

# Chapter 62-345


## Florida's Uniform Mitigation Assessment Method

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The uniform mitigation assessment method shall be *an exclusive and consistent process for determining*

- *the amount of* mitigation needed to offset impacts to *wetlands and other surface waters*, and
- *the sole means* to award and deduct mitigation bank credits



## Goals in developing method:

- Practical for use within permitting timeframes
- Consistent process
- Use with reasonable scientific judgement
- Account for different ecological communities in different areas of state



Uniform mitigation assessment method must determine the value of functions provided by wetlands and other surface waters considering:

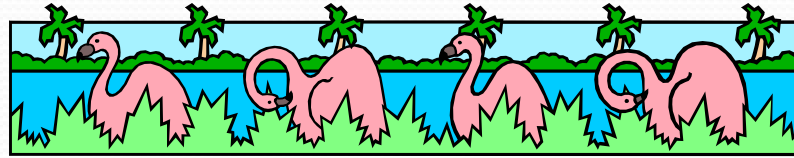
- Current condition
- Hydrologic connection
- Uniqueness
- Use by fish and wildlife
- Location



## Chapter 62-345

# Uniform Mitigation Assessment Method

62-345.100	Intent and Scope
62-345.200	Definitions
62-345.300	Assessment Method Overview and Guidance
62-345.400	Qualitative Characterization - Part I
62-345.500	Assessment and Scoring - Part II
62-345.600	Time Lag, Risk and Mitigation Determination
62-345.900	Forms



UMAM is used to determine

- (a) the *amount of mitigation* needed to offset impacts
- (b) the *number of credits* a mitigation bank may earn
- (c ) the *number of credits* needed to offset impacts if a mitigation bank is used

# How does UMAM work?

1. Define the assessment area - impact, mit
2. Narrative Characterization (Part I)
3. Assessment & Scoring (Part II)
4. If mitigation, adjust for time lag
5. If mitigation, adjust for risk
6. Apply the formulas

## ERP & UMAM

ERP programmatic and  
project permitting goal:

No net loss of wetlands or  
other surface water  
functions

UMAM provides a  
standardized procedure  
for assessing the  
functions provided by  
wetlands and other  
surface waters



## .100 Intent and Scope

- UMAM does NOT assess whether the adverse impacts meet other criteria for permit issuance, nor the extent that such impacts may be approved
- (this is done currently and will *continue to be done* under ERP/WRP)

## .100 (3) Not applicable to:

- Projects that don't require mitigation
- GPs with special mitigation specified
- North Trail/Bird Drive Basin - HID
- Central Florida Beltway (338.250, FS)
- Lake Belt mining/mitigation (373.41492)

## .100 (3) Not applicable to:

- FDOT projects with a final order for a regional mitigation plan (373.4137, F.S.) signed before 2/2/04
- Net improvement (373.414(1)(b)3, FS)
- Fishing/recreation values (373.414(1)(a)4, FS)
- Mangrove trimming (403.9332, FS)

## .100 (4) Does *not* supersede or replace existing rules regarding

- cumulative impacts
- prevention of secondary impacts
- reduction and elimination of impacts
- determining the appropriateness of the mitigation proposed

(all of these are *still* covered by ERP/WRP)

## .100 (5) Does *not* apply to review of secondary impacts to :

- Fish or wildlife caused by collision (boat, car, tower)
- Aquatic or wetland dependent listed species due to impact to uplands
- Historical or archeological resources

## .100 (6) What about mitigation banks?

- If permitted < 2/2/04, determine the number of credits needed by following the assessment method in place when the bank was permitted.
- Banker has the *option* to modify the permit and use this method.

## .100 (7) What about pending permit applications?

- An application that is pending on or before 2/2/04 uses existing rules for assessment.
- Applicant *may elect* to use UMAM, however.

## .100 (8) What about modifications?

- For permits issued before 2/2/04, review of *modification* uses the assessment method/ratios in effect when permit was issued, *unless...*
- Applicant *elects* to use UMAM, or
- The modification is not minor.



## .100 (9) What about mining?

- Those mining permit applications specified in 373.414(15), FS, are grandfathered, but applicant *may* elect to use UMAM
- All other mining permit applications that require mitigation must use this method.



Can this method be used with Water Use  
or Consumptive Use permit applications?

