

INTERNATIONAL PACIFIC



HALIBUT COMMISSION

Stock projections and harvest decision table for 2025-2027

Agenda item: 7.1
IPHC-2024-IM100-13 Rev_1
(I. Stewart & A. Hicks)



Projections and harvest decision table for 2024

- Project a constant TCEY for the next 3 years, over a range of mortality levels, including:
 - No fishing
 - *Status quo +/- 5 and 10%*
 - *3-year surplus production*
 - $F_{43\%}$ Reference
 - $F_{40\%}$ Maximum Economic Yield (MEY) proxy
 - $F_{35\%}$ Maximum Sustainable Yield (MSY) proxy
- Calculate the probabilities of: stock decline, dropping below stock reference points, fishery decline (to get to $F_{43\%}$ in the future), exceeding the reference $F_{43\%}$ fishing intensity in 2025



Reading the decision table

2025 Alternative

Total mortality (M lb)

TCEY (M lb)

2025 fishing intensity

Fishing intensity interval

		Status quo -10%	Status quo -5%	Status quo	$F_{46\%}$	3-Year Surplus	Status quo +10%	Reference $F_{43\%}$	MEY proxy	MSY proxy
0.0	21.8	35.6	35.3	37.1	37.8	39.2	40.7	41.1	46.1	55.1
0.0	20.0	35.3	35.3	35.3	35.3	37.4	38.8	39.8	44.3	53.2
$F_{100\%}$	$F_{63\%}$	$F_{50\%}$	$F_{48\%}$	$F_{46\%}$	$F_{46\%}$	$F_{45\%}$	$F_{44\%}$	$F_{43\%}$	$F_{40\%}$	$F_{35\%}$
--	41-75%	28-65%	27-63%	26-62%	25-61%	24-60%	23-59%	23-59%	21-56%	17-51%

Yields: low → high

Stock Trend (spawning biomass)	in 2026	is less than 2025	<1	4	30	36	41	43	48	53	56	69	87
		is 5% less than 2025	<1	<1	5	7	10	11	14	16	18	28	49
	in 2027	is less than 2025	<1	7	34	39	44	46	50	54	57	68	86
		is 5% less than 2025	<1	2	17	21	25	26	30	33	36	47	69
	in 2028	is less than 2025	<1	7	33	38	44	45	50	54	57	69	86
		is 5% less than 2025	<1	3	21	25	29	31	35	39	42	54	76
Stock Status (Spawning biomass)	in 2026	is less than 30%	26	27	27	28	28	28	28	28	28	28	29
		is less than 20%	2	6	10	11	12	12	13	14	14	16	19
	in 2027	is less than 30%	25	25	26	26	26	26	26	27	27	27	28
		is less than 20%	<1	2	8	9	10	10	11	12	13	16	21
	in 2028	is less than 30%	18	25	25	26	26	26	27	27	27	27	28
		is less than 20%	<1	1	7	8	9	10	11	12	13	16	22
Fishery Trend (TCEY)	in 2026	is less than 2025	0	7	31	34	38	40	43	47	49	60	81
		is 10% less than 2025	0	7	31	34	38	39	43	47	49	60	80
	in 2027	is less than 2025	0	6	30	33	37	39	42	46	49	61	82
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Fishery Status (Fishing intensity)	in 2025	is above $F_{43\%}$	0	8	32	36	40	41	44	48	50	60	79

Risk metrics

Estimated risks



Reading the decision table

2025 Alternative

Total mortality (M lb)

TCEY (M lb)

2025 fishing intensity

Fishing intensity interval

		Status quo -10%	Status quo -5%	Status quo	$F_{46\%}$	3-Year Surplus	Status quo +10%	Reference $F_{43\%}$	MEY proxy	MSY proxy
0.0	21.8	34.6	35.1	37.1	37.8	39.2	40.7	41.1	46.1	55.1
0.0	20.0	33.1	33.6	35.3	35.9	37.4	38.8	39.3	44.3	53.2
$F_{100\%}$	$F_{63\%}$	$F_{50\%}$	$F_{48\%}$	$F_{46\%}$	$F_{46\%}$	$F_{45\%}$	$F_{44\%}$	$F_{43\%}$	$F_{40\%}$	$F_{35\%}$
-	41-75%	28-65%	27-63%	26-62%	25-61%	24-60%	23-59%	23-59%	21-56%	17-51%

