Addendum to MARAM/IWS/DEC16/Peng Clos/P1a_rev

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Introduction

This document provides individual plots of the integration process (i.e. plots of the detection probability curves superimposed onto the assumed prior distributions similar to Figure 1 of MARAM/IWS/DEC16/Peng Clos/P1a_rev) for all the runs in Table 7 of MARAM/IWS/DEC16/Peng Clos/P1a_rev.

Plots are shown first for Dassen Island, then for Robben Island. Each page contains the full set of results for a given data set and island. Each row shows the plots for the five years that were evaluated for a particular model variant, and each row is labelled with a number corresponding to the numbering of the model variants in Table 3 of MARAM/IWS/DEC16/Peng Clos/1a_rev.

In each plot, the bias-adjusted detection probability (solid blue curve) is shown with the prior distribution (dark grey shaded area). The horizontal axis variable corresponds to the EM variable V_{EM} (λ if the EM is catch only and δ if the EM is closure only). Only areas with a white background are included in the integration calculation, which covers the range $[\mu_{data}^{EM*} - 3(\sigma_{data}^{EM})$; Threshold] where μ_{data}^{EM*} is the GLM-bias-adjusted estimate when the EM is applied to the data (Step 4 of Table 2 of MARAM/DEC16/Peng Clos/P1a_rev) and σ_{data}^{EM} the standard error from Step 1(b). The integrated detection probability is shown in the legend in the top right corner. The dashed blue line shows the detection probability prior to the P_{min} adjustment, and illustrates the effect that the P_{min} bias adjustment has on the detection probability curve.