If mitigation is necessary for permit  
issuance,

Yes

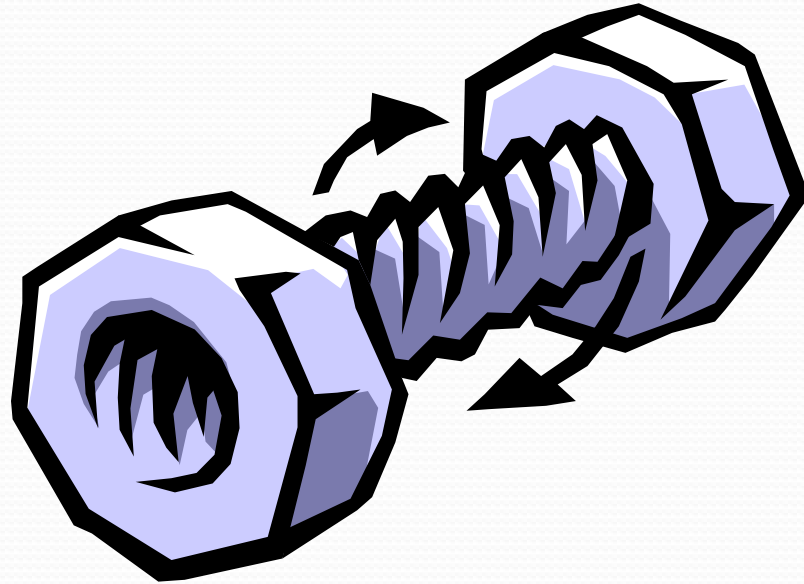


So, when did this assessment method  
*rule* become effective?

*Monday*

*February 2, 2004*

# The “nuts and bolts” of UMAM



Terms and concepts specific to Rule 62-345,  
F.A.C.

## .200 Definitions

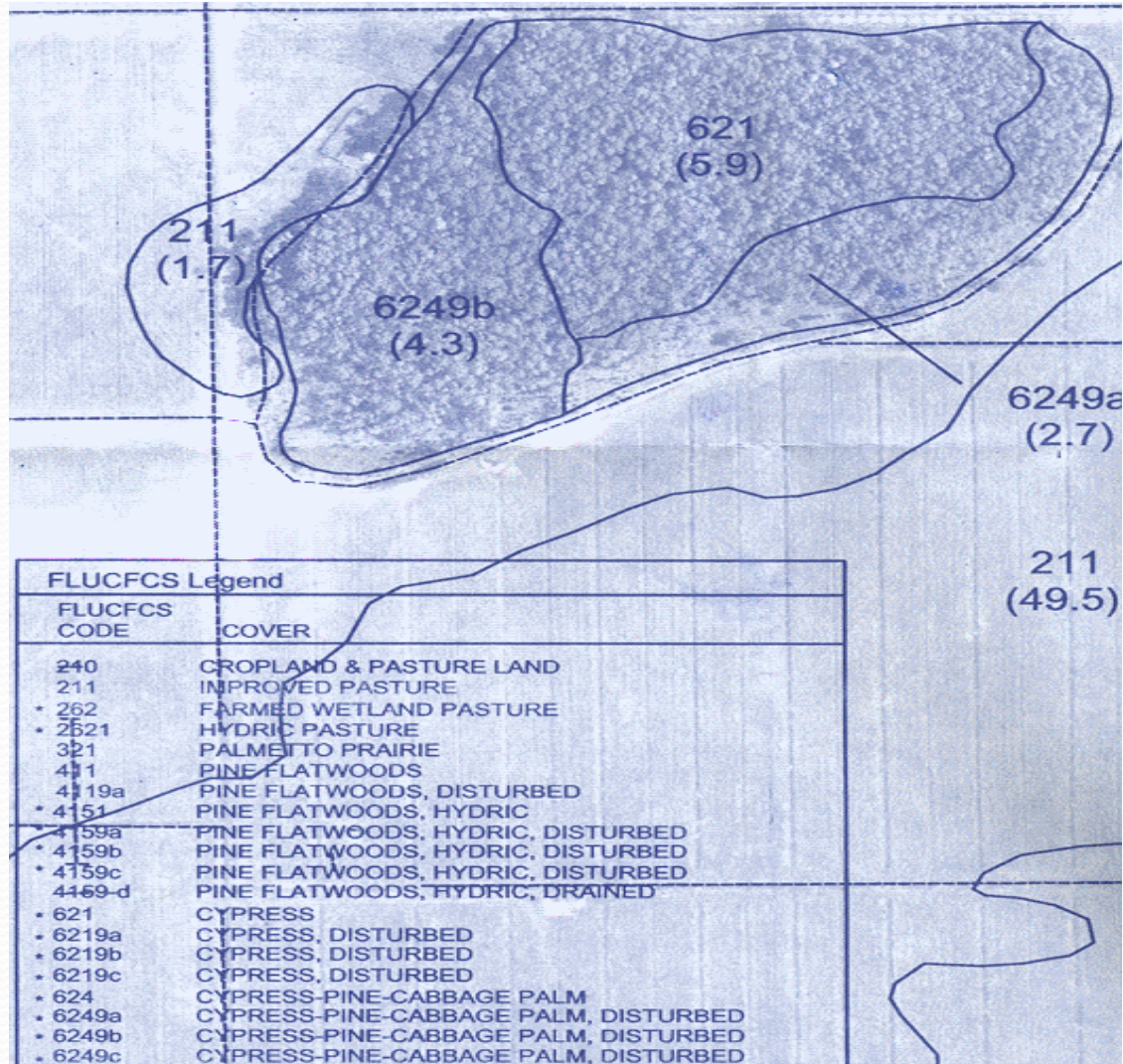
Read them all!