Yields: low → high

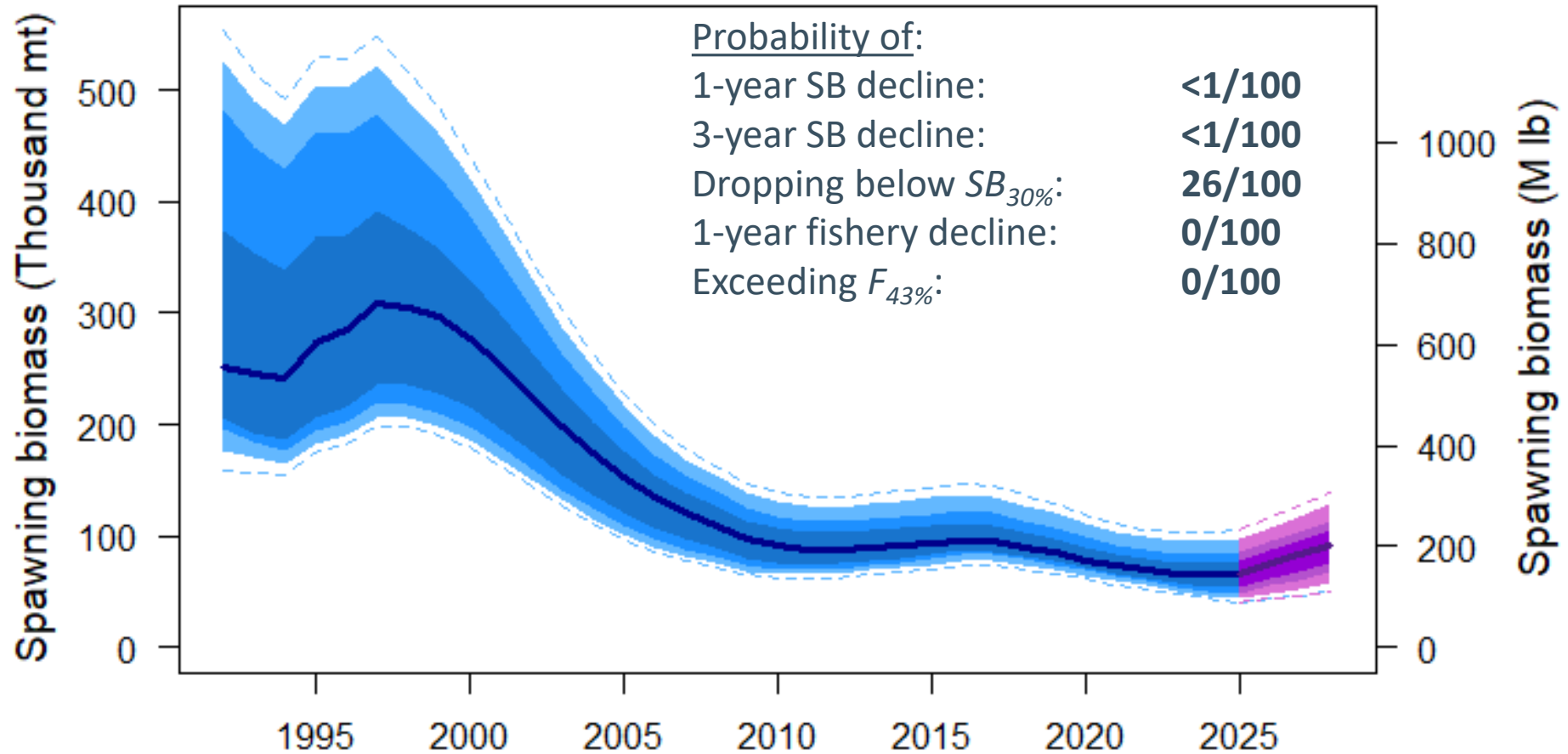
Stock Trend (spawning biomass)	in 2026	is less than 2025	<1	4	30	36	41	43	48	53	56	69	87	a
		is 5% less than 2025	<1	<1	5	7	10	11	14	16	18	28	49	b
	in 2027	is less than 2025	<1	7	34	39	44	46	50	54	57	68	86	c
		is 5% less than 2025	<1	2	17	21	25	26	30	33	36	47	69	d
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		is less than 20%	2	6	10	11	12	12	13	14	14	16	19	h
	in 2027	is less than 30%	25	25	26	26	26	26	26	27	27	27	28	i
		is less than 20%	<1	2	8	9	10	10	11	12	13	16	21	j
	in 2028	is less than 30%	18	25	26	26	26	26	27	27	27	27	28	k
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Fishery Status (Fishing intensity)	in 2025	is above $F_{43\%}$	0	8	32	36	40	41	44	48	50	60	79	s