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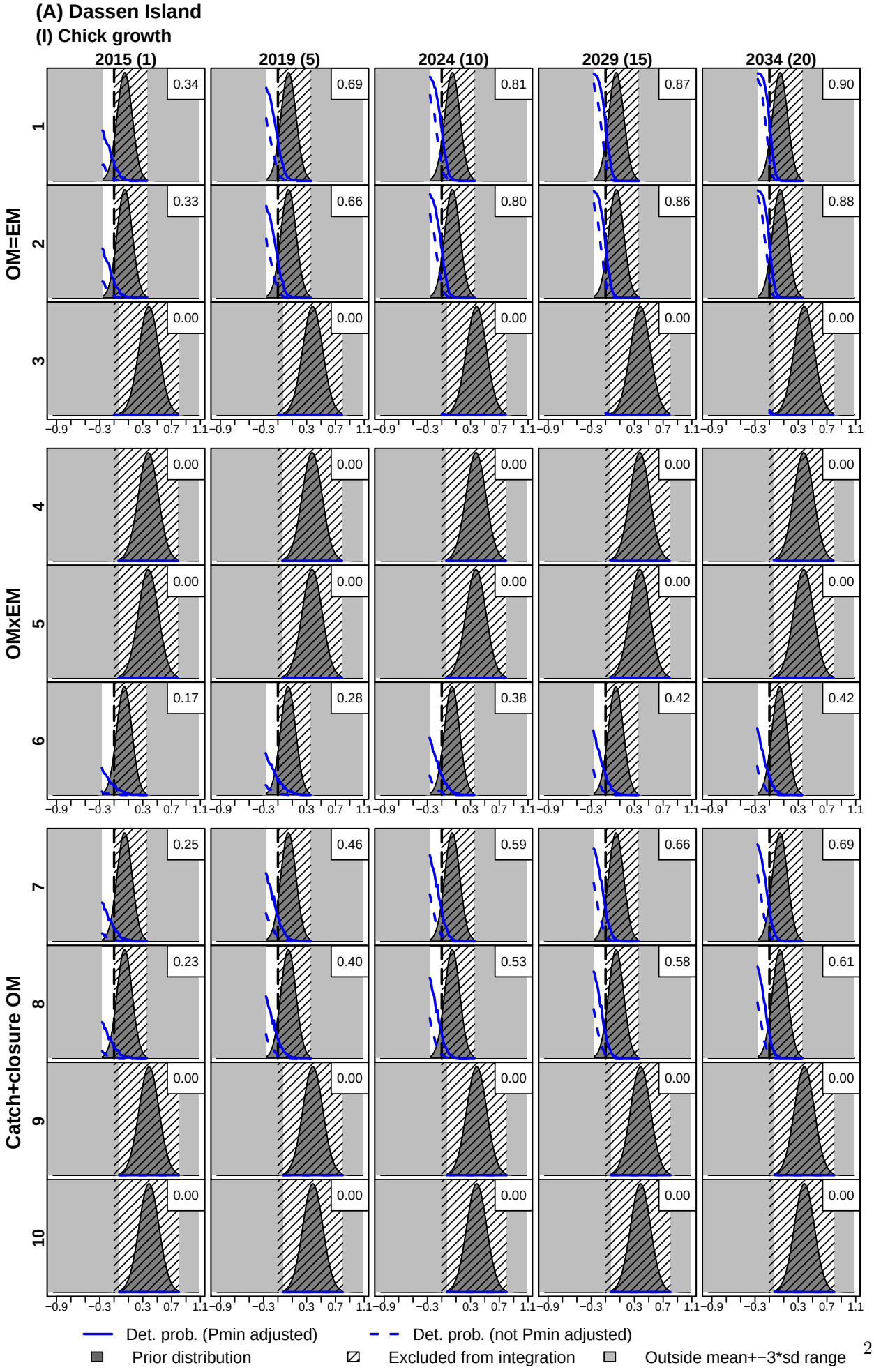
