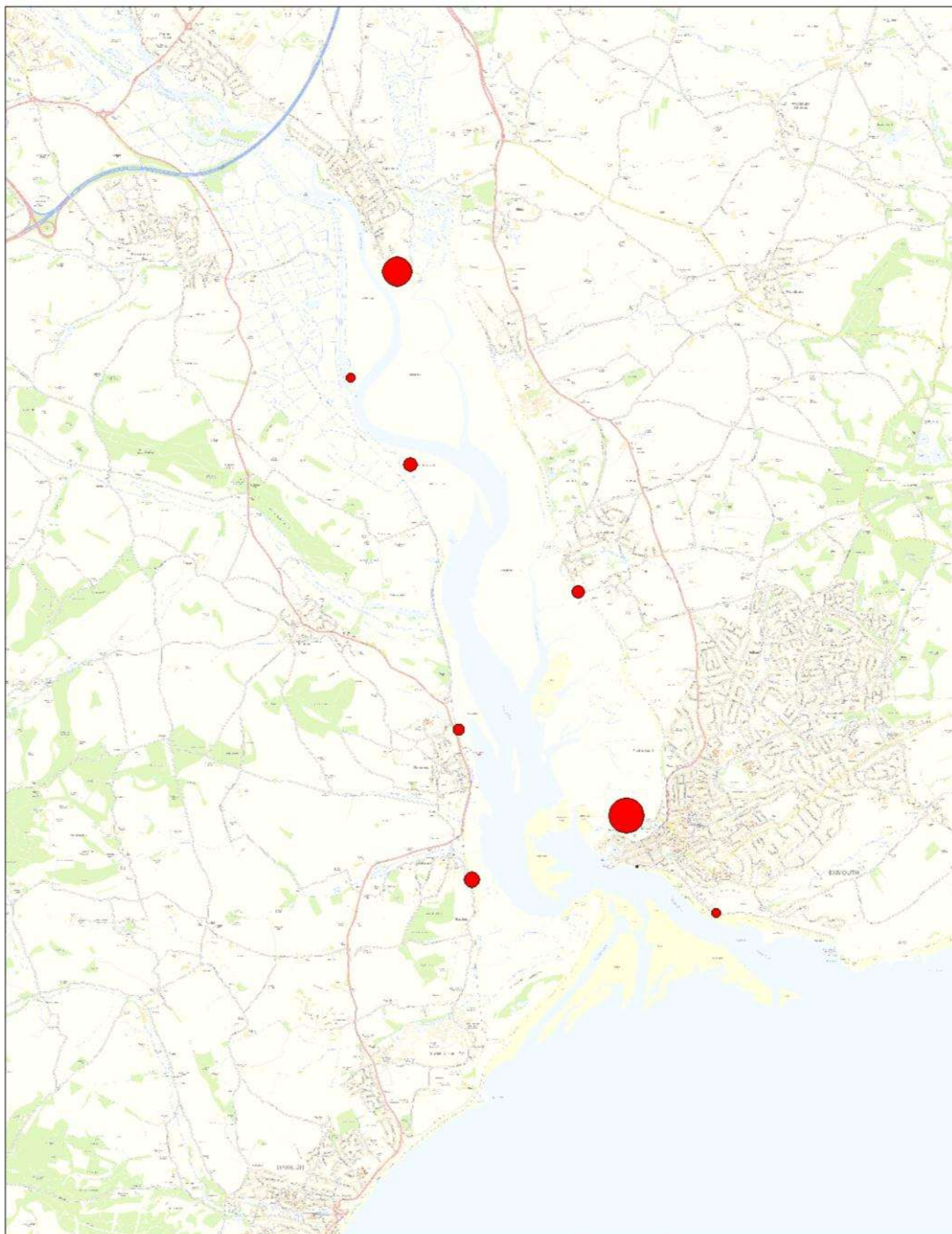
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Bait/Crab tiling/shellfishing
 Cycling
 Dog walker, dog off lead
 Dog walker, dog on lead