Risk metrics

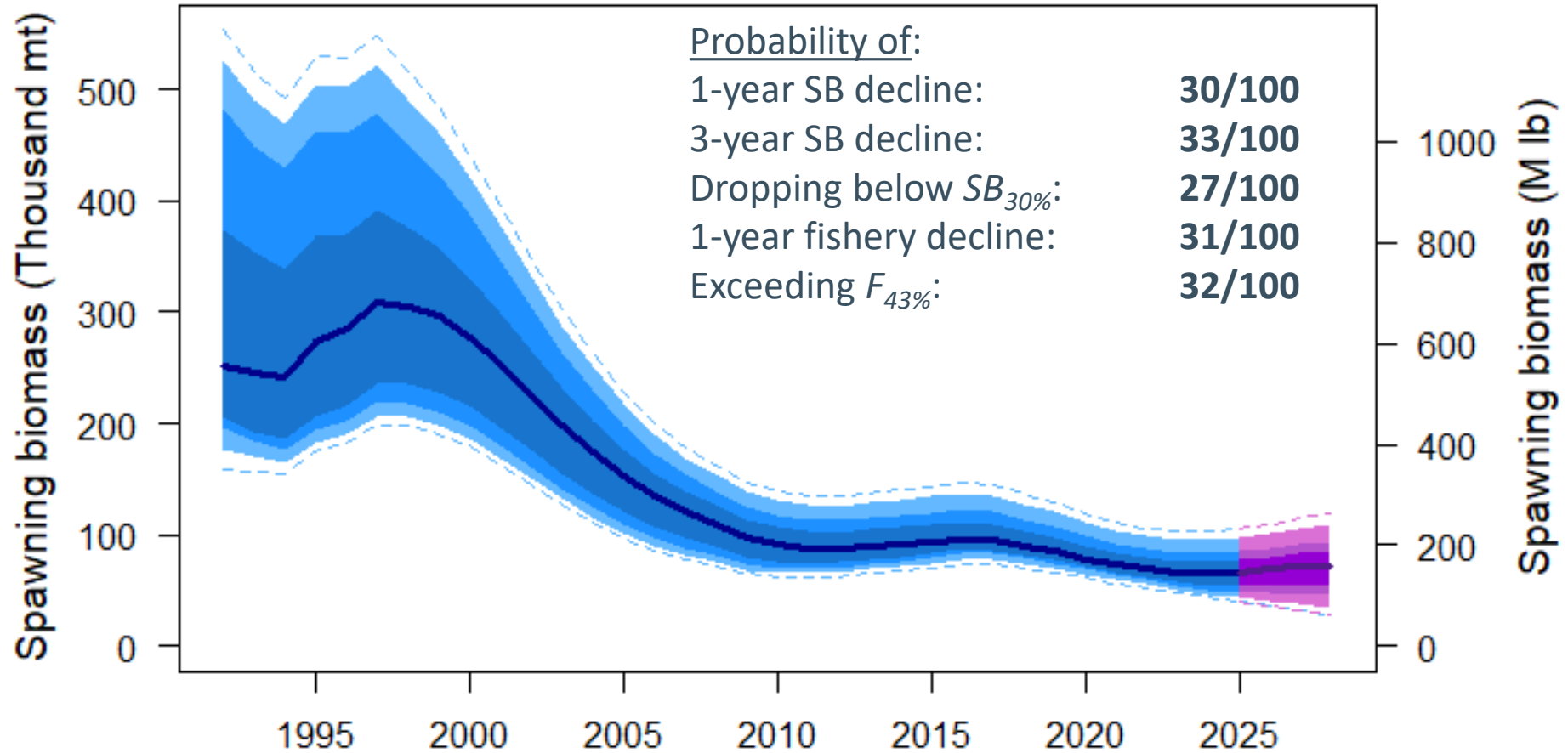
Estimated risks