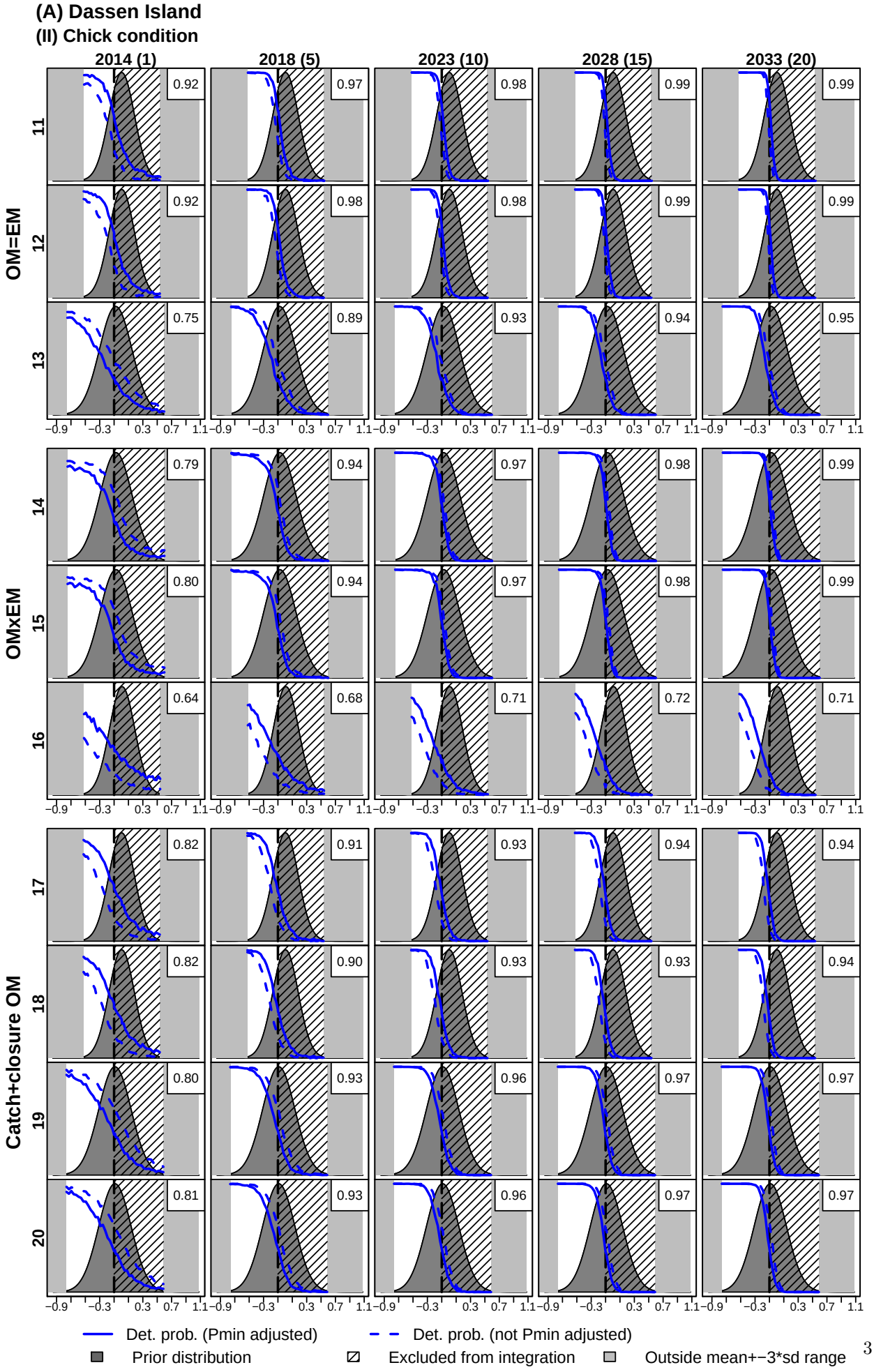
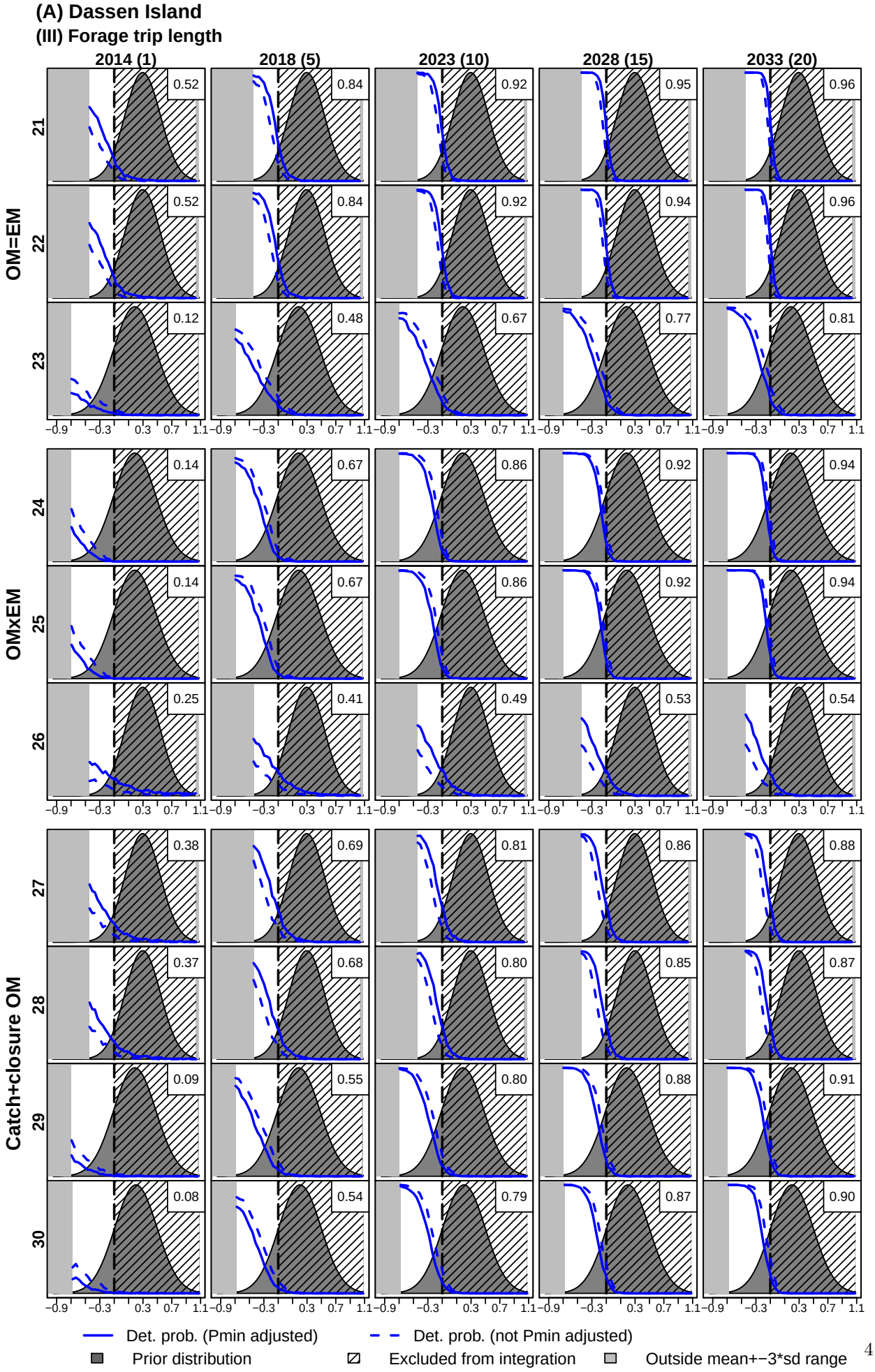
