Response to FMAC request for budget scenarios: Partial Coverage Observer Trip-Selection Pool

FMA Division of the AFSC

September 27, 2019

The FMA Division of the AFSC presented a budget scenario tool that allowed participants of the FMAC to evaluate potential costs of the partial coverage trip selection pool in 2020 and beyond in terms of the calendar year and contract year. This is the tool used internally by the Fisheries Monitoring and Analysis Division to set the draft ADP budget. The tool enables changes to: the amount of fee money from the ex-vessel value on the partial coverage fleet, the amount of Federal funds to support the 2020 ADP, the amount of money needed to support an EM program each calendar year, the size (number of days in the calendar year) for the partial coverage observer program in 2020 and the size (number of days in the calendar year) for the partial coverage observer program in 2021-2023.

Three scenarios were requested to be presented as part of the minutes to the September 2019 meeting. They are presented as Figures 1-3. In review of these values it is important for the reader to understand that the number of days purchased in each ADP or contract year in this tool will not match those presented in the Draft ADP. While both methods use updated costs per day following the new contract, the 2020 draft ADP method applies a travel ratio to estimate total costs for observer deployment, while the method in this budgetary tool uses a regression model of travel costs to total days from 2017-2018 (Figure 4).

Note: the "Injection of Federal Money in Aug. 2020" refers to the one-time expectation of funding from the NMFS Office of Science and Technology for supporting the fixed-gear EM fleet. These figures do not assume additional Federal funding in future years.

Figure 1   **Scenario 1 requested by FMAC where a $4.15 M partial coverage observer program is in place for 2020 calendar year, $1M of fee funding is used to support fixed gear EM, and the same sized partial observer program (in days) is maintained throughout each year of the contract.**

User inputs

Annual Federal Fee Money	$ 2,929,966.00	
Annual Cost of EM	$ (1,000,000.00)	
Injection of Federal Money in Aug. 2020	$ 600,000.00	
Target Days in 2020 ADP	2972	These values will not match draft ADP values because cost estimate methods differ.
Target Day in 2021 and Subsequent ADPs	2972	These values will not match draft ADP values because cost estimate methods differ.