They are there for consistency within the rule and for consistency between this rule and the ERP.

## .200 (1) Assessment area

...means all or part of a wetland or surface water impact site, or a mitigation site, that is sufficiently homogeneous in character, impact, or mitigation benefits to be assessed as a single unit.

# .200 (1) Assessment area



# .200 (5) Indicators

Physical,

Biological, or

Chemical indication of....

wetland or other surface water function

(Note: *not* a direct *measurement* of function)



# Indicators of function used in UMAM



Wetlands near Amelia Island

- Location and Landscape support
- Water Environment
- Community Structure
  - Vegetation
  - Benthic



## .200 (10) With impact assessment

... means the reasonably anticipated outcome at an assessment area assuming the proposed impact is conducted.

## .200 (11) With mitigation assessment

... means the outcome at an assessment area assuming  
the proposed mitigation is successfully conducted

# .200 (12) Without preservation assessment

... means the reasonably anticipated outcome at an  
assessment area assuming the area is not preserved

# The degree of ecological change

= the mathematical difference in the scores between the current condition and with-impact condition assessment, and between the current condition or without preservation and the with mitigation condition assessments.

= **“delta”**

62-345.300(5), FAC

# The degree of ecological change





## .500(1) Assessment & Scoring - Part II

### Current condition or without preservation

- “temporary” impacts?
- previous mitigation area?
- violation?

### With impact or with mitigation

- reasonably expected outcome
- mitigation plan with reasonable assurance




..[the] method shall require application  
of *reasonable scientific judgement*.

(373.414(18), F.S.)

When applying this method, *reasonable  
scientific judgement* must be used. (62-

345.100(2), F.A.C.)





Information for each assessment area/The evaluation must be  
...based on currently available information, such as aerial photographs, topographic maps, GIS data and maps, site visit, scientific articles, journals, other professional reports, and *reasonable scientific judgement.* (62-

345.400(1) and .500(4), FAC)

# Tools and Resources



For all wetland resource/environmental resource  
professionals

## .200 (6) Invasive exotics

- for purposes of this rule means...
- *animal species* that are outside of their natural range or zone of dispersal and have or are able to form self-sustaining and expanding populations in communities in which they did not previously occur, and
- those *plant species* listed in the Florida Exotic Pest Plant Council's 2001 List of Invasive Species Category I and II at <http://www.fleppc.org/list/list.htm>

# Wetland *Classification* Tools

- Florida Land Use, Cover, and Form Classification System, 1999 (aka FLUCCs code) - this can be found on DEPnet under the ERPce manual:

<http://depnet/wrm/sler/erp/docs/erpce/FLUCCSmanual.pdf>

# Wetland *Classification* Tools

- 26 Ecological Communities of Florida, Soils Conservation Service (February, 1981)
- Hydrogeomorphic (HGM) classification for wetlands, Mark Brinson (August 1993)

# Wetland *Function* and Structure - Resources

- 26 Ecological Communities of Florida, Soils Conservation Service (February, 1981)
- Hydrogeomorphic (HGM) classification for wetlands, Mark Brinson (August 1993)
- Wetlands -William J. Mitch and James G. Gosselink

# Wetland *Function* and Structure - Resources, cont'd

- Ecosystems of Florida - ed. Ron Myers and John J. Ewel
- Florida Wetland Plants, An Identification Manual - John D. Tobe, et al (FDEP)
- Closing the Gaps in Florida's Wildlife Habitat Conservation System - James Cox, et al (FGFWFC)

# Wetland *Function* and Structure - Resources, cont'd

On-line descriptions of wetland community types:

basin, floodplain, lacustrine

riverine, seepage, flats

<http://www.dep.state.fl.us/water/wetlands/fwric/guidance.htm>



## Basin Wetlands

- major types
- formation
- vegetation
- animals
- soils
- hydroperiod
- fire
- adjacent habitats



