The 2014 Deep Creek Lake Sediment Study: Background, Summary, and Critique

Executive Summary

The recently released DCL Sediment Study is the last step of the DNR-led research that began four years ago. The Study presents excellent baseline data on sediment accumulation. It falls short of what is needed because data is not organized in a manner that provides detailed analysis of each of the 10 sediment-impacted coves.

Prior to release of the Study, DNR issued the following statement: "it is not in the best interest of the State" to dredge the lake. However, a close look shows the Study actually makes the case for dredging. There are serious negative impacts as a direct result of sediment accumulation—on lake property owners, tourists, recreational users, and tourism-related businesses, County revenues and the regional economy. Given sediment will continue to accumulate and more areas of the lake will be negatively impacted, the case for dredging **now** is strong.

We need immediate action, not more studies and delays. If no action takes place, lake sediment problems and economic impacts will grow and spread, and the costs for dredging will increase.

Introduction

The following analysis includes:

1) DNR policy regarding dredging
2) How we got to this point
3) Critique of the Study
3) Map of sediment-impacted coves, various spreadsheets showing impacts and costs

1) DNR Policy regarding dredging

Griffin policy supported a proactive approach—Former DNR Secretary John Griffin articulated an approach to lake management that we applaud. When he announced DNR would undertake a DCL sediment study at our August 2010 Watershed Forum, he stated: "From everything we know, the lake **does not have any imminent problem.** There are **some warning signs**, if you will, that **we want to pay more attention to.**. I don't see any smoking guns, thankfully, in terms of

lake health that would cause alarm at the moment . . . All the better reason to get ahead of the problem as opposed to letting it develop and then have a major price tag which no one seems to be able to fund and a declining lake and declining economy around it. I can assure you that none of us or you wants to see this to happen. We are in a good position, if we just work together, be better stewards, do things we all need to do—government, citizens in this watershed."

In 2010 there was no smoke. Just four short years later, there is a lot of smoke and its spreading, threatening the lake health. The threats are 1) 10 lake coves are defined by DNR to be impacted by sediment; 2) DNR surveys show that Eurasian Watermilfoil, an invasive aquatic species, is now found throughout the lake; and 3) hydrilla, one of the world's most aggressive species, was discovered last fall by DNR. These reinforce the need for immediate action, not delay.

State policy on dredging—When the State purchased the lake in 2001, the sediment problem was well-known. The DCL Recreation and Land Use plan incorporated a provision permitting abutting private property owners to file a DNR application and then proceed with the Maryland Department of the Environment (MDE) to develop a removal plan. All costs of this remedial action are to be paid for by property owners. No property owner or group has undertaken dredging.

Our position on the existing policy—The State of Maryland owns DCL, specifically the bottom of the lake and the buffer strip. DNR, as the lead agency, is responsible under the law for management and protection of the lake. It is inappropriate to privatize the costs of sediment removal in the State-owned lake. Further it places an undue burden on the owners, since they are not the only users of the impacted cove.

Reconsideration of policy—In the winter of 2013, FoDCL hired a public relations firm in Annapolis to evaluate options of state funding for lake dredging. In a conversation with then Secretary Griffin, a proposal to finance dredging by floating a bond was discussed. Griffin expressed his openness to this option. A bond would bring the State to the table and bring in the County and all lake property owners and users in a cost sharing financing package.

Backsliding—The 2014 DNR statement that "it is not in the best interest of the State" to dredge the lake is an unwelcomed retrenchment from the Griffin pro-active policy.

2) How we got to this point

The issue—**"The day the dam was completed, the lake began to collect sediment,"** according to Bruce Michael at DNR. Eighty-nine years later, DNR has determined DCL now has 10

The following figure displays the coves that are proposed for sediment management:

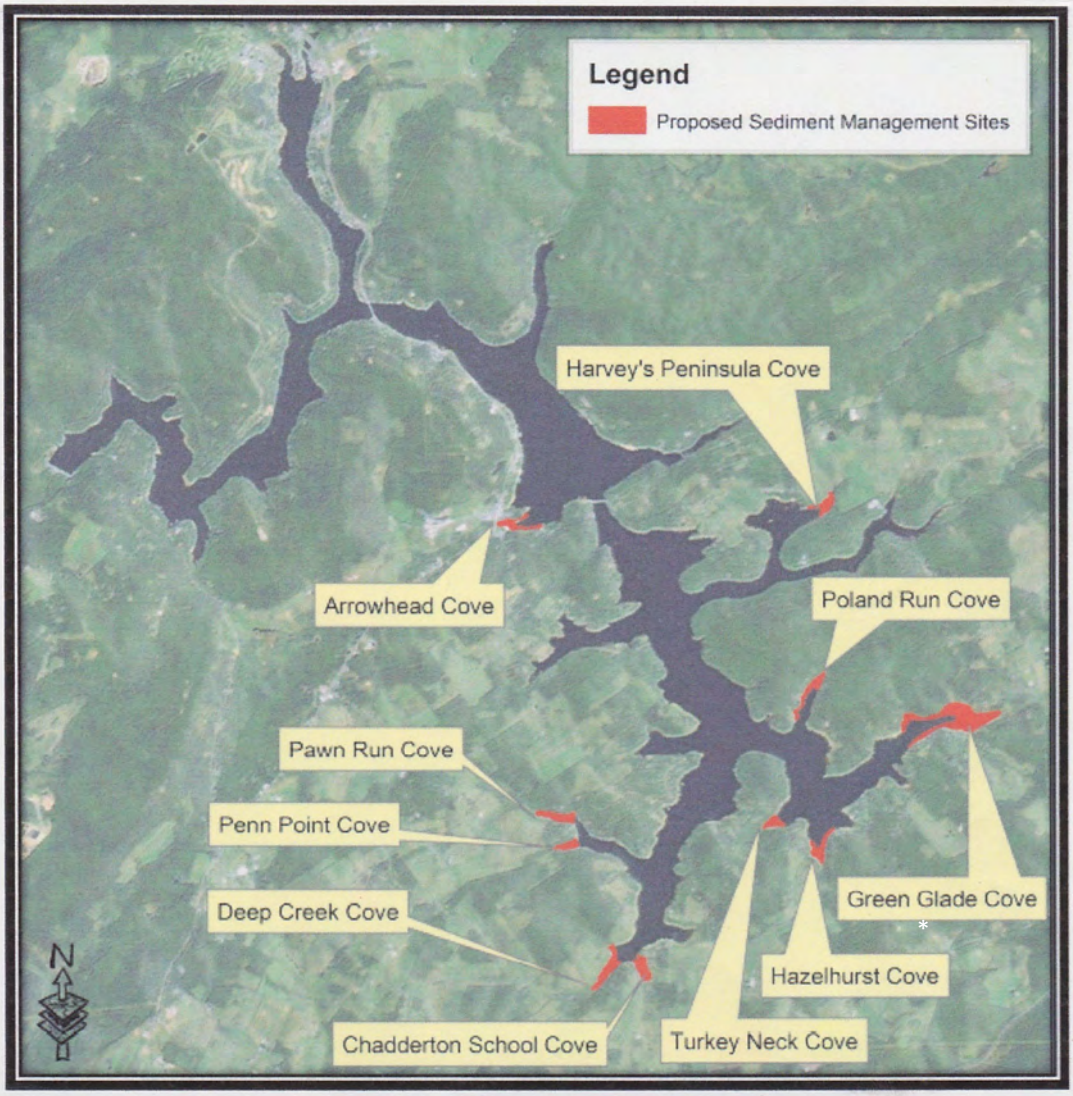

Figure 1.2 – Coves with Potential Sediment Management

* Note: Back Bay Cove is incorrectly identified throughout the Study as Turkey Neck Cove.

"sediment impacted" coves, but these are not the only areas where sediment is found and is accumulating. And worse, with delays and inaction, the sediment will continue to collect and spread.

Putting the issue on the table—Responding to growing complaints, in 2009, FoDCL circulated a petition requesting the DNR Secretary to take action on the sediment problem. The petition was presented to the Policy and Review Board; no action was taken. Our Board was invited to a high-level meeting at DNR in early 2010 at which time Secretary Griffin made a commitment to undertake a study of the problem. Since then DNR has conducted a number of excellent research projects. The last phase of the process was unfortunately contracted to a private engineering firm (WBCM) and not performed in-house by the Maryland Geological Survey staff.

