10. Assessment of the Northern Rockfish stock complex in the Gulf of Alaska

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Tier 1

Quantity/Status	As estimated or *specified last* year for:		As estimated or *recommended this* year for:	
	2021	2022	2022[*]	2023[*]
M (natural mortality)	0.059	0.059	0.059	0.059
Tier	1a	1a	1a	1a
Projected total (age 2+) biomass (t)	102,715	99,957	100,371	96,045
F_{OFL}	42,791	40,462	40,474	37,408
$maxF_{ABC}$	84,832	84,832	84,832	84,832
F_{ABC}	33,933	33,933	33,933	33,933
$maxABC$ (t)	0	0	0	0
maxFABC	0.061	0.061	0.061	0.061
FABC	0.061	0.061	0.061	0.061
OFL (t)	6,396.000	6,088.000	6,143.000	5,874.000
maxABC (t)	5,358	5,100	5,147	4,921
ABC (t)	5,358	5,100	5,147	4,921
	N/A			
Status	2020	2021	2021	2022
Overfishing		n/a		n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a		n/a	

[*]Projections are based on an estimated catch of 2,842 t for 2021 and estimates of 3,489 t and 2,884 t used in place of maximum permissible ABC for 2022 and 2023.

Tier 3

Quantity/Status	As estimated or *specified last* year for:		As estimated or *recommended this* year for:	
	2021	2022	2022[*]	2023[*]
M (natural mortality)	0.059	0.059	0.059	0.059
Tier	3a	3a	3a	3a
Projected total (age 2+) biomass (t)	102,715	99,957	100,371	96,045
Projected female spawning biomas (t)	42,791	40,462	40,474	37,408
$B_{100\%}$	84,832	84,832	84,832	84,832
$B_{40\%}$	33,933	33,933	33,933	33,933
$B_{35\%}$	29,691	29,691	29,691	29,691
F_{OFL}	0.073	0.073	0.073	0.073
$maxF_{ABC}$	0.061	0.061	0.061	0.061
F_{ABC}	0.061	0.061	0.061	0.061
OFL (t)	6,396	6,088	6,143	5,874
$maxABC$ (t)	5,358	5,100	5,147	4,921
ABC (t)	5,358	5,100	5,147	4,921
Status	As determined *last* year for:		As determined *this* year for:	
	2020	2021	2021	2022
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

[*]Projections are based on an estimated catch of 2,842 t for 2021 and estimates of 3,489 t and 2,884 t used in place of maximum permissible ABC for 2022 and 2023.

Tier 5

Quantity/Status	As estimated or *specified last* year for:		As estimated or *recommended this* year for:	
	2021	2022	2022	2023
M (natural mortality)	0.059	0.059	0.059	0.059
Tier	5	5	5	5
Biomass (t)	102,715	99,957	100,371	96,045
F_{OFL}	0.073	0.073	0.073	0.073
$maxF_{ABC}$	0.061	0.061	0.061	0.061
F_{ABC}	0.061	0.061	0.061	0.061
OFL (t)	6,396	6,088	6,143	5,874
$maxABC$ (t)	5,358	5,100	5,147	4,921
ABC (t)	5,358	5,100	5,147	4,921
	As determined *last* year for:		As determined *this* year for:	
Status	2020	2021	2021	2022
Overfishing	No	n/a	No	n/a

Tier 6

Quantity/Status	As estimated or *specified last* year for:		As estimated or *recommended this* year for:	
	2021	2022	2022	2023
Tier	6	6	6	6
OFL (t)	6,396	6,088	6,143	5,874
*max*ABC (t)	5,358	5,100	5,147	4,921
ABC (t)	5,358	5,100	5,147	4,921
	As determined *last* year for:		As determined *this* year for:	
Status	2020	2021	2021	2022
Overfishing	No	n/a	No	n/a