	Coastal Swale	Depression Marsh	Dome Swamp
g	Herbaceous	Herbaceous	Forested
ous			
at	Long narrow depression wetlands in sand/peat-sand substrate <i>formed in Interdunal depressions</i>	Shallow, circular. Typical in karst areas where sand has filled a sinkhole. Water input from rainfall, runoff or seepage from uplands	Shallow, circular. Develop in sandy flatwoods and karst areas.
held			
num			
um	Graminoids and mixed wetland forbs	Maidencane, fire flag, pickerelweed, St. John's wort, spikerush, yellow-eyed grass, chain fern, willows, wax myrtle, swamp primrose, bloodroot, buttonbush, arrowheads, and bladderwort	Pond cypress, swamp tupelo, slash pine, dahoon holly, red maple, blackgum, swamp bay, sweetbay, loblolly bay, pond apple, Virginia willow, fetterbush, chain fern, poison ivy, royal fern, orchids, laurel, fire flag, greenbrier, Spanish moss, cinnamon fern, wax myrtle, willow, maidencane, swamp titi, St. John's wort, lizard's tail, sawgrass, swamp primrose, redroot, sphagnum moss, arum, water hyssop, buttonbush
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# Wetland *Function* and Structure - Resources, cont'd

Guide to the Natural Communities of Florida

Florida Natural Areas Inventory & DNR (1990)

<http://www.fnai.org/PDF/>

[Natural Communities Guide.pdf](http://www.fnai.org/PDF/Natural%20Communities%20Guide.pdf)

# Environmental Resource Analysis Online (ERAonline)

- map a location in the State of Florida
- produce a '*Resources-of-Interest*' report
  - summarize data from a variety of GIS data layers
  - uses a one-mile buffer
  - includes natural resource and political boundary information
    - wildlife habitats with conservation significance
    - wetlands, state and national parks
    - listed species
    - water classifications, special designations
  - provides aerial photographs



<http://ca.dep.state.fl.us/mapdirect/?focus=erp-->

## *internet access*

This site **for the public** includes zooming options, aerial photographs, limited access to data, and simple mapping tools.

# BioAssessment Eco-summaries

*....are short reports of the results of biological monitoring done for the purpose of water quality assessment. Written by DEP field personnel, these reports are designed to distill only the most pertinent ecological information into an easy-to-understand format.*

(listed under Water program on DEP home page)

# Special Scenarios

Uplands as mitigation

Preservation as  
mitigation

Secondary Impacts c



## .500(2) Assessment & Scoring - Part II

So, what about those  
upland mitigation  
areas?



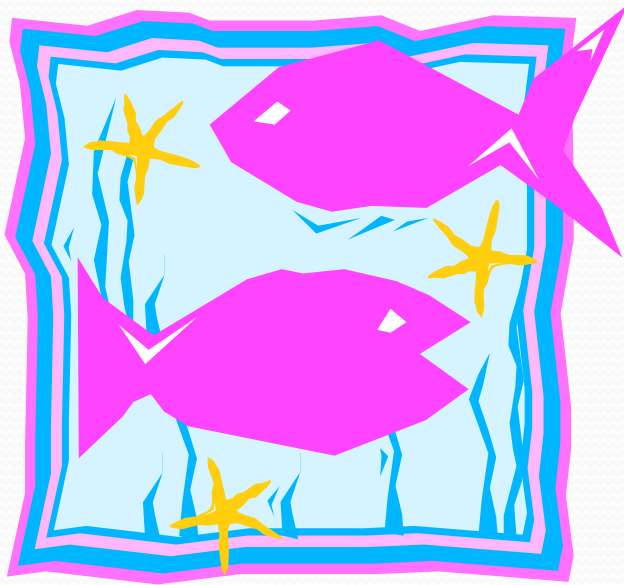
- Score only location and community structure

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- Enhancement or restoration = delta
- Creation = start with zero
- Preservation = same as for wetlands.

## .500(3) Assessment & Scoring - Part II

And what about  
Preservation?