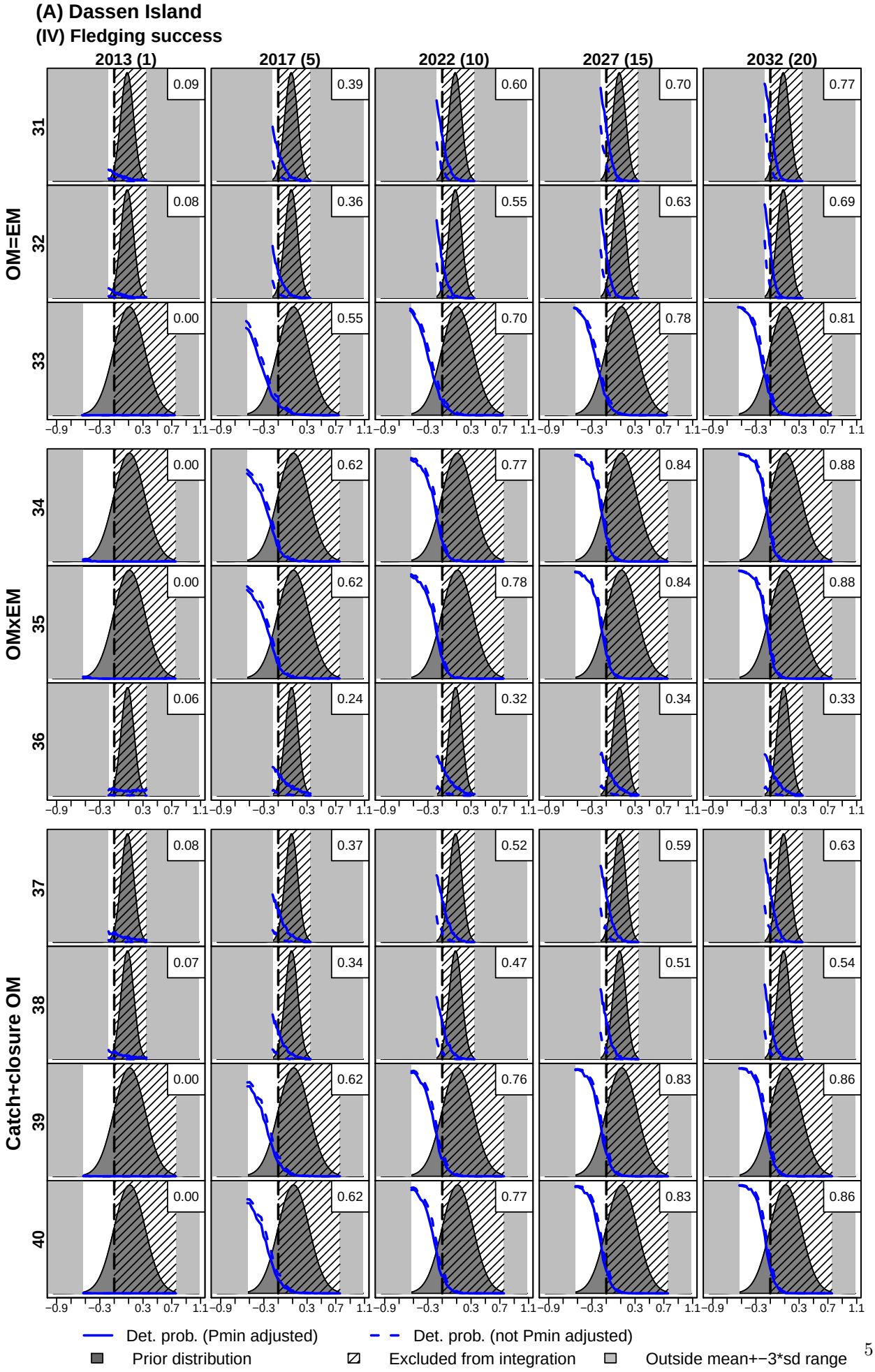
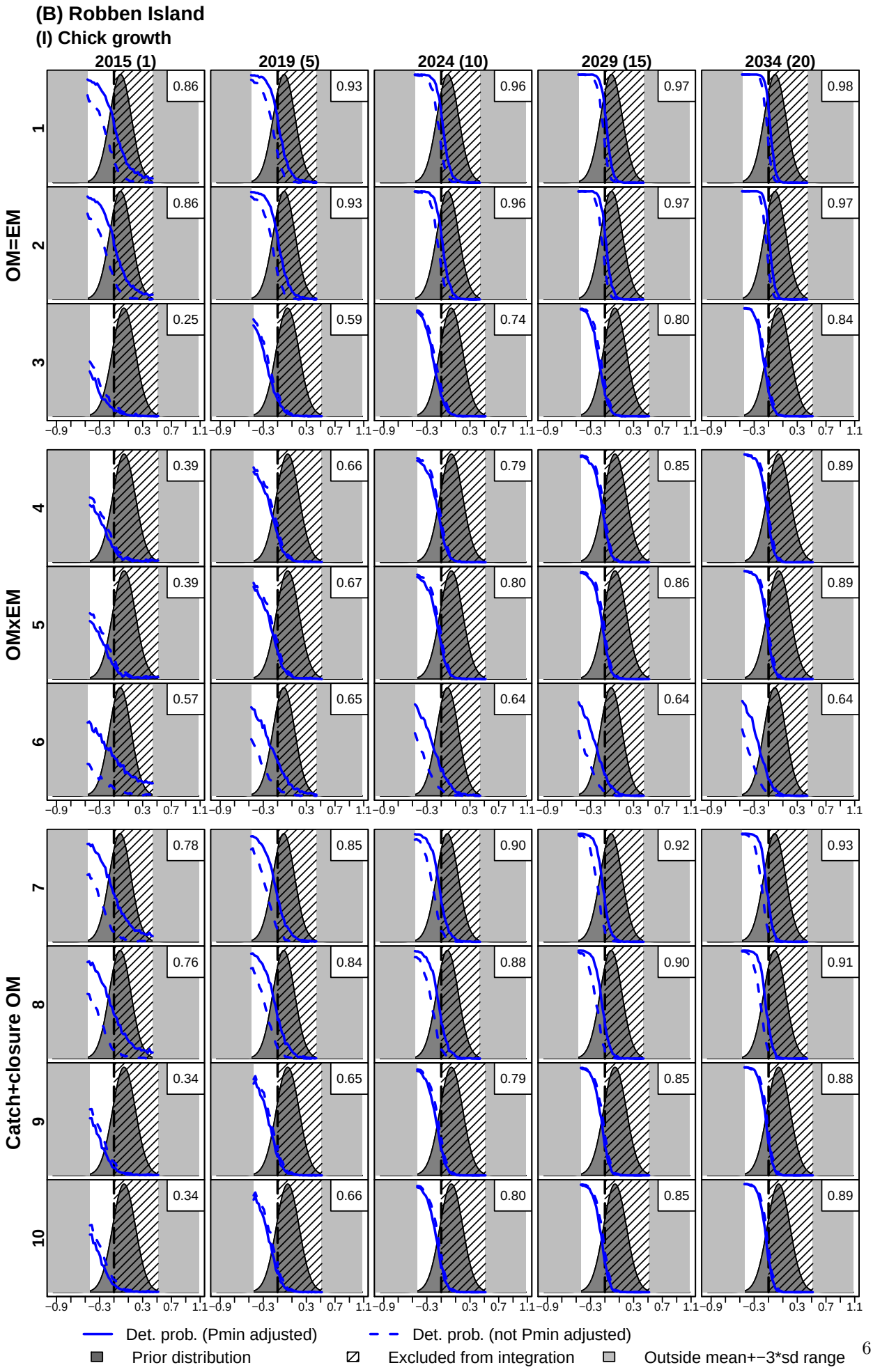