"No funds"—The DNR Sediment Study at DCL has not been a seamless process. In 2012, DNR announced there were "no State funds" to support Phase II of the Study. In 2013, Garrett County Commissioners stepped forward, voting to provide $95,000 in County funds to DNR for the Study. At that time, the Commissioners stated they were willing to pay DNR so they could shape the Study's design. The DCL Property Owners Association stepped in with $20,000 and DNR eventually found the balance of $65,000. The almost one-year hiring process associated with engaging WBCM delayed the project an equal amount of time.

Study Release—In mid-February of 2014, Bruce Michael from DNR provided a "talking points" briefing to County Commissioners. At the end of March, Michael gave a very brief presentation to the DCL Policy and Review Board meeting. The following day, the 221-page Study was posted in a file too large to be downloaded.

No review, discussion, or reaction—There were few questions at the PRB meeting, since the Study was not available to Board members prior to their meeting. There has been little public comment or discussion on the report or findings. Since its release, there has been no serious review by lake stakeholders, policymakers and Study funders—the County, POA, and DNR.

Critique of the Sediment Study

See our Web site: www.friendsofdcl.org to read the DCL Sediment Study and the Talking Points.

Key issues covered in the Study and Talking Points

DNR decision—"The Department has determined that it is not in the State's best interest to pursue dredging of these relatively small coves due to the minimal benefit to the general boating public

and the possible deleterious impact on the lake." The DNR position is supported by three rationales:

"Relatively small coves"—This is a comparative statement. Small compared to what? Of course, any cove in DCL is small compared to the Bay, the DNR frame of reference. Within DCL these are not all small coves.

Both Green Glade and Harvey's are some of the largest coves on the lake.

Arrowhead, an impacted cove, may not be the largest in size but probably is the most important for lake-related businesses and recreational use. Many summers this cove becomes too shallow to access by the late August with serious consequences for these businesses.

"Minimal benefit to boating public"—Compared to what? Since there are no DCL cove data of frequency or nature of boating use, there is nothing upon which to support the statement that dredging would be of "minimal" benefit.

More importantly, boating use is only a part of "recreational use" set in the Code of Maryland Regulations (COMAR) sets as the highest use for DCL. Sediment accumulation impacts all recreational use, not just the "boating public".

"Deleterious impacts"— Is DNR suggesting there would be impact on the larger lake? There is nothing in the Study on this topic. Or is DNR referring to loss of access to the cove during the dredging? This loss would be 2-3 months either in the spring before Memorial Day or in the fall after Labor Day. Given these are off-season months, there would be very little impact to any community save the fishing community. Dredging companies in the Bay with extensive experience in short-term mitigation report the negative impacts of 2-3 months of disruption far outweigh the benefits for the impacted cove and for increased recreational use for all boaters.

DNR position does not take into consideration the economic impacts on property owners, lake-related businesses, tourism, County tax revenues nor impact on jobs in the regions. See chart on the following page for these costs of existing sediment accumulation.

DNR asserts sediment has positive value—In the talking points, DNR stated sediment is "of increased ecological value to the lake, particularly to increasing fishing populations due to abundance of submerged aquatic vegetation growth and shallow water habitat." This statement

Economic Impact of DCL Sediment Accumulation

Total number of parcels impacted		526 (1)
Number of lots owned by Garrett County residents	25%	134
Total valuation of the 10 impacted coves in 2013		$236,462,252.00
Total valuation of the 10 impacted coves in 2014		$205,624,801.00
Total valuation loss 2013 to 2014, average 20%		$44,195,067.00
Average loss per property		$84,020
Extent of Sediment and associated Invasive SAV Impact		
Percent of total lake properties	14-20%(2)	
Number of Garrett County residents in impacted coves		**$52,749,907**
Loss as direct result of sediment accumulation		
Percent of loss from sediment accumulations	25% (3)	
Value of additional loss		**$52,749,907**
Invasive species impact in sediment impacted coves (4)		
Coves with Eurasian Watermilfoil-- 100%		
Coves with Hydrilla beds, as of Fall 2013- 40%		
Percent of additional property loss	15% (5)	
Additional loss due to invasives in these coves		**$27.932.610**
TOTAL LOSS FROM SEDIMENT AND INVASIVE SAVS		**$80.682.517**
PROPERTY TAX REVENUES LOST TO COUNTY PER ANNUM		**$80,865.00**
No data available on other impacts. Loss of recreational use in these coves;		
loss to businesses; impact on tourism; and loss of jobs in the region.		
Data Sources		
(1) Number of parcels-- FoDCL compilation, differs with County;		
we included lake access parcels.		
(2) % of total parcels--estimate based on 2500 -3500 parcels ;		
neither the County nor the State have complete list of all lake parcels		
(3) 25% is low figure; County study ranged from 25%--35%		
(4) Invasive species information-- DNR SAV survey maps		
(5) 15% impact is commonly used figure of financial impact of invasive species		
Friends of Deep Creek Lake, 779 Chadderton School Road, Oakland MD 21550		
Web Site friendsofdcl.org Email: contact@friendsofdcl.org.		