- Score with and without preservation
- Preservation Adjustment Factor (0 - 1) based on 5 considerations
- $\Delta \times \text{PAF}$  = mitigation delta for preservation



## .500(3) Assessment & Scoring - Part II

PAF score based on:

- Promote natural ecological conditions
- Relationship between other lands to be preserved
- Scarcity of habitat, degree of use
- Proximity to areas of regional/state/ or national ecological significance; corridor
- Extent and likelihood of adverse impacts if not preserved



## What about Secondary Impacts?

Remember, this method does *not* apply to review of secondary impacts to :

- Fish or wildlife caused by collision (boat, car, tower)
- Aquatic or wetland dependent listed species due to impact to uplands
- Historical or archeological resources

And this method *does not change* X.2.7

(a)

“Secondary impacts...will not be considered adverse if buffers, with a minimum width of 15’ and an average width of 25’ are provided... unless additional measures are needed for...listed species nesting, denning or critically important feeding habitat...”

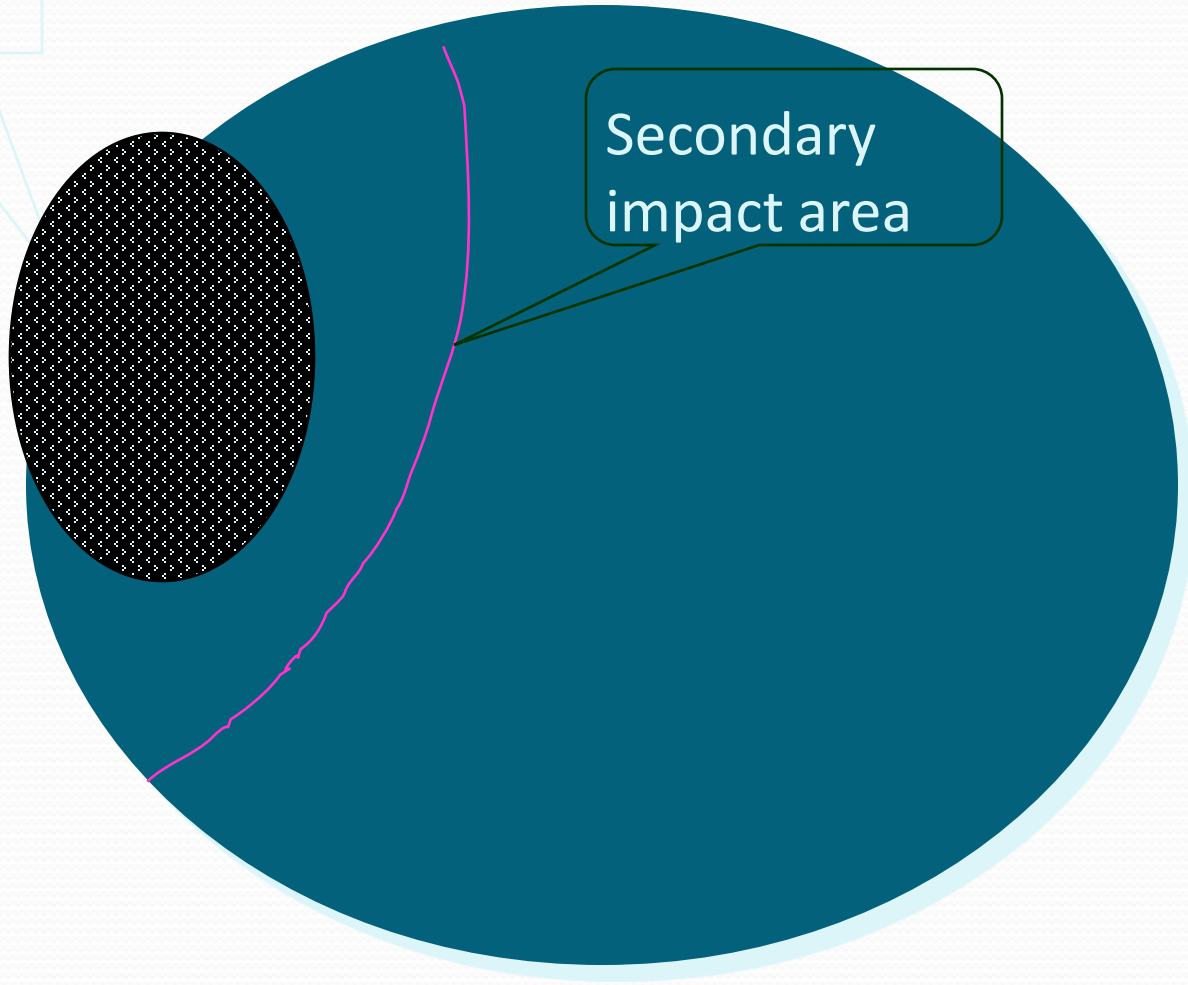



However, what if a buffer is *not* provided  
and there *are* secondary impacts?