(A) Dassen Island
(I) Chick growth
2015 (1)
2019 (5)
2024 (10)
2029 (15)
2034 (20)
OM=EM
OMxEM
Catch+closure OM
1
2
3
4
5
6
7
8
9
10
0.34
0.69
0.81
0.87
0.90
0.33
0.66
0.80
0.86
0.88
0.00
0.17
0.28
0.38
0.42
0.25
0.46
0.59
0.66
0.69
0.23
0.40
0.53
0.58
0.61
−0.9
−0.3
0.3
0.7
1.1
Det. prob. (Pmin adjusted)
Det. prob. (not Pmin adjusted)
Prior distribution
Excluded from integration
Outside mean+−3*sd range


(A) Dassen Island
(II) Chick condition
2014 (1)
2018 (5)
2023 (10)
2028 (15)
2033 (20)
OM=EM
OMxEM
Catch+closure OM
11
12
13
14
15
16
17
18
19
20
0.92
0.97
0.98
0.99
0.99
0.92
0.98
0.98
0.99
0.99
0.75
0.89
0.93
0.94
0.95
0.79
0.94
0.97
0.98
0.99
0.80
0.94
0.97
0.98
0.99
0.64
0.68
0.71
0.72
0.71
0.82
0.91
0.93
0.94
0.94
0.82
0.90
0.93
0.93
0.94
0.80
0.93
0.96
0.97
0.97
0.81
0.93
0.96
0.97
0.97
−0.9
−0.3
0.3
0.7
1.1
Det. prob. (Pmin adjusted)
Det. prob. (not Pmin adjusted)
Prior distribution
Excluded from integration
Outside mean+−3*sd range