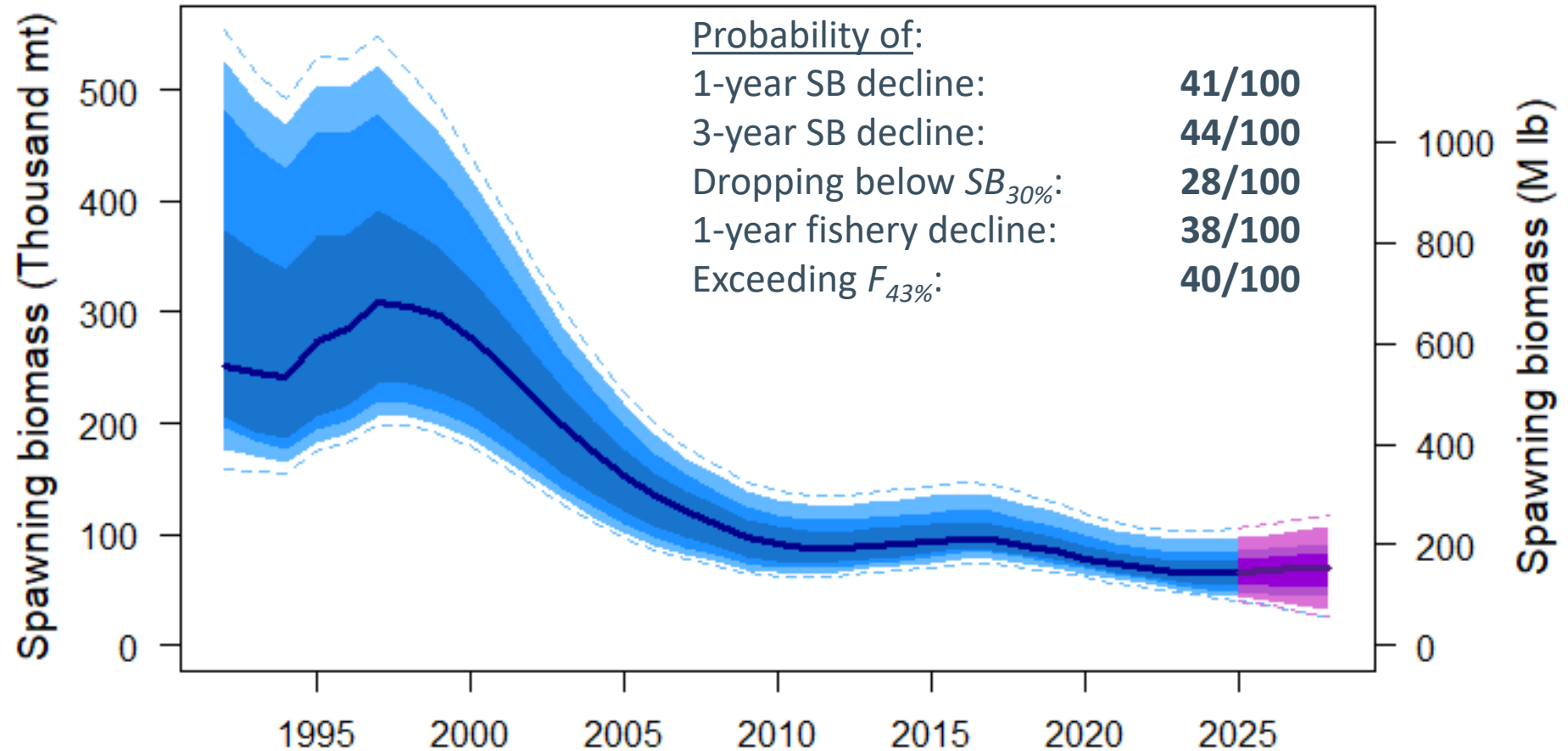
Projections: no fishing mortality (TCEY = 0; SPR = 100%)