- Identify those secondary impacts
- Identify the geographic area (assessment area)  
where those impacts are anticipated
- *Then* assess the degree of ecological change, using  
62-345

Direct Fill

Secondary  
impact area





“The uniform mitigation assessment method shall also account for the expected time-lag associated with mitigation and the degree of risk associated with the proposed mitigation.”

Time Lag and Risk assessments apply *only* to mitigation (individual project or bank).

# .600 *Time Lag*, Risk, and Mitigation Determination



The period of time between when functions are lost at an impact site and when those functions are replaced by mitigation.

# .600 *Time Lag*, Risk, and Mitigation Determination

Time lag varies due to

- Type of mitigation (creation/restoration, enhancement, herbaceous, forested, etc)
- Timing of mitigation in relation to the impacts





# Time Lag factors to consider:

Biological, Physical, & Chemical processes associated with

- nutrient cycling
- hydric soil development
- community development
- succession

## .600 *Time Lag*, Risk, and Mitigation Determination

For the purpose of this rule, time lag is scored as

“1” for phosphate and heavy mineral mining

mitigation activities

(see 373.414(6)(b), F.S.)

# .600 *Time Lag*, Risk, and Mitigation Determination

Greater time lag => more mitigation

See Table 1

Time lag =  $\leq 1$  to  $> 55$  years

T-factor range = 1 - 3.9

TABLE 1.

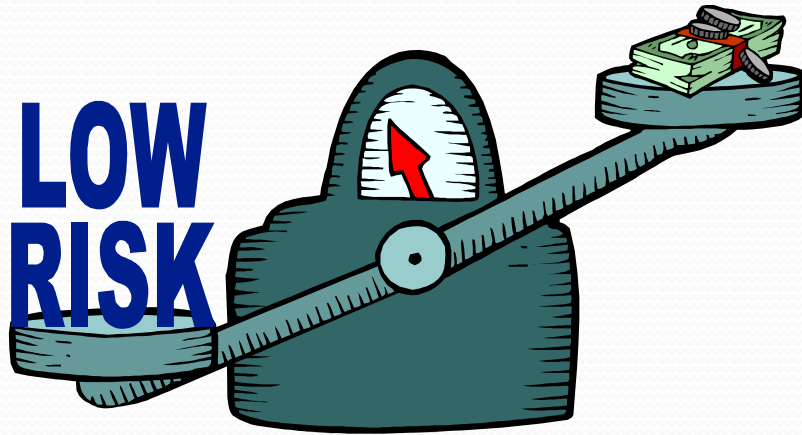
| Year     | T-factor |
|----------|----------|
| < or = 1 | 1        |
| 2        | 1.03     |
| 3        | 1.07     |
| 4        | 1.10     |
| 5        | 1.14     |
| 6 – 10   | 1.25     |
| 11 – 15  | 1.46     |
| 16 – 20  | 1.68     |
| 21 – 25  | 1.92     |
| 26 – 30  | 2.18     |
| 31 – 35  | 2.45     |
| 36 – 40  | 2.73     |
| 41 – 45  | 3.03     |
| 46 – 50  | 3.34     |
| 51 – 55  | 3.65     |
| >55      | 3.91     |

Use this table to  
find T-factor after  
you have  
determined the  
years of time lag.

## .600 Time Lag, *Risk*, and Mitigation Determination

....shall be evaluated to account for the degree of uncertainty that the proposed (mitigation) conditions will be achieved, resulting in a reduction in the ecological value of the mitigation assessment area.

# Mitigation Risk




Scored on a 1 - 3 scale

1 = no or *de minimus* risk

3 = high risk

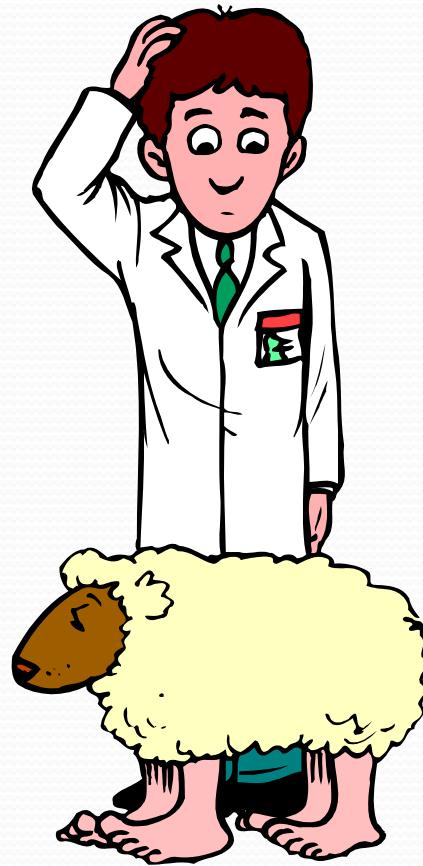
Use 0.25 increments



A single mitigation risk score (1 - 3) is assigned considering the likelihood and potential severity due to these factors of vulnerability:

- Hydrology
- Native Vegetation
- Invasive Exotic Species
- Water Quality
- Land Use

# Putting it all together





## .300 Assessment Method Overview and Guidance

1. Applicant submits “necessary supporting information” ; review agency verifies the information and applies this assessment method
2. Conduct Qualitative Characterization (Part I)
3. Assess & Score the area (Part II)

## .300 Assessment Method Overview and Guidance

4. If the mitigation is preservation, use the preservation adjustment factor, too.
5. For all forms of mitigation, adjust for time lag and risk as appropriate
6. Degree of ecological change ==> Delta
7. Apply the formulas

## .400 Qualitative Characterization-Part I: the “Frame of Reference”

- ✓ Sufficient detail to identify the functions to be evaluated - benefits to fish & wildlife and their habitat characteristic of the assessment area
- ✓ Use available information - aerial photos, topos, GIS data, site visit notes, scientific articles, professional reports

## .400 Qualitative Characterization-Part I:

- ✓ Special Waters Classification
- ✓ Descriptive Classification
- ✓ Significant nearby features
- ✓ Geographic & hydrologic connection
- ✓ Uniqueness
- ✓ Functions
- ✓ Wildlife utilization
- ✓ Any additional pertinent information

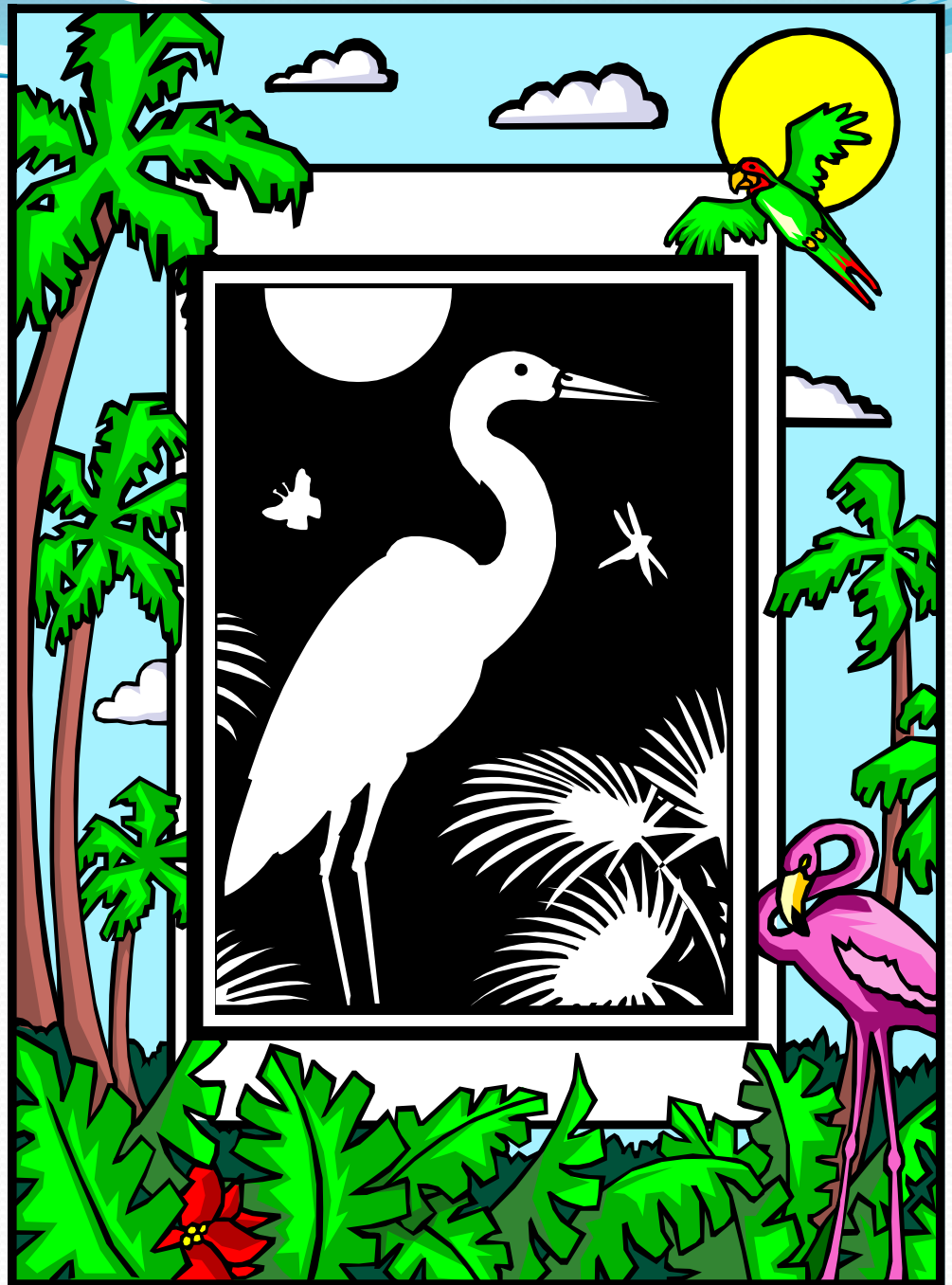
.500

## Assessment & Scoring

### - Part II

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Based on the frame of  
reference in Part I



## .500(4) - (6) Assessment & Scoring - Part II

- based on reasonable scientific judgement, maps, records, data, site visit, etc.