contradicts both Federal and Maryland law which identify sediment as an "impairment" to clean water. Remedial action is required under the Clean Water Act. MDE states "sediment contributes to a decline in water quality by blocking sunlight, reducing photosynthesis, decreasing plant growth, destroying bottom dwelling species' habitat, carrying attached pollutants such as phosphorous, and so on. The list of negative impacts is long." (See MDE Web site: http://www.mde.state.md.us/Pages/Home.aspx)

Lake framework is lacking—The Study does not reflect or integrate into its analysis two fundamental components of DCL management.

1) Principles for lake management are set forth in COMAR as follows: "the protection of the lake as a natural resource, the preservation of its ecological balance, and furtherance of its highest use as a recreational resource (COMAR, 08.08.01)" Clearly, accumulation of sediment and accompanying nutrients and pollutants weaken ability of lake managers to meet these principles.

2) The study of lakes (limnology) focuses on the natural process of lake aging. Sediment and associated nutrients and pollutants are the catalyst for aging. Effective lake management should address this ecological process at all phases of its work—from planning, implementation programs, preventive action, and ongoing monitoring.

Study findings on lake-wide research; not on impacted coves—Research done by the Maryland Geological Survey staff included in the Sediment Study provides excellent, much needed baseline data on the whole lake. Research provides a basis for DNR to identify 10 DCL coves as "sediment impacted". But, the Study fails to provide analysis of each of the impacted coves. In short, there is insufficient research and analysis to support a cove by cove decision not to dredge.

It must be the tributaries—The DNR follow-up recommendation is to "look at sediment coming from tributary streams." The Study does not provide the data or analysis which would support the necessity to study all the tributaries. They have not provided the proof that in every impacted cove the sediment is <u>not</u> coming from the lake. This new direction is not supported by cove-by-cove analysis of the impacted coves.

In Green Glade, sediment accumulation is a result of deposition of dead Submerged Aquatic Vegetation (SAV) plant debris that was blown into it by the prevailing , westerly winds,

according to the Maryland Geological Survey (MGS) Director, Richard Ortt.

In Arrowhead Cove, the shoreline is well stabilized with native grasses; the tributary stream has been shown to be healthy, contributing minimal sediment. MGS proposes a follow-up study to assess impact of prevailing north winds pushing erosion from the main channel into the cove.

Sediment is a pollutant and remedial action is necessary to comply with the Clean Water Act.

Both Federal and Maryland law define sediment as a pollutant, reflecting scientific research that substantial accumulation threatens lake health and recreational use.

Cost Estimates lack prevention—The Study only provides a cove-by-cove estimate for removal of sediment. However, DNR has linked sediment removal costs with need for prevention measures to stem further accumulation. We agree. Without such preventative measures, the impacted coves face a "recycling problem," with ongoing sediment accumulation, more dredging and more costs.

Consultant organized the study organized around a "Decision Matrix. The Scope of Work for the study does not include decision-making component, only an assessment. And, in follow-up, DNR used the "decision matrix" as basis for deciding not to dredge at the lake.

Bias against dredging built into the "Decision Matrix" — the framework of the Study.

The matrix has fundamental bias. Both impacts and dredging expenses are included into the "decision matrix". One quarter of the total impact ranking "weight" included the costs, not impacts. The result is no surprise: the best case scenario is no expenditure of funds for dredging.