Jogger
 KiteSurfer on water
 Lrg. boat, outboard motor
 Motor vehicle

Rib or similar
 Walking
 Windsurfer

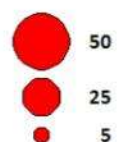


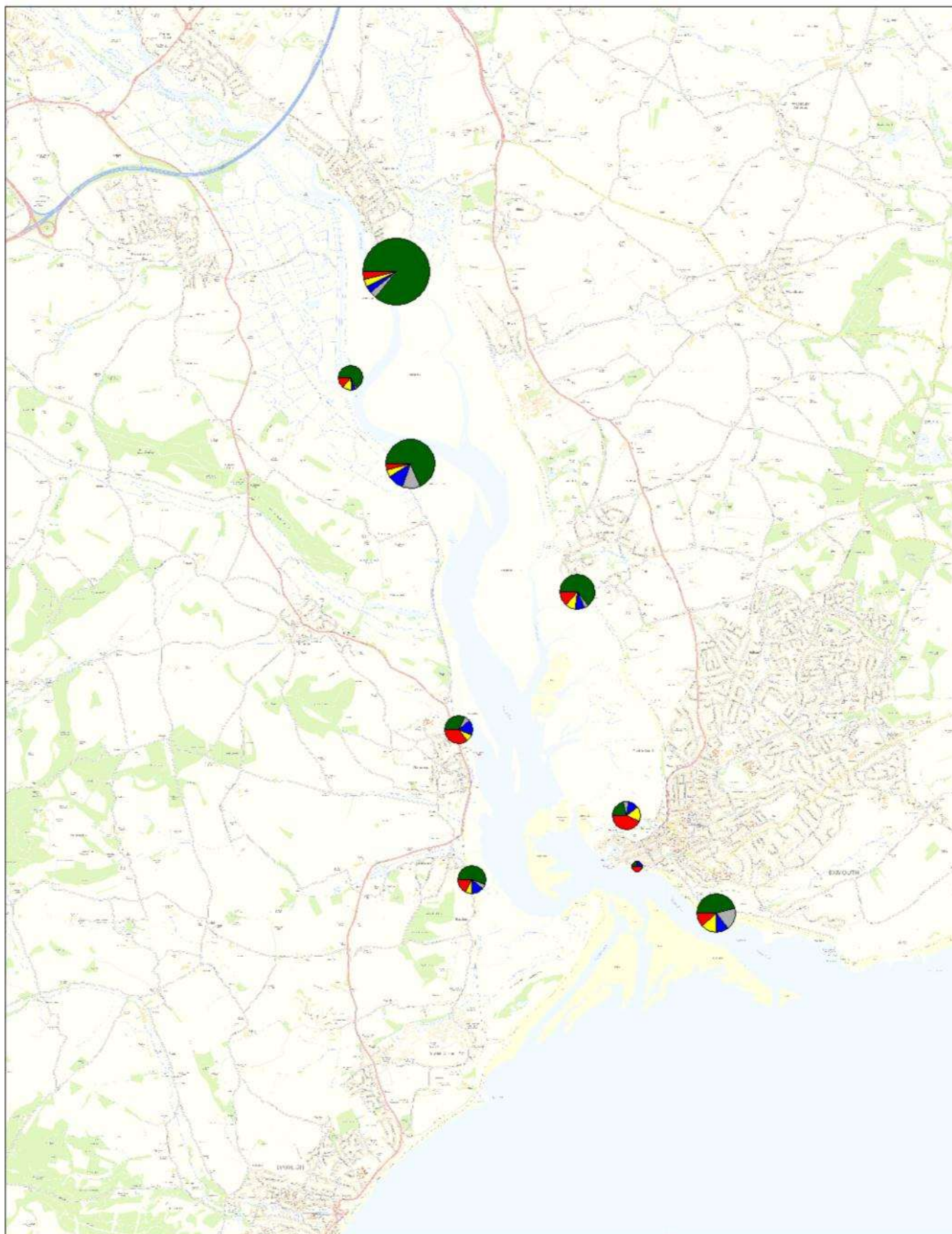
Map 35. Number of birds associated with Major Flight events

Graduated symbols show number of individual birds counted where major flight events occurs

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Rate (Number flushed per hour)