- 3 indicators of wetland function
- score on 0 - 10 scale (whole numbers only)
- scoring guidance given for 4 categories: optimal (10), moderate (7), minimal (4), and not present(0).

.500 (6)(a)

## Location and Landscape Support

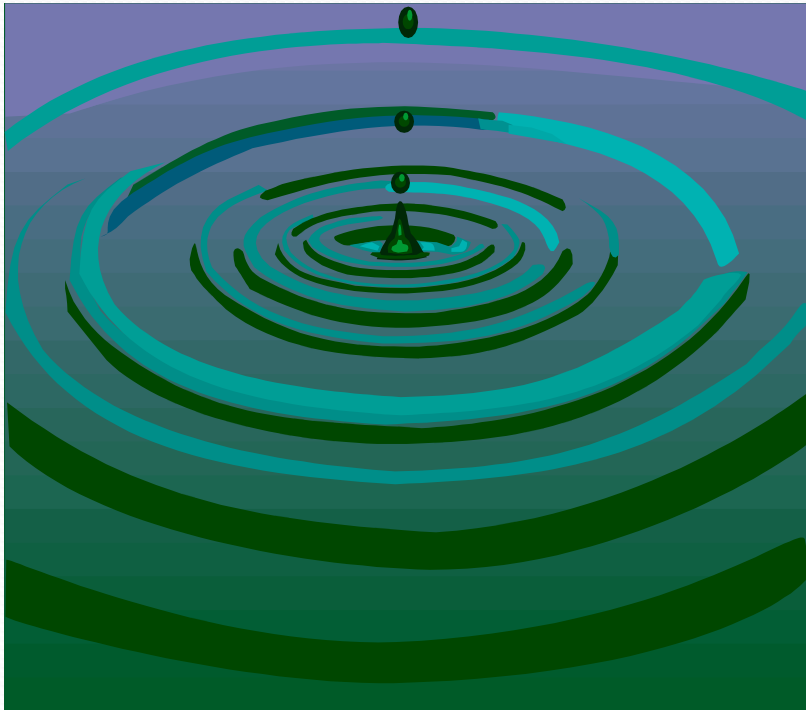


Adjacent lands and  
habitat support

Upstream/downstream  
connections or barriers

- fish and wildlife
- hydrology

## .500 (6)(b) Water Environment



Seasonal water levels  
and flows

Tides, wave energy

Soil moisture/ erosion/  
deposition

Nutrient loading and  
assimilation



## .500 (6)(c) Community Structure



Plant *or* benthic  
community

Species composition

Age / size distribution

Invasive, exotic species

Abiotic / topographic  
features

## .500 Assessment & Scoring - Part II

- Part II score for wetlands = sum of the individual scores/30
- Part II score for uplands = sum of the individual scores/20
- Range = 0 - 1

# .600 Time Lag, Risk, and *Mitigation Determination*

Functional Loss (FL) =  
Impact Delta X Impact Acres

Relative Functional Gain (RFG) =  
Mitigation Delta  
(t-factor x risk)

# Mitigation Formula

(a) To determine acres of mitigation needed to

$$\text{offset impacts} = \text{FL} / \text{RFG}$$

(b) Awarding of mitigation bank credits =  $\text{RFG} \times$

assessment acres

(c) Debiting of mitigation bank credits = FL of

impact assessment areas



## Contact Information

For questions specific to UMAM Rule  
contact:

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