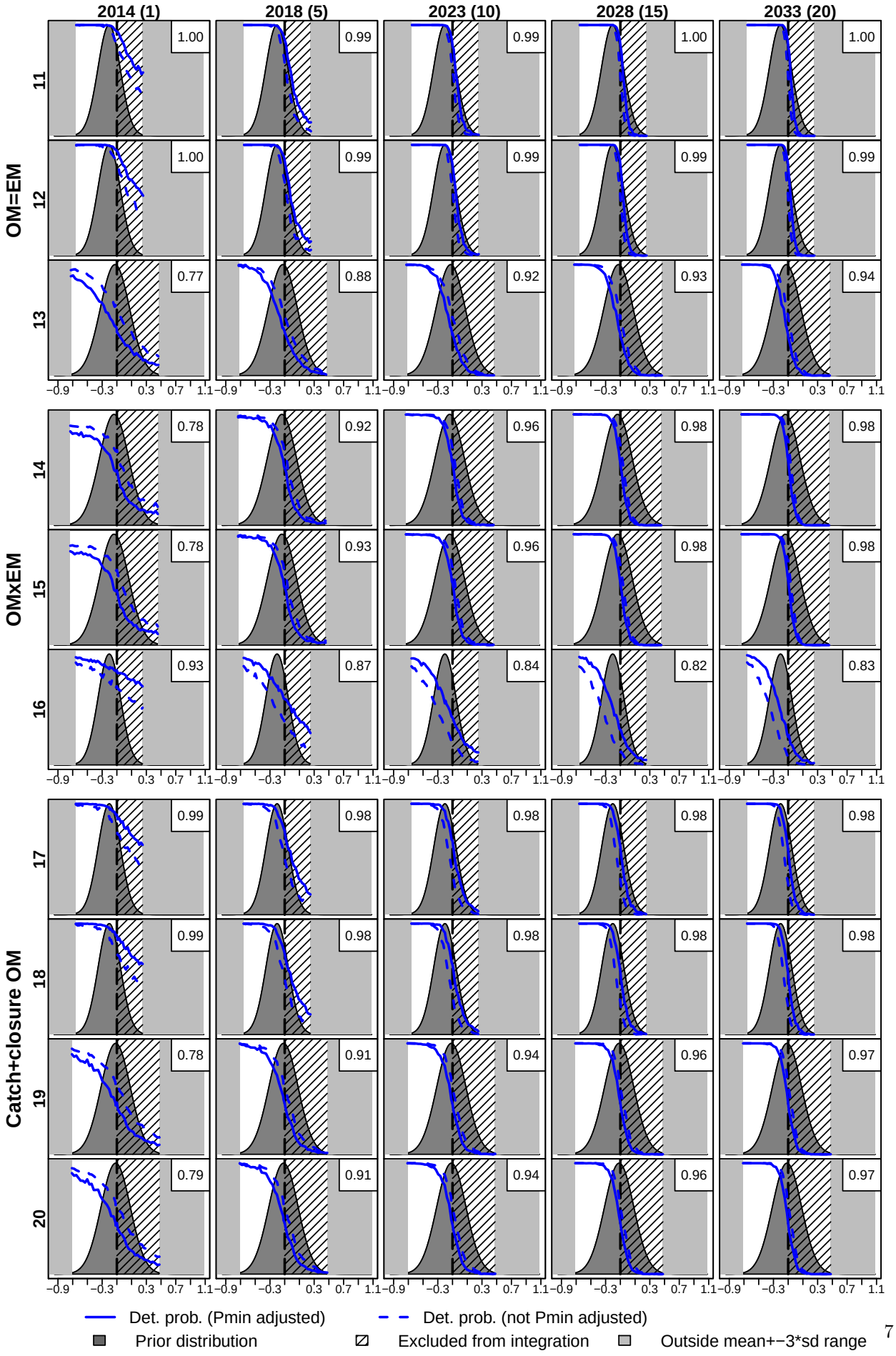

(A) Dassen Island
(III) Forage trip length
2014 (1)
2018 (5)
2023 (10)
2028 (15)
2033 (20)
OM=EM
OMxEM
Catch+closure OM
21
22
23
24
25
26
27
28
29
30
0.52
0.84
0.92
0.95
0.96
0.52
0.84
0.92
0.94
0.96
0.12
0.48
0.67
0.77
0.81
0.14
0.67
0.86
0.92
0.94
0.14
0.67
0.86
0.92
0.94
0.25
0.41
0.49
0.53
0.54
0.38
0.69
0.81
0.86
0.88
0.37
0.68
0.80
0.85
0.87
0.09
0.55
0.80
0.88
0.91
0.08
0.54
0.79
0.87
0.90
−0.9
−0.3
0.3
0.7
1.1
Det. prob. (Pmin adjusted)
Det. prob. (not Pmin adjusted)
Prior distribution
Excluded from integration
Outside mean+−3*sd range