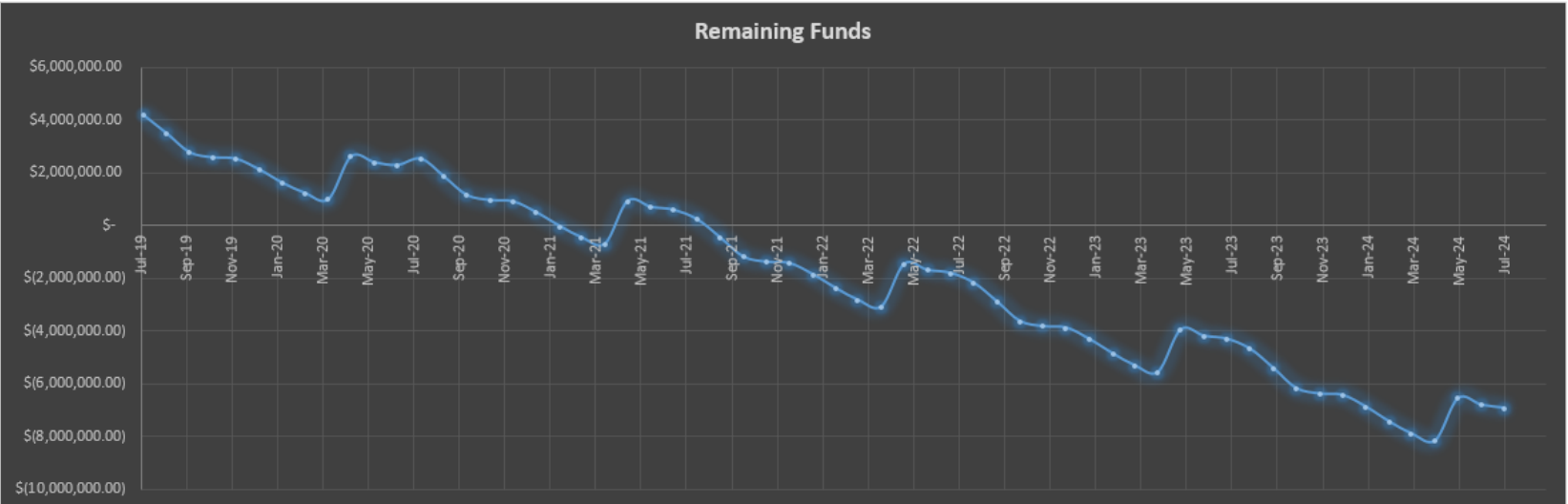|	Contract					ADP				
Year	Days	Cost Estimated	Funds at Start	Min Value During	Efficiency ($/day)	Days	Cost Estimated	Funds at Start	Min Value During	Efficiency ($/day)
2019	NA	NA	NA	NA	NA	3109	$ 4,097,330.02	NA	NA	NA
2020	3028	$ 4,191,154.83	$ 4,548,575.66	All good	$ 1,384.10	2972	$ 4,149,346.63	$ 2,528,775.39	All good	$ 1,396.15
2021	2972	$ 4,226,791.38	$ 2,887,386.83	$ (693,503.09)	$ 1,422.20	2972	$ 4,273,842.58	$ 909,394.77	$ (1,434,481.81)	$ 1,438.04
2022	2972	$ 4,323,746.90	$ 590,561.46	$ (3,074,598.94)	$ 1,454.83	2972	$ 4,375,444.83	$ (1,434,481.81)	$ (3,879,960.64)	$ 1,472.22
2023	2972	$ 4,430,276.70	$ (1,803,219.44)	$ (5,560,972.44)	$ 1,490.67	2972	$ 4,487,691.81	$ (3,879,960.64)	$ (6,437,686.45)	$ 1,509.99
2024	2972	$ 4,548,286.58	$ (4,303,530.13)	$ (8,164,009.30)	$ 1,530.38	NC	NC	$ (6,890,116.89)	NC	NC
2025	NC	NC	$ (6,921,850.71)		NC	NC	NC	NC	NC	NC

Remaining Funds

Figure 2   Scenario 2 requested by FMAC where a $4.15 M partial coverage observer program is in place for 2020 calendar year but has been reduced to a "minimum" contract size of 2000 days thereafter for the duration of the contract. As in the previous scenario, $1M of fee funding is used to support fixed gear EM.

User inputs

Annual Federal Fee Money	$ 2,929,966.00
Annual Cost of EM	$ (1,000,000.00)
Injection of Federal Money in Aug. 2020	$ 600,000.00
Target Days in 2020 ADP	2972 These values will not match draft ADP values because cost estimate methods differ.
Target Day in 2021 and Subsequent ADPs	2000 These values will not match draft ADP values because cost estimate methods differ.

| Year		Contract					ADP				
	Days	Cost Estimated	Funds at Start	Min Value During	Efficiency ($/day)	Days	Cost Estimated	Funds at Start	Min Value During	Efficiency ($/day)
2019	NA	NA	NA	NA	NA	3109	$ 4,097,330.02	NA	NA	NA
2020	3028	$ 4,191,154.83	$ 4,548,575.66	All good	$ 1,384.10	2972	$ 4,149,346.63	$ 2,528,775.39	All good	$ 1,396.15
2021	2398	$ 3,711,439.01	$ 2,887,386.83	$ (347,056.50)	$ 1,547.83	2000	$ 3,140,420.93	$ 909,394.77	$ (347,056.50)	$ 1,570.21
2022	2000	$ 3,431,716.67	$ 1,105,913.82	$ (1,586,830.13)	$ 1,715.86	2000	$ 3,466,506.67	$ (301,060.16)	$ (1,837,600.83)	$ 1,733.25
2023	2000	$ 3,516,716.67	$ (395,836.86)	$ (3,155,584.99)	$ 1,758.36	2000	$ 3,555,354.03	$ (1,837,600.83)	$ (3,462,988.87)	$ 1,777.68
2024	2000	$ 3,611,116.67	$ (1,982,587.53)	$ (4,816,749.71)	$ 1,805.56	NC	NC	$ (3,776,296.04)	NC	NC
2025	NC	NC	$ (3,663,738.21)		NC	NC	NC	NC	NC	NC