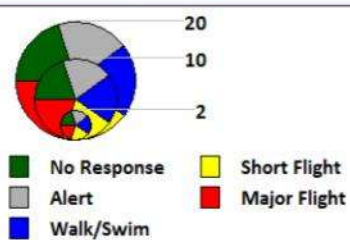


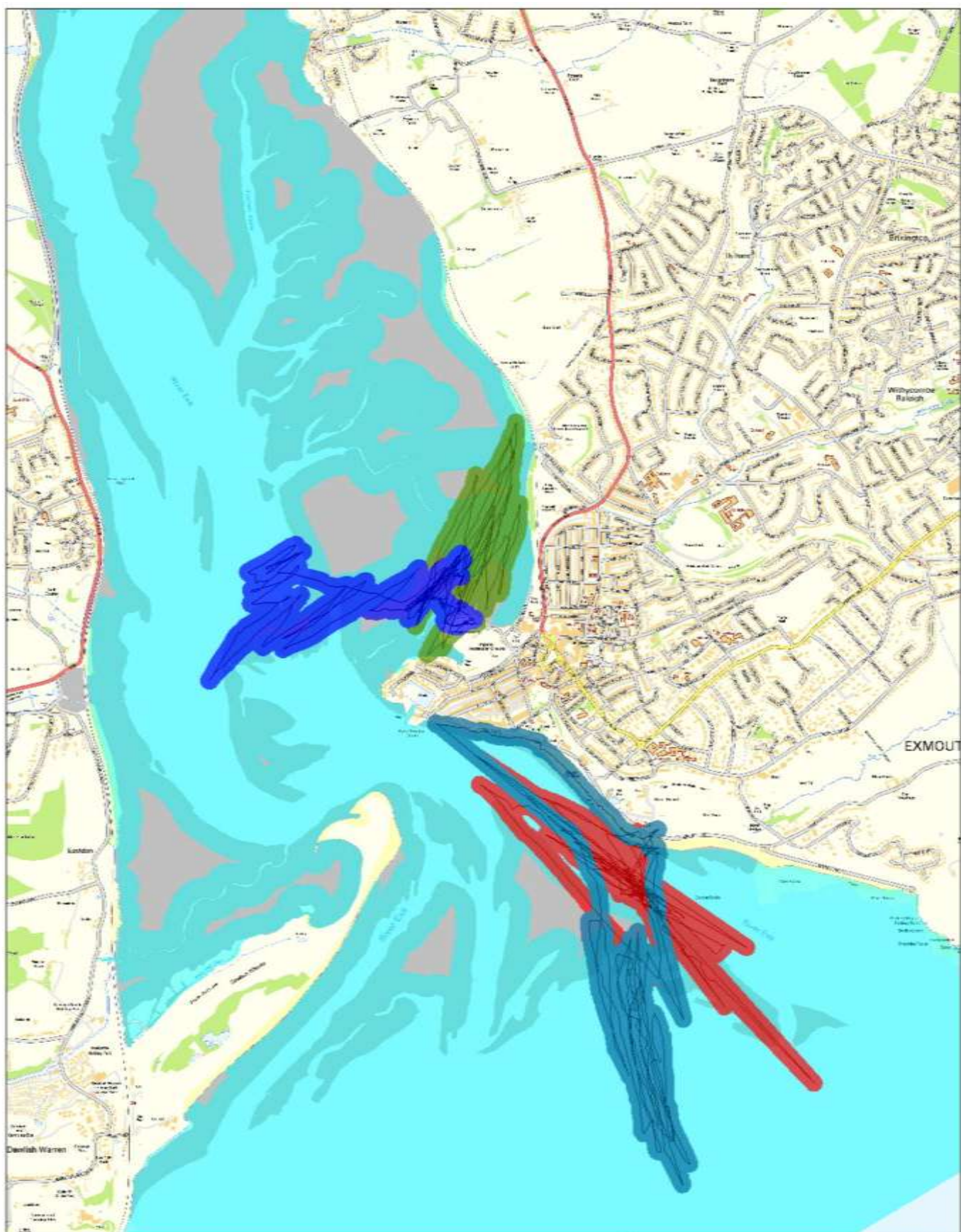


Map 36. Responses of birds at standard watch locations

Graduated pie-charts are adjusted for survey effort and reflect the hourly rate at which each response was recorded

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Map 37. Illustrative example of effective disturbance distance for the kite surfing routes shown in Map 10. (44.15m buffer used)

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 Intertidal habitat

Pale blue shows the area below MLWM and the darker blue/grey colour shows the 100m buffer