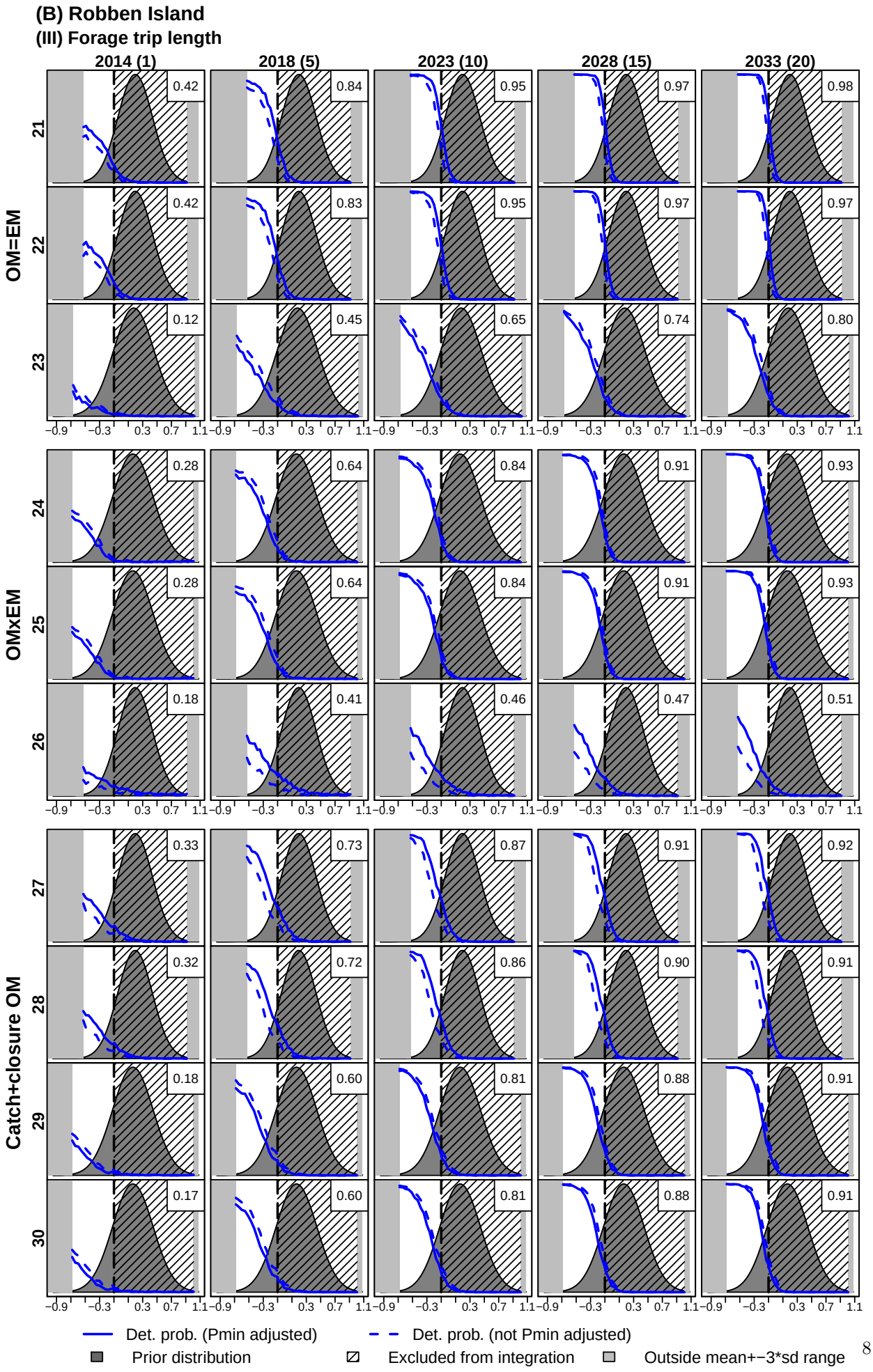

(A) Dassen Island
(IV) Fledging success
2013 (1)
2017 (5)
2022 (10)
2027 (15)
2032 (20)
OM=EM
OMxEM
Catch+closure OM
31
32
33
34
35
36
37
38
39
40
0.09
0.39
0.60
0.70
0.77
0.08
0.36
0.55
0.63
0.69
0.00
0.55
0.70
0.78
0.81
0.00
0.62
0.77
0.84
0.88
0.00
0.62
0.78
0.84
0.88
0.06
0.24
0.32
0.34
0.33
0.08
0.37
0.52
0.59
0.63
0.07
0.34
0.47
0.51
0.54
0.00
0.62
0.76
0.83
0.86
0.00
0.62
0.77
0.83
0.86
−0.9
−0.3
0.3
0.7
1.1
Det. prob. (Pmin adjusted)
Det. prob. (not Pmin adjusted)
Prior distribution
Excluded from integration
Outside mean+−3*sd range


(B) Robben Island
(I) Chick growth
2015 (1)
2019 (5)
2024 (10)
2029 (15)
2034 (20)
OM=EM
OMxEM
Catch+closure OM
1
2
3
4
5
6
7
8
9
10
0.86
0.93
0.96
0.97
0.98
0.86
0.93
0.96
0.97
0.97
0.25
0.59
0.74
0.80
0.84
0.39
0.66
0.79
0.85
0.89
0.39
0.67
0.80
0.86
0.89
0.57
0.65
0.64
0.64
0.64
0.78
0.85
0.90
0.92
0.93
0.76
0.84
0.88
0.90
0.91
0.34
0.65
0.79
0.85
0.88
0.34
0.66
0.80
0.85
0.89
−0.9
−0.3
0.3
0.7
1.1
Det. prob. (Pmin adjusted)
Det. prob. (not Pmin adjusted)
Prior distribution
Excluded from integration
Outside mean+−3*sd range