An unbiased assessment would have conduct a two-stage assessment. The first on impacts of sediment accumulation the natural resource, the economy, and recreational uses, assessing these impacts for both dredging and no action. In a separate analysis, the consultant would have undertaken a cost/benefit analysis in which the financial costs of dredging are compared with the financial costs of not dredging.

Other methodological issues—

Each item in the matrix is given a number, based on a subjective ranking from 1 to 5. These values are not based on measureable, objective data. There is no comparability: a value of "1" for impact on fish is not equal to a "1" for swimming.

Matrix rankings do not differentiate between short-term and long-term impacts. Example: the impact of no swimming in the spring or fall during dredging is quite different that long term consequences on the local economy. Yet the same ranking is used for both by the consultant.

There is absolutely no justification for inclusion of white water rafting in the impacts list.

The determination that dredging would have a negative impact on SAVs is counter to the DNR SAV staff who has stated "if coves were dredged for sediment accumulation, there would be no need for a SAV restoration plan, since these plants will readily be readily establish themselves. SAV protection should be addressed by reducing future sediment inputs to the lake." (Lee Karrh, DNR). This view is supported by outcomes of dredging in the Bay.

The consideration of impact on fish reflects the weakness of the matrix. Impacts on fish populations can be addressed by scheduling dredging in the fall, according to DNR fisheries staff.

On the following pages we include the Study Decision Matrix and a revised matrix we have developed to illustrated how the data is misrepresented in the Study and the weakness of using subjective ranking numbers to provide foundation for recommendation to not dredge the lake.

Conclusion

After four years of research, DNR now identified 10 DCL coves to be "impaired" by sediment accumulation. Careful review of the data in the report and assessments by DNR and County staff working on lake impacts shows property owners in the impacted coves, lake-related businesses, recreational users, and the County are now facing economic impacts as a result of this challenge. It is in the best interests of all these groups to dredge immediately.

The State, as owner of Deep Creek Lake, must take the lead to fulfill its legal mandate for a sustainable future of our lake. We will all participate but the State must take lead financially.

We must all heed Secretary Griffin's warning— the longer the delay in action, the more costly dredging will be and the greater the economic impacts on all segments of the lake and County community. None of us want to reach the point dredging becomes too costly to undertake.

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MARYLAND DEPARTMENT OF NATURAL RESOURCES
Deep Creek Lake Sediment

DEEP CREEK LAKE SEDIMENT STUDY - DECISION MATRIX

Environmental Impacts - Fish, Benthic, SAV, and Invasive were examined specifically. There are many species contained in each of these.

Economy - Economic Impact to Tourism, Hotel Occupancy, Service Industry, Rental Property, Property Value, and Local Economy

Recreation - The ability for Recreational Boating, Fishing, Whitewater Rafting, and Swimming to continue

Construction Cost - The relative cost compared to the other construction costs within the study which includes cost of ROW and Permitting

Impacts	Weighing Factor	Impacts of Hydraulic Dredging		Impacts of Mechanical (Wet) Dredging		Impacts of Mechanical (Dry) Dredging		No Dredging
		March to Memorial Day	Labor Day to December	March to Memorial Day	Labor Day to December	March to Memorial Day	Labor Day to December	
Environmental Impacts	**20**							
Fish	5	1	1	3	2	2	1	5
Benthic	5	1	1	3	2	2	1	5
SAV	5	1	1	3	2	2	1	5
Invasive	5	1	1	3	2	2	1	5
Economy	**20**							
Economic Impact	10	5	5	5	5	4	4	1
Stimulate Local Economy	10	3	3	3	3	5	5	1
Recreational Impact	**20**							
Recreational Boating	5	4	4	2	2	1	1	5
Fishing	5	4	4	2	2	1	1	5
Whitewater Rafting	5	4	4	2	2	1	1	5
Swimming	5	4	4	2	2	1	1	5
Construction Cost	**20**							
Capital Costs	15	3	3	1	1	2	2	5
ROW	5	2	2	1	1	1	1	5
Permitting	0	1	1	3	2	2	1	5
TOTAL		**235**	**235**	**200**	**180**	**185**	**165**	**320**

High Score = Best Case Scenario, Scoring as follows: 1 = Worst Negative Impact, 2 = Negative Impact, 3 = Neutral, 4 = Minimal/Positive Impact, 5 = No/Best Impact