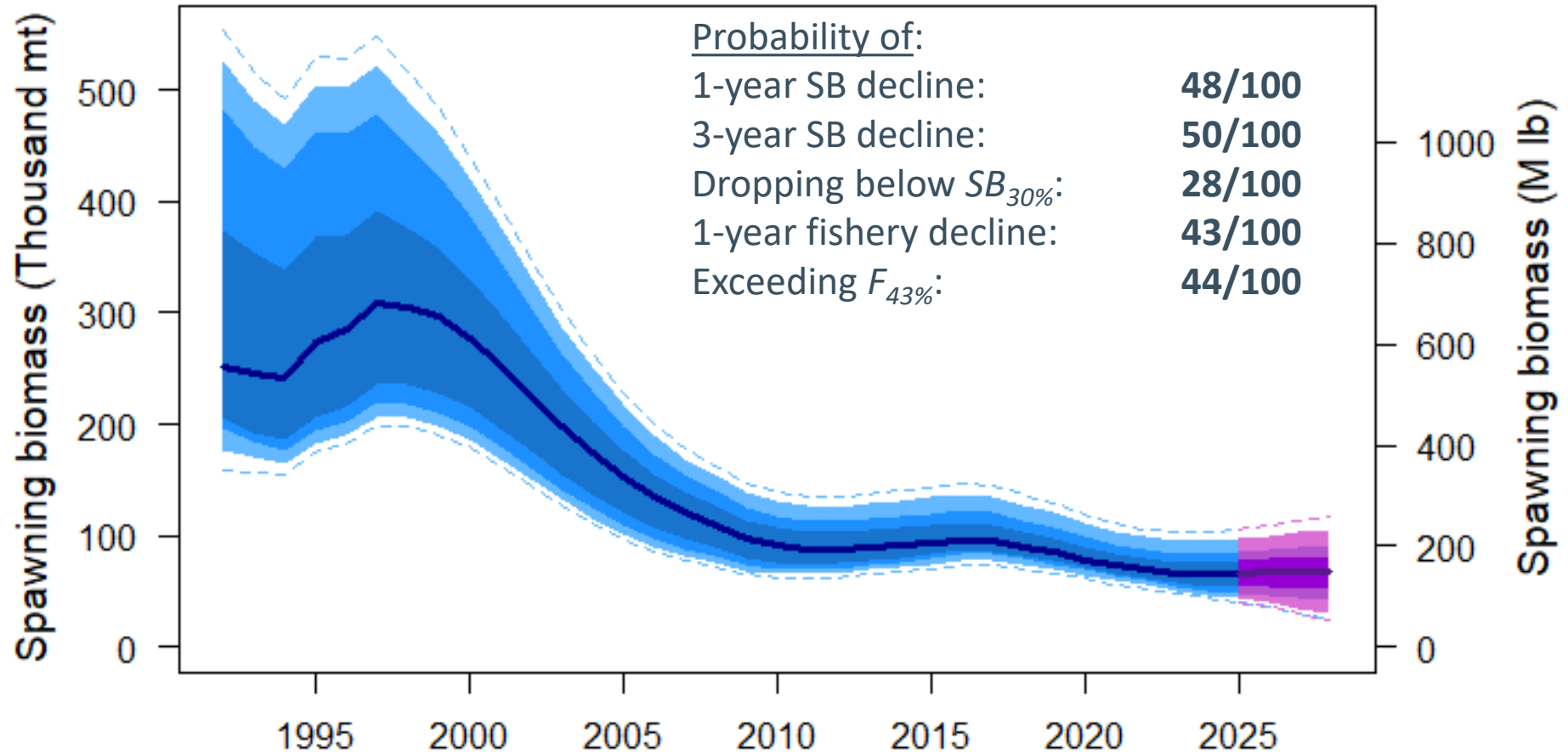
Projections: status quo -10% (TCEY = 31.76 Mlb; SPR = 50%)