(B) Robben Island

(II) Chick condition




(B) Robben Island
(III) Forage trip length
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2018 (5)
2023 (10)
2028 (15)
2033 (20)
OM=EM
OMxEM
Catch+closure OM
21
22
23
24
25
26
27
28
29
30
0.42
0.84
0.95
0.97
0.98
0.42
0.83
0.95
0.97
0.97
0.12
0.45
0.65
0.74
0.80
0.28
0.64
0.84
0.91
0.93
0.28
0.64
0.84
0.91
0.93
0.18
0.41
0.46
0.47
0.51
0.33
0.73
0.87
0.91
0.92
0.32
0.72
0.86
0.90
0.91
0.18
0.60
0.81
0.88
0.91
0.17
0.60
0.81
0.88
0.91
−0.9
−0.3
0.3
0.7
1.1
Det. prob. (Pmin adjusted)
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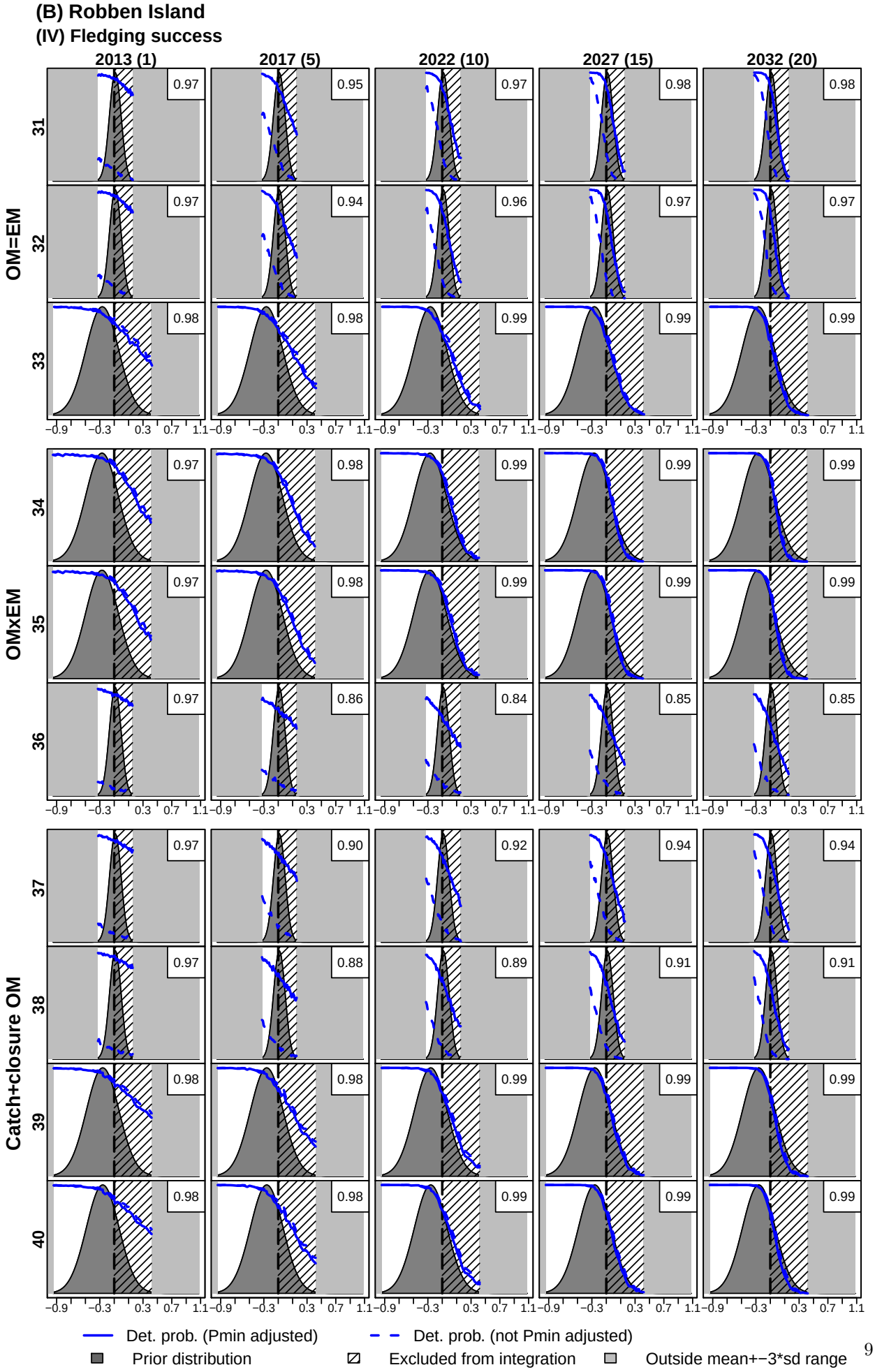
(B) Robben Island
(IV) Fledging success
2013 (1)
2017 (5)
2022 (10)
2027 (15)
2032 (20)
OM=EM
OMxEM
Catch+closure OM
31
32
33
34
35
36
37
38
39
40
0.97
0.95
0.97
0.98
0.98
0.97
0.94
0.96
0.97
0.97
0.98
0.98
0.99
0.99
0.99
0.97
0.98
0.99
0.99
0.99
0.97
0.98
0.99
0.99
0.99
0.97
0.86
0.84
0.85
0.85
0.97
0.90
0.92
0.94
0.94
0.97
0.88
0.89
0.91
0.91
0.98
0.98
0.99
0.99
0.99
0.98
0.98
0.99
0.99
0.99
−0.9
−0.3
0.3
0.7
1.1
Det. prob. (Pmin adjusted)
Det. prob. (not Pmin adjusted)
Prior distribution
Excluded from integration
Outside mean+−3*sd range