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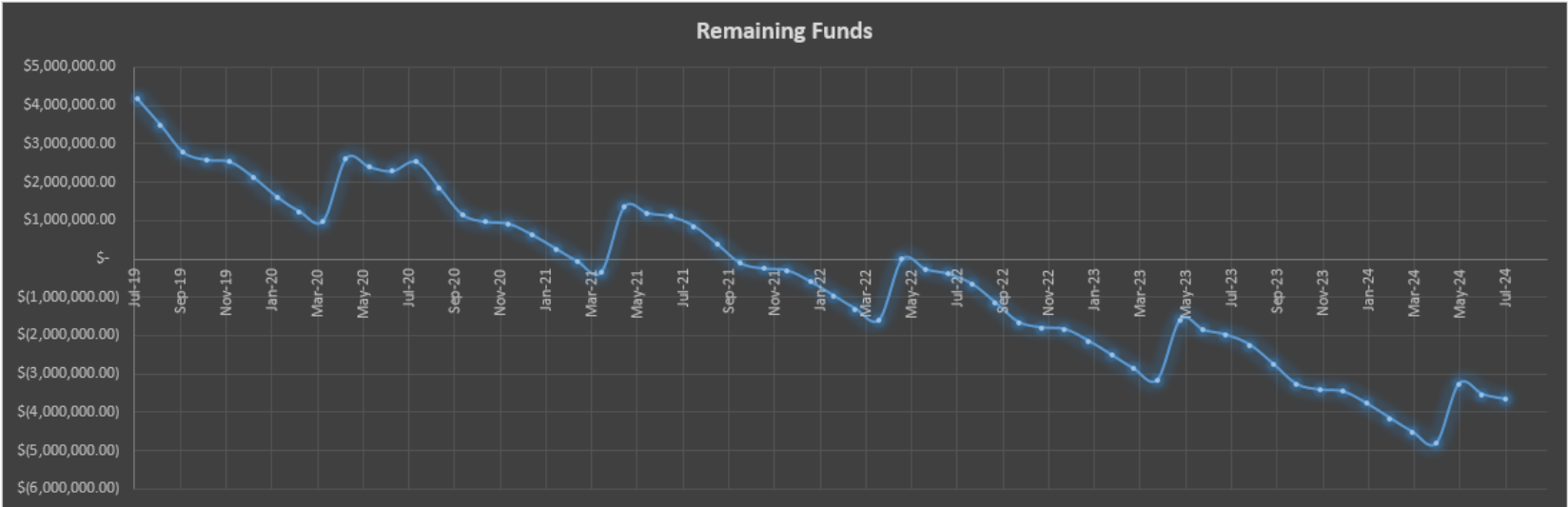
Figure 3   Scenario 3 requested by FMAC where a $4.15 M partial coverage observer program is in place for 2020 calendar year and the same sized program (in days) is maintained throughout the contract but the fee money each year is increased to $5.5 M. As in the past scenarios, $1M of fee funding is used to support fixed gear EM.

User inputs

Annual Federal Fee Money	$ 5,500,000.00
Annual Cost of EM	$ (1,000,000.00)
Injection of Federal Money in Aug. 2020	$ 600,000.00
Target Days in 2020 ADP	2972 These values will not match draft ADP values because cost estimate methods differ.
Target Day in 2021 and Subsequent ADPs	2972 These values will not match draft ADP values because cost estimate methods differ.