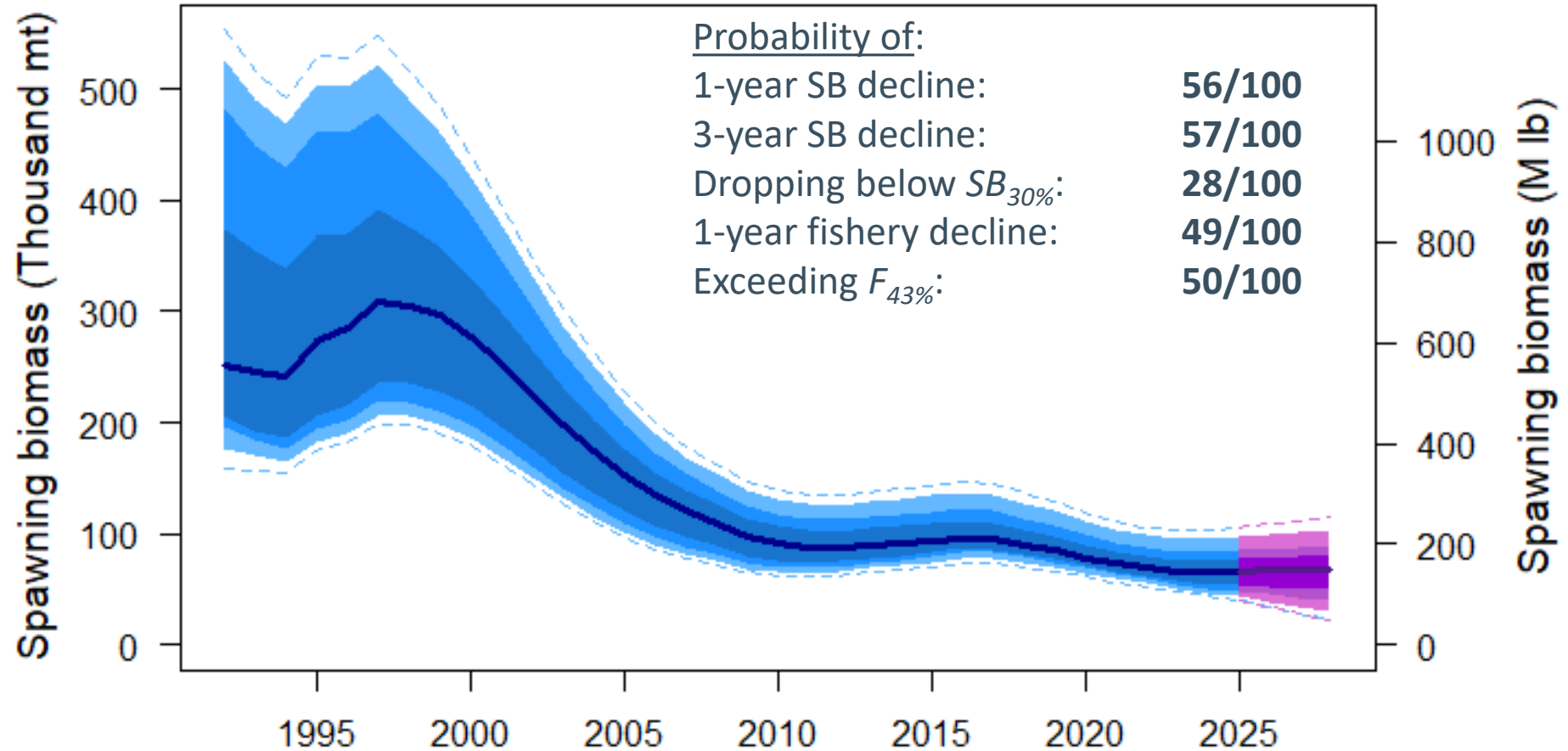
Projections: status quo (TCEY = 35.28 Mlb; SPR = 46%)



