

VIRGINIA SALTWATER RECREATIONAL FISHING DEVELOPMENT FUND SUMMARY PROJECT APPLICATION*



NAME AND ADDRESS OF APPLICANT: Robert L. O'Reilly VMRC Dr. Yan Jiao Virginia TECH Dr. Patrick Campfield ASMFC	PROJECT LEADER (name, phone, e-mail): Dr. Yan Jiao 540.231.5749 yjiao@vt.edu																									
PRIORITY AREA OF CONCERN: Weakfish: inadequate modeling framework and lack of biological reference points, with a need for those, in time for the next stock assessment	PROJECT LOCATION: Virginia Tech; VMRC; ASMFC																									
DESCRIPTIVE TITLE OF PROJECT: Cooperative (VMRC, Va Tech, ASMFC) Efforts to Utilize Alternative Methods for the Upcoming Stock Assessment of Weakfish. R. O'Reilly, VMRC, Y. Jiao, VPI, P. Campfield, ASMFC.																										
PROJECT SUMMARY: This proposal offers a practical continuation of a 3-year project ('Improving Stock Assessment of the Atlantic Weakfish') previously supported by the RFAB and funded by the VMRC. It is now proposed to utilize the methods developed from the 3year project (e.g. standardization of various juvenile and adult surveys, results from modeling on varying natural mortality and growth rates), within the framework of the ASMFC stock assessment process whereby one outcome would be the development of biological reference points (overfishing and overfished). This collaborative project is anticipated as a 2-year project that would allow one Virginia Tech graduate research student to provide model expertise toward the completion of the next benchmark assessment for weakfish.																										
EXPECTED BENEFITS: A benefit of this proposed project is in its application of the completed model results (funded by the Commission, at the recommendation of the RFAB) into a stock assessment process, within the ASMFC. The weakfish population is severely depleted, with natural mortality linked to that status. The fisheries along the coast have been reduced to marginal harvest levels by the ASMFC. Weakfish mature early (90% by age 1) and a rebound of the population (similar to what occurred in Atlantic croaker 15 years ago) should be planned for, by having safe abundance or biomass and annual harvest rates developed now. The VMRC, Virginia Tech and ASMFC, as sponsors, of this additional project will be recognized for their vision, as another benefit. Also beneficial is that this project, fro year 1, is expected to cost \$60,000, and that will be shared among the three agencies.																										
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Updated 11/12/08

*This form alone does not constitute a complete application, see application instructions or contact Sonya Davis at 757-247-8155 or sonya.davis@mrc.virginia.gov

PERFORMANCE PERIOD: 1/1/13 - 12/31/13

	<u>NAME/POSITION</u>	<u>YEAR 1</u>	
		<u>SPONSOR</u>	<u>VT</u>
1.	Y. Jiao (CY)	0% \$0	0% \$0
2.	NAME/POSITION	0% \$0	0% \$0
3.	GRA - Step 12	41% \$8,393	0% \$0
4.	Post Doc (TBN)	0% \$0	0% \$0
TOTAL PERSONNEL SALARIES		\$8,393	\$0
FRINGE BENEFITS			
	FACULTY & SPEC. RES. FAC.	\$0	\$0
	SMR/WAGES	\$0	\$0
	GRA	\$923	\$0
	Classified	\$0	\$0
TOTAL FRINGE BENEFITS		\$923	\$0
TOTAL SALARIES & FRINGES		\$9,316	\$0
TUITION & ACAD. FEE - AY		\$4,984	\$0
TRAVEL - Blacksburg 6 person 1 time		\$0	
TRAVEL - VMRC 1 person 3 times		\$1,000	\$1,000
TRAVEL - AFS Conference			
MATERIALS & SUPPLIES		\$0	\$2,000
(Computer)			
CONTRACTUAL SERVICES		\$700	\$2,200
(MATLAB (\$1500) and ADNB (\$700))			
TOTAL DIRECT COSTS		\$16,000	\$5,200
INDIRECT COSTS @ 56.8%		\$3,129	\$1,477
INDIRECT COSTS @ 58.5%		\$3,222	\$1,521
VSRFDF Allowed Indirect @ 25% TDC		\$4,000	
WAIVED INDIRECT		(\$6,351)	\$2,351
TOTAL COSTS		\$20,000	\$10,549

FRINGE RATE SCHEDULE (provisional-ONR approved)		7/1/06 - 6/30/07	On or after 7/1/07
Regular Faculty	33%	32.00%	
Special Research Faculty	36%	36.50%	
Part-Time Faculty	16%	16.25%	
SMR/WAGES	8%	8.50%	
GRA	9%	11.00%	
CLASSIFIED	44%	45.50%	

Time and cost to finish the work listed above in blue and green {Items in red need larger support and cooperation from SASC and TC, so we decide not to put in budget now. }

Items	Time needed	Funding expected
In Blue	1-2 years and we can be flexible on it if ASMFC needs the model because of a solid deadline	equipment (2 high speed workstations) \$30,000; one GRA support (stipend, benefit and tuition) for 1 year which is about \$36,000; travel for \$4,000 (discuss with ASMFC for travel needs) Total = \$70,000
In Green	2 years to finish also and this include the time to finish the writing	one GRA support for 2 year which is about \$72,000; \$30,000 per year for the professors' efforts at Virginia Tech for 2 years; Travel (combine into above) Total = \$132,000
Total	2 years	\$202,000

Itemized budget for ASMFC and VMRC proposals and contracts in 2012:

	ASMFC	VMRC
Funds Available	\$22,500 = \$30,000-\$7,500 (25%)	\$15,000 = \$20,000-\$5,000 (25%)
GRA tuition and benefits		\$12,756 = \$11,000 + \$1,756
GRA stipend	\$23,412	
Travel to ASMFC meetings	<i>will be covered separately</i>	

Weakfish research recommendations

Blue = Tasks requiring no TC/SASC involvement (Jiao lab)

Green = Tasks requiring some TC/SASC advise, guidance (Jiao lab)

RED = Tasks requiring extensive TC/SASC involvement (major model development involving Jiao lab and TC/SASC)

VVM (VirginiaTech and VMRC model for weakfish) model development and coding tasks

- Explore hypotheses of recruitment and investigate the influence of building the SR models inside vs. outside of the statistical catch-at-age models
- Explore the performance of adding covariance on M variation but using stationary relationship (This can be compared by assuming a nonstationary time series model, such as random walk)
- Make it more executable for retrospective analyses and for the convenience of selecting abundance indices
- Explore ways to save computing time but maintain the quality of the stock assessment, such as using semi-informative prior from previously year's stock assessment results, simulation study to investigate the possible estimation uncertainty caused by MCMC

VVM (VirginiaTech and VMRC model for weakfish) possible NEW model development tasks

- Developing new survey designs either at the state-level or on a larger spatial scale, based on the available budget of the surveys. Simulation study can be used to compare the performance of proposed designs and the currently used designs given the characteristics of weakfish's dynamics pattern
- Update abundance index estimation and explore possible alternative methodology, such as a hierarchical or space-time models.
- Synthesize historical long term abiotic and biotic data that might influence weakfish dynamics, explore the possible driving factors of weakfish's nonstationary dynamics using data mining techniques
- Explore alternative ways to decrease uncertainty in projecting nonstationary population dynamics
- Explore alternative management strategies given nonstationary M and spatial variation of weakfish