FODCL DECISION MATRIX CONCLUSION DREDGING IS PREFFERED OPTION

	Consultant Ratings		FoDCL Ratings	
Impacts	**No Dredging**	**Hydraulic Dredging**	**Hydraulic Dredging**	**Comments**
Environmental Impacts				
Fish	5	1	5	If dredging were done in the fall and over a 3 year period, impact on fish population would be minimal
Benthic	5	1	5	Study omits presentation on this impact; it may be short term with these populations rebounding.
SAV	5	1	5	DNR SAV expert Lee Karrh states there will be no negative impacs on SAVs and dredging should help these aquatic plants with clearer water.
Invasive	5	1	5	All coves have EWM, 4 have hydrilla. Impacts can be minimized with spring/ fall dredging, pre-treatment,and retention netting.
Economy				Section reveals fundamental problems with methodology. The ranking
Economic	5	1	5	system is subjective, not scientific. A "1" rating for swimming is not
Stimulate	5	1	5	comparable to a "1" for economic impact. There is no reflection of short term impact-- no swimming for a couple of months in the fall-- compared to long term impact on local economy, financial investment of property owners. There is no reflection of positive benefits from of dredging, e.g. increase recreational use, improvement of habitat for fish, SAVs, benthics. Sediment is impairment of the CWA
Recreational Impact				
Boating	4	1	5	Other areas for boating; very limited time impact; not high season
Fishing	4	1	5	Other areas for fishing; very limited time impact; not high season
Whitewater Rafting				Deleted: there is no whitewater rafting in DCL
Swimming	4	5	5	Dredging will be done before or after swimming season
TOTAL	**42**	**13**	**45**	**Shows dredging is the preferred option, even over no dredging.**

Deleted Construction Costs. These are not impacts . These are costs. Inclusion biases the matrix against dredging.
A separate cost analysis is needed to compare costs of dredging to the financial, natural resource and recreation costs of not dredging.

Promoting stewardship, conservation and restoration in the Deep Creek Lake watershed

STUCK IN THE MUD ?

This document digs into the sediment "weeds". We decided this in-depth assessment was the appropriate response to the shortcomings of the DCL Sediment Study and DNR decision not to dredge our lake. Since the release of the study this spring, there has little opportunity for public education and debate of the study funded by Garrett County, the DCL Property Owners Association and DNR.

The Study, Garrett County analyses and FoDCL research of the literature and the impacted coves shows direct and indirect negative impacts tied to sediment accumulation. Further, we know these nutrient rich sediments are ideal environments for grasses and invasive plants, and declining water quality.

All of us— lake property owners, local businesses, the tourism sector, County government and area economy— need a pro-active approach by the State to lake management. The State knew there were sediment problems when it purchased the lake in 2001. Thirteen years later, it appears there will be continued inaction for the foreseeable future. This is not acceptable. How many coves will be written off? It is time for the State to invest in its lake and dredge these coves and commit to pro-active stewardship of our lake.

WHAT WE MUST DO TO GET UNSTUCK

As state taxpayers, people who love this lake, and rely on it for businesses, tax revenues and protection of our asset, we need know we need to act. We will build the Bridge to Annapolis Campaign to secure funding for dredging.

Together we need to mobilize the lake community.

- Educate them about the DNR decision.
- Host community meetings and attend association meetings.
- Raise our voices through the petition asking the State to commit to financing plan without delay.
- Survey these coves to gather data on recreational usage.
- Reach out to local, state and federal policy makers.

Then we must shift our efforts to Annapolis— with financial support from you. We need to bring in the experts

1. We have hired a top-notch communications firm to provide professional assistance on messaging and shape argument why folks down state should care about the lake , as they care about the Bay.
2. We will launch a lobbying campaign in the General Assembly to be led by a top environment group. .
3. We will hire a lawyer to research and assess legal options and actions.

WE NEED YOUR SUPPORT AS VOLUNTEERS AND FUNDERS

————————————————-FODCL SEDIMENT STUDY DONATION FORM————————————————

Return to Friends of Deep Creek Lake, 779 Chadderton School Road, Oakland, Maryland 21550. All donations are tax-deductible. Questions? Write to us at *contact@friendsofdcl.org*

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Email: **Section of the Lake**

I want to volunteer _____ **Here is my donation to get us out of the mud. _____**