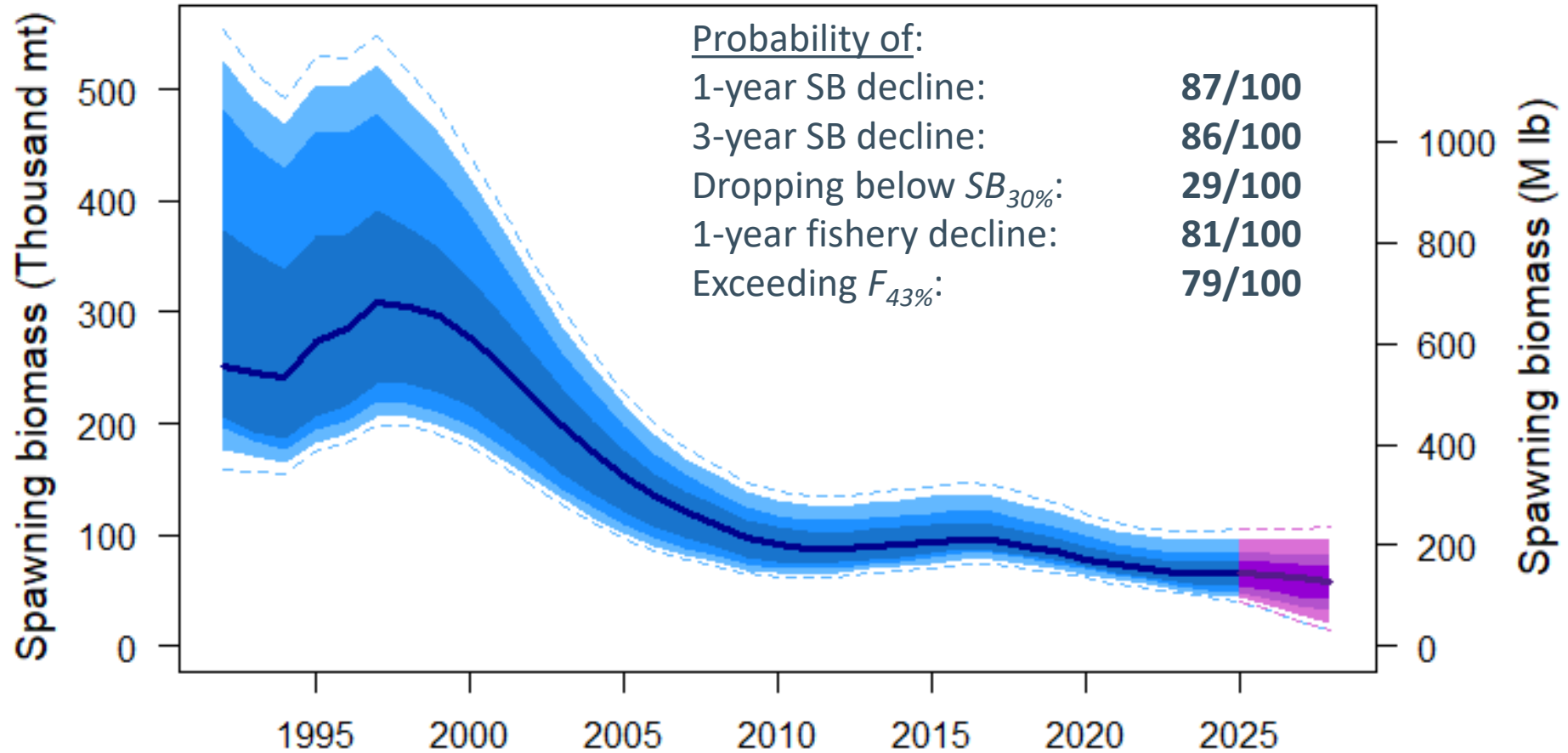
Projections: 3-year surplus (TCEY = 37.35 Mlb; SPR = 45%)



Projections: Reference (TCEY = 39.83 Mlb; SPR = 43%)



Projections: MSY proxy (TCEY = 53.22 Mlb; SPR = 35%)



Harvest decision table

2025 Alternative

Total mortality (M lb)

0.0	21.8
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TCEY (M lb)

0.0	20.0
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2025 fishing intensity

F _{100%}	F _{63%}
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Fishing intensity interval

--	41-75%
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Status quo -10%	Status quo -5%	Status quo	F _{46%}	3-Year Surplus	Status quo +10%	Reference F _{43%}	MEY proxy	MSY proxy
33.6	35.4	37.1	37.8	39.2	40.7	41.7	46.1	55.1
31.8	33.5	35.3	35.9	37.4	38.8	39.8	44.3	53.2
F _{50%}	F _{48%}	F _{46%}	F _{46%}	F _{45%}	F _{44%}	F _{43%}	F _{40%}	F _{35%}
28-65%	27-63%	26-62%	25-61%	24-60%	23-59%	23-59%	21-56%	17-51%

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Projection summary

- Poor recruitment continues and is likely to limit short-term yields even if strong year-classes emerge in the future
- These projections already rely on the still uncertain 2016 year-class
- *Additional risks not included in the decision table:*
 - An additional decline of 5% in the 2024 commercial fishery CPUE when updated next year would move the status quo TCEY from $F_{46\%}$ to $F_{45\%}$
 - Stock remains at historical low spawning biomass and low productivity
 - Low catch rates in the FISS and directed commercial fishery
 - Ecosystem uncertainty remains high