| Year	Contract					ADP				
	Days	Cost Estimated	Funds at Start	Min Value During	Efficiency ($/day)	Days	Cost Estimated	Funds at Start	Min Value During	Efficiency ($/day)
2019	NA	NA	NA	NA	NA	3109	$ 4,097,330.02	NA	NA	NA
2020	3028	$ 4,191,154.83	$ 4,548,575.66	All good	$ 1,384.10	2972	$ 4,149,346.63	$ 2,528,775.39	All good	$ 1,396.15
2021	2972	$ 4,226,791.38	$ 5,457,420.83	All good	$ 1,422.20	2972	$ 4,273,842.58	$ 3,479,428.77	All good	$ 1,438.04
2022	2972	$ 4,323,746.90	$ 5,730,629.46	All good	$ 1,454.83	2972	$ 4,375,444.83	$ 3,705,586.19	All good	$ 1,472.22
2023	2972	$ 4,430,276.70	$ 5,906,882.56	All good	$ 1,490.67	2972	$ 4,487,691.81	$ 3,830,141.36	All good	$ 1,509.99
2024	2972	$ 4,548,286.58	$ 5,976,605.87	All good	$ 1,530.38	NC	NC	$ 3,390,019.11	NC	NC
2025	NC	NC	$ 5,928,319.29		NC	NC	NC	NC	NC	NC

Remaining Funds

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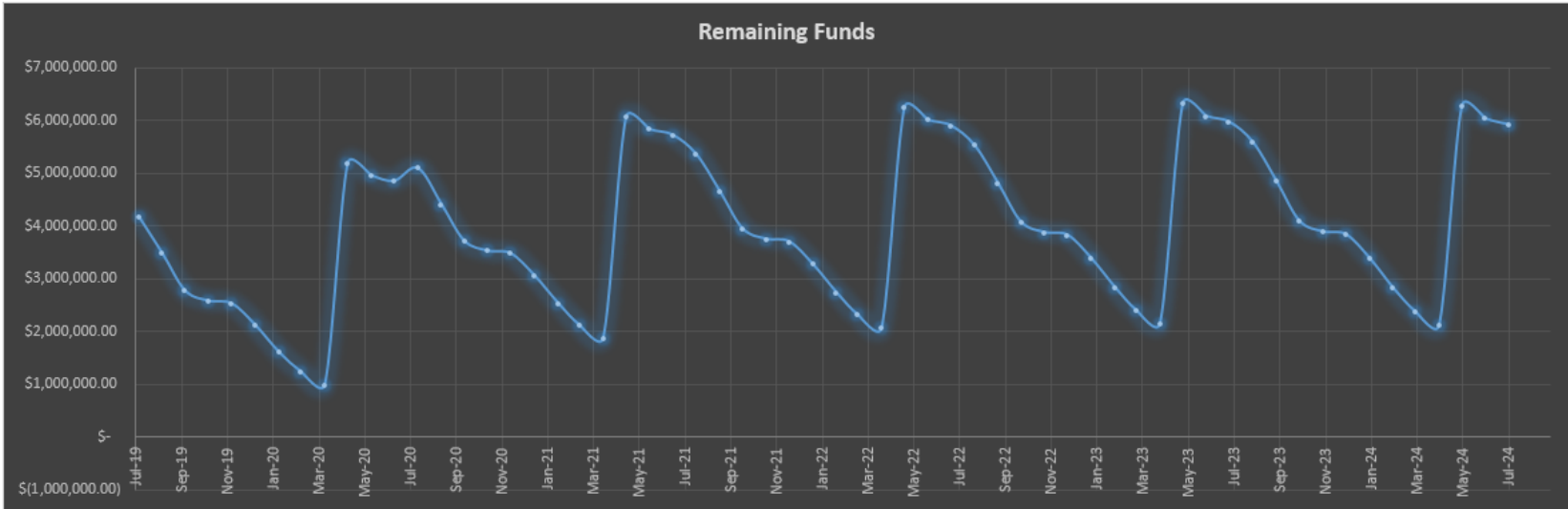
Figure 4 **Regression of total partial coverage trip-selection days observed (x-axis) against the total travel dollars (vertical axis) from each month during 2017 and 2018 calendar year.**

The dotted line is the linear regression fit, which was reasonable ($r2 = 0.80$). Axis labels and regression equation values are purposely absent since their inclusion may enable contracted cost per day values to be derived.