Stages of Quality System Implementation:
Driven by Management Questions

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Stages of Quality System Implementation

- Quality programs are not implemented with the stroke of a pen upon the approval of a Quality Management Plan

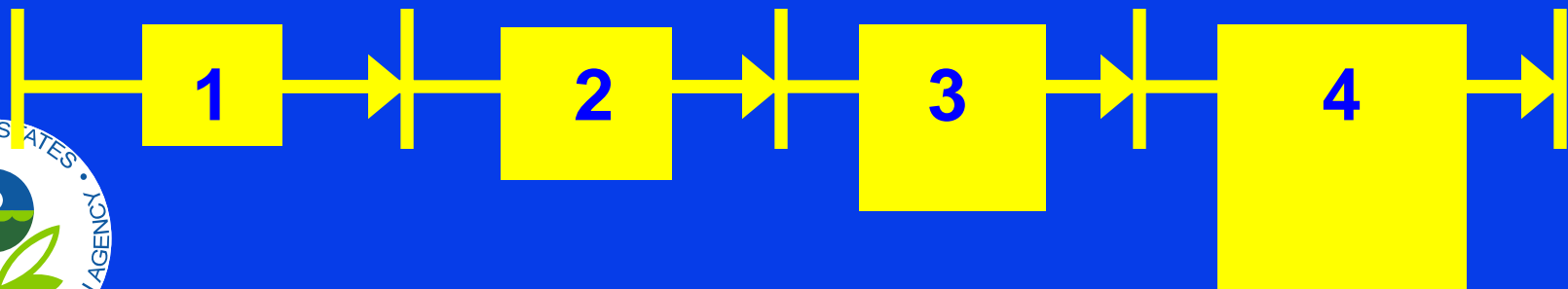- Functional quality programs do not just happen - they *evolve,* typically *after* QMP approval

Value of Defining Stages of Implementation

- Provides a metric to measure success
- Emphasizes the fact that good programs take time and continuously improve
- Illustrates a quality continuum
- Establishes realistic expectations

Quality Infrastructure

| 1 | 2 | 3 | 4 |

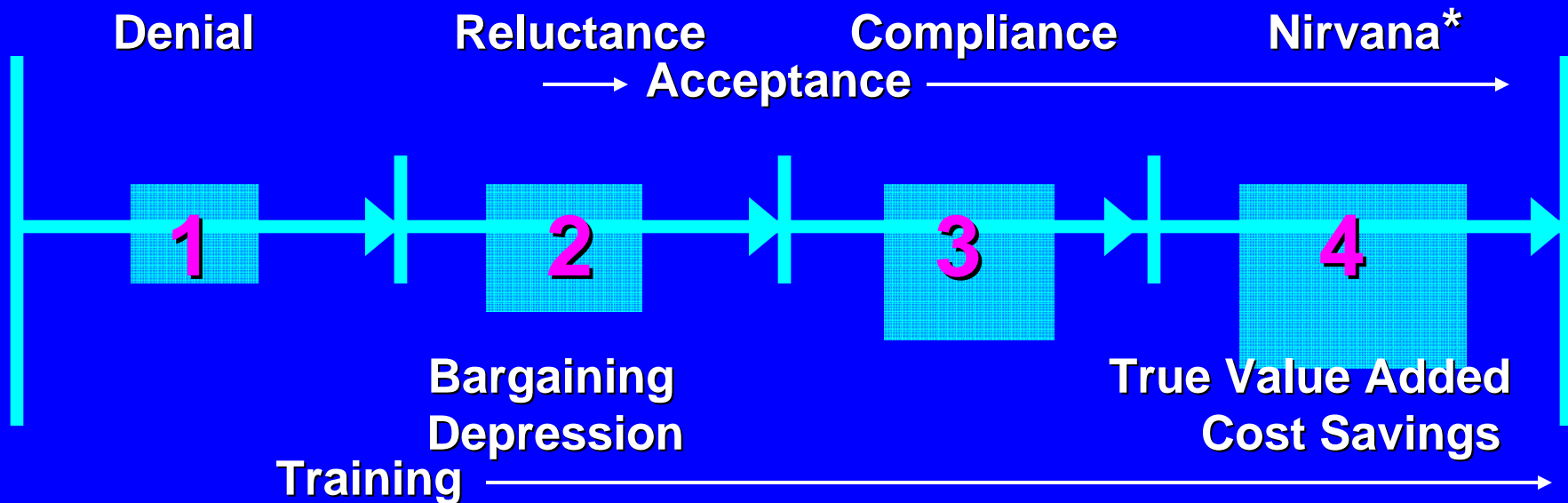# Stages of Quality System Implementation Matrix

- Columns = Degree of Implementation
  - Stage 1: 0-25%
  - Stage 2: 25-50%
  - Stage 3: 50-75%
  - Stage 4: 75-100%
- Rows = Characteristics, Actions, Attitudes, and Keys to Success

See handout or
http://www.epa.gov/glnpo/quality/stagesofquality

Stages of Quality

1 – 5 years

| Denial | Reluctance | Compliance | Nirvana* |

Acceptance

| 1 | 2 | 3 | 4 |

Bargaining
Depression

True Value Added
Cost Savings

Training

Baby Steps

* Ideal condition of perfect harmony and peace

Kubler-Ross[1]

Stages of grief:

- Denial (No lab analysis in my project!)
- Anger (I can not afford to write a QA plan, you write the plan for me)
- Bargaining (Not much guidance! They will publish the report!, They have a QMP!, They did a QA plan a year ago, they're world renowned!)
- Depression (I don't care anymore)
- Acceptance (Okay I see the value let's get together and talk about the key parts!)

1. Kubler-Ross, Elisabeth. 1969. On Death and Dying. ISBN 0-684-83938-5, Reprinted 1997, Simon & Schuster, Inc.

Stage 1: 0-25%

Characteristics	•External pressure forces development of QS •One person appointed to QA •No formal infrastructure for training, review, assessment and inventory
Actions	•Appoint additional QA personnel, through management edict, try to harness enthusiastic people showing initiative •Artful Dodgers (Hide from QM) •Argue that project is not technical or no data, no sampling
Attitudes	•Management views quality as outside their primary focus •Minimal understanding throughout organization, seen as an insurance policy •Staff have narrow view of when quality is needed
Keys to Success	•Develop generic QMP (not too prescriptive) •Encourage broader ownership across the office •Try to document existing processes that relate to Quality (e.g., workload planning, expenditures) •Avoid using top down logic for selling Quality, vs explanation of the benefits

Stage 2: 25-50%

Characteristics	•QMP approved •QAPPs developed for some projects •Polarization of QM and POs
Actions	•QA staff identify delinquencies & try to fill gaps •Training initiated, typically introductory •Good opportunity for external MSRs •Develop inventory of projects/expenditures •Emphasize value of QA
Attitudes	•Most see QA as bureaucratic exercise •Difficult exchanges between QA staff & POs •Problem: "How will my QM fix this?"
Keys to Success	•Management takes ownership •Develop inventory, capture quality during award phase, build rapport with grants, contract staff •Build on positive behavior & ignore nay-sayers

QA = Quality Assistance

For Enterprise Assurance

We succeed as a team, or we fail as a team.

Stage 3: 50-75%

Characteristics	•QMP approved and partially implemented •QMs involved in management meetings •Management begins to ask QA questions
Actions	•POs employ systematic planning for all projects •QA staff involved in project planning •Inventory of projects 100% implemented
Attitudes	•Most staff believe QA provides value •QM feels like part of the team and not tattle-tale •Problem: "How will *we* fix this?" •Management becomes enlightened by Quality status (answers to questions)
Keys to Success	•QA staff must stay involved at project-level •Recognize and reward QA successes •Orient limited QA $ to high priorities

Stage 4: 75-100%

Characteristics	•Quality system is comprehensive •QA is a component of daily activities for all staff •Peer review & info quality key parts of QS •Managers are actively involved and well-trained •Office is perceived positively by external clients
Actions	•Use QA training & experience in hiring criteria •Staff use **"we"** terms instead of **"you"** terms •Continually re-evaluate, QM provides data assessments that relate to office-wide goals
Attitudes	•Staff seek out QA personnel for assistance •Staff are empowered to improve quality •Staff reveal QA concerns - know they'll be heard
Keys to Success	•QM integral part of project development •PO seen as enforcer and not QM •Hire people with positive QA attitudes •Quality system relates to organizational goals

Management Questions

Why?

When a manager asks about the state of quality in their organization, they emphasize its importance and drive the improvement.

What holds managers back?

- Fear of additional resource demands
- Narrow view of quality (e.g. focus on lab data), not seen as their function
- Not realizing the management tools associated with the quality process
- They do not have battle scars from poor quality

Stage 1 Questions

Focus on Awareness

- How do quality system components relate to our day-to-day activities?

- Who will lead our quality program and what do they need to be successful?

Is it possible to run a successful quality program without a designated quality lead?

Stage 2 Questions

Focus on Inventory

- How many active projects do we support?

- What percent collect environmental information?

- How many of these projects have approved quality documentation?

Stage 3 Questions

Focus on Implementation

- How many projects have been assessed to evaluate key quality concerns and quality implementation?

- Are we focusing quality resources on the most important office decisions?

- Are we prioritizing resources to areas of greatest uncertainty?

- Is this uncertainty relevant to the decision to be made?

Stage 4 Questions

Focus on Reflection

- Have true environmental outcomes been addressed?
- Have we discussed how these quality issues affect the decision?
- Is the final product disseminated, consistent with IQG and Peer Review (reproducible)?
- Have we discussed recommendations for improvement?

Evaluation of GLNPO

Stage 1 Questions

How do quality system components relate to our day-to-day activities?

Review grant/contract $ in pre-award phase, which drives our inventory.

Who will lead our quality program and what do they need to be successful?

I need to learn to say no. I need to spend more time building successful delegated programs : through training and resource advice. I need to be more patient and focus on the bigger picture and not the smaller failures.

Is it possible to run a successful quality program without a designated quality lead?

No I believe it is a denial phase and quality actions and improvements do not occur as hoped

Evaluation of GLNPO

Stage 2 Questions

How many active projects are there?

2001 to 2005 : 400-500

What percent collect environmental information?
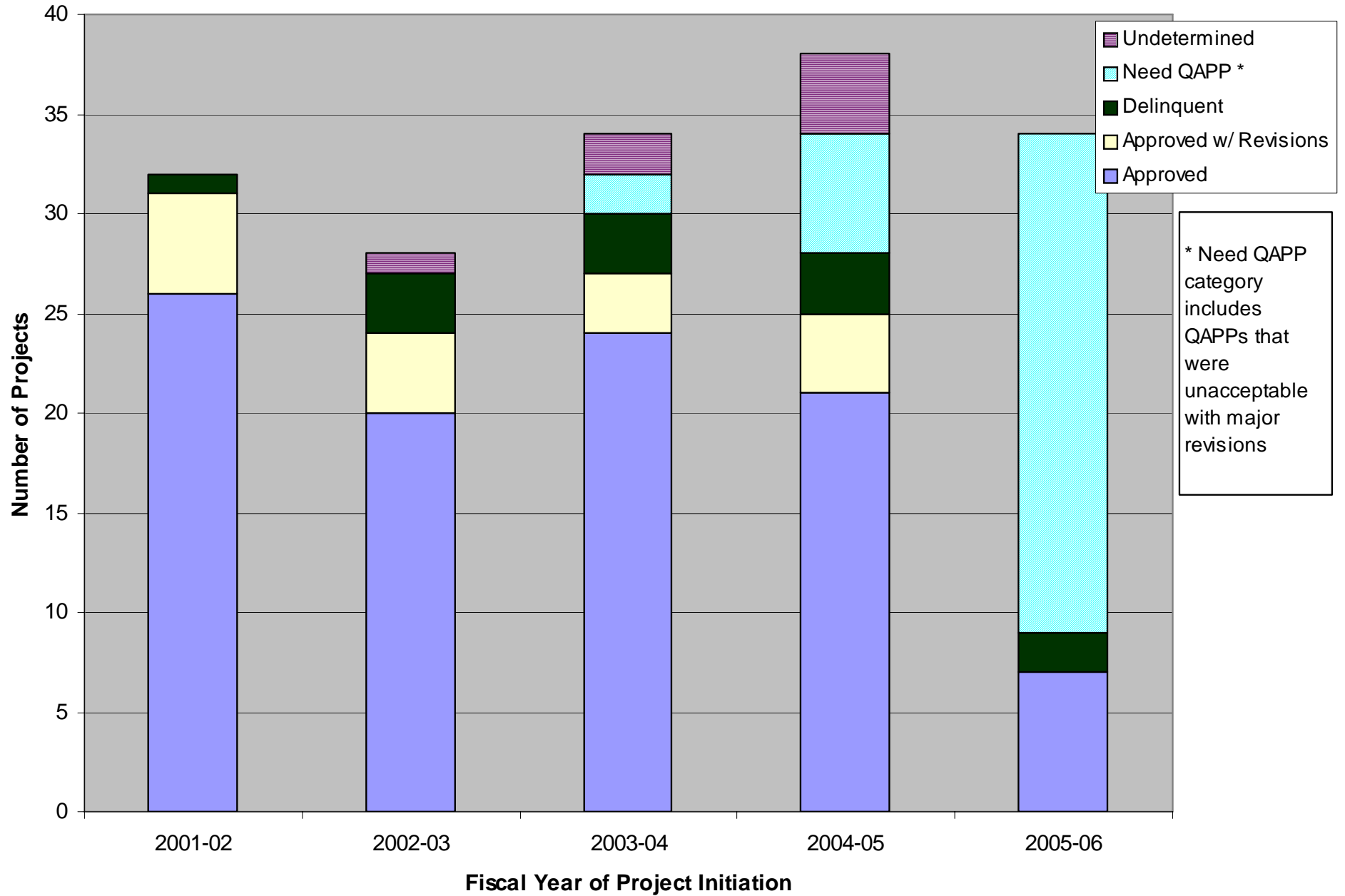
169 or approximately 38%

How many of these projects have approved quality documentation?

118 or approximately 70%

For FY01 to FY06

December 2005 Quality Documentation Status

Legend:
- Undetermined
- Need QAPP *
- Delinquent
- Approved w/ Revisions
- Approved

* Need QAPP category includes QAPPs that were unacceptable with major revisions

Y-axis: **Number of Projects** (0 to 40)

X-axis: **Fiscal Year of Project Initiation** (2001-02, 2002-03, 2003-04, 2004-05, 2005-06)

Current QA Workload Distribution by Project Officer

Legend:
- New (in 2005)
- Existing

Y-axis: Number of Projects (0 to 18)

X-axis: Project Officer — Anscombe, Beck, Bertram, Blume, Cieniawski, Collier, Damato, Ellison, Elster, Evans, Fisher, Green, Hellman, Horvatin, Hulting, Ireland, Ison, Kizlauskas, Klappenbach, Laplante, Murphy, Muneer, Nettesheim, O'Riordan, Rockwell, Rodriguez, Rodriguez-NFWF, Ross, Russ, Santos, Schardt, Schneider, Silwa, Smith, Tuchman, Warren