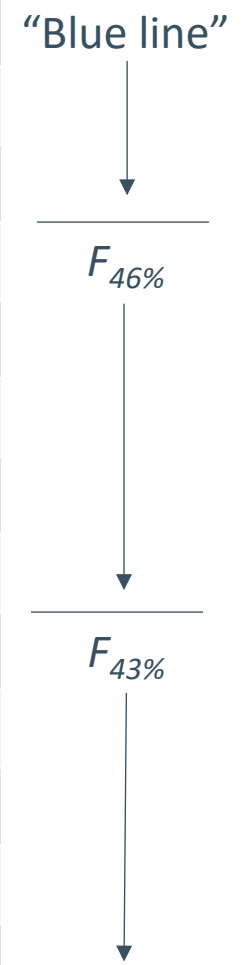
Recent adopted TCEYs

	2A	2B	2C	3A	3B	4A	4B	4CDE	Total
2013	1.11	7.78	5.02	17.07	5.87	2.43	1.93	4.28	45.48
2014	1.11	7.64	5.47	12.05	3.73	1.56	1.49	3.58	36.65
2015	1.06	7.91	6.20	13.00	3.72	1.96	1.53	4.27	39.63
2016	1.26	8.24	6.54	12.75	3.41	1.95	1.37	4.07	39.59
2017	1.47	8.32	7.04	12.96	3.98	1.80	1.34	3.84	40.74
2018	1.32	7.10	6.34	12.54	3.27	1.74	1.28	3.62	37.21
2019	1.65	6.83	6.34	13.50	2.90	1.94	1.45	4.00	38.61
2020	1.65	6.83	5.85	12.20	3.12	1.75	1.31	3.90	36.60
2021	1.65	7.00	5.80	14.00	3.12	2.05	1.40	3.98	39.00
2022	1.65	7.56	5.91	14.55	3.90	2.10	1.45	4.10	41.22
2023	1.65	6.78	5.85	12.08	3.67	1.73	1.36	3.85	36.97
2024	1.65	6.47	5.79	11.36	3.45	1.61	1.25	3.70	35.28



Recent adopted TCEYs

	2A	2B	2C	3A	3B	4A	4B	4CDE	Total	'Reference' TCEY Coastwide
2013	1.11	7.78	5.02	17.07	5.87	2.43	1.93	4.28	45.48	36.63
2014	1.11	7.64	5.47	12.05	3.73	1.56	1.49	3.58	36.65	33.48
2015	1.06	7.91	6.20	13.00	3.72	1.96	1.53	4.27	39.63	35.48
2016	1.26	8.24	6.54	12.75	3.41	1.95	1.37	4.07	39.59	36.31
2017	1.47	8.32	7.04	12.96	3.98	1.80	1.34	3.84	40.74	39.10
2018	1.32	7.10	6.34	12.54	3.27	1.74	1.28	3.62	37.21	31.00
2019	1.65	6.83	6.34	13.50	2.90	1.94	1.45	4.00	38.61	40.00
2020	1.65	6.83	5.85	12.20	3.12	1.75	1.31	3.90	36.60	31.90
2021	1.65	7.00	5.80	14.00	3.12	2.05	1.40	3.98	39.00	39.00
2022	1.65	7.56	5.91	14.55	3.90	2.10	1.45	4.10	41.22	41.22
2023	1.65	6.78	5.85	12.08	3.67	1.73	1.36	3.85	36.97	51.95
2024	1.65	6.47	5.79	11.36	3.45	1.61	1.25	3.70	35.28	48.88
2025										39.83



Recommendations

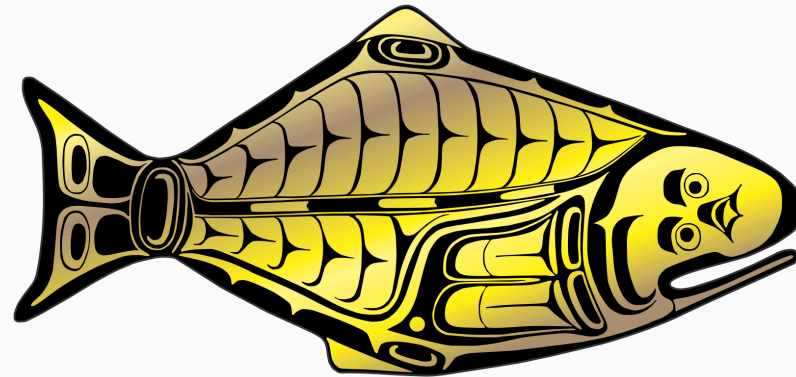
That the Commission:

- 1) **NOTE** paper IPHC-2024-IM100-13 Rev_1, which provides a summary of projections and the harvest decision table for 2025-2027.
- 2) **REQUEST** any additional harvest decision table alternatives for evaluation at AM101.
- 3) **REQUEST** any detailed mortality projections¹ for 2025 (by IPHC Regulatory Area and fishery sector) for evaluation at AM101.

¹Detailed projections will include revised non-directed discard estimates through the end of 2024, available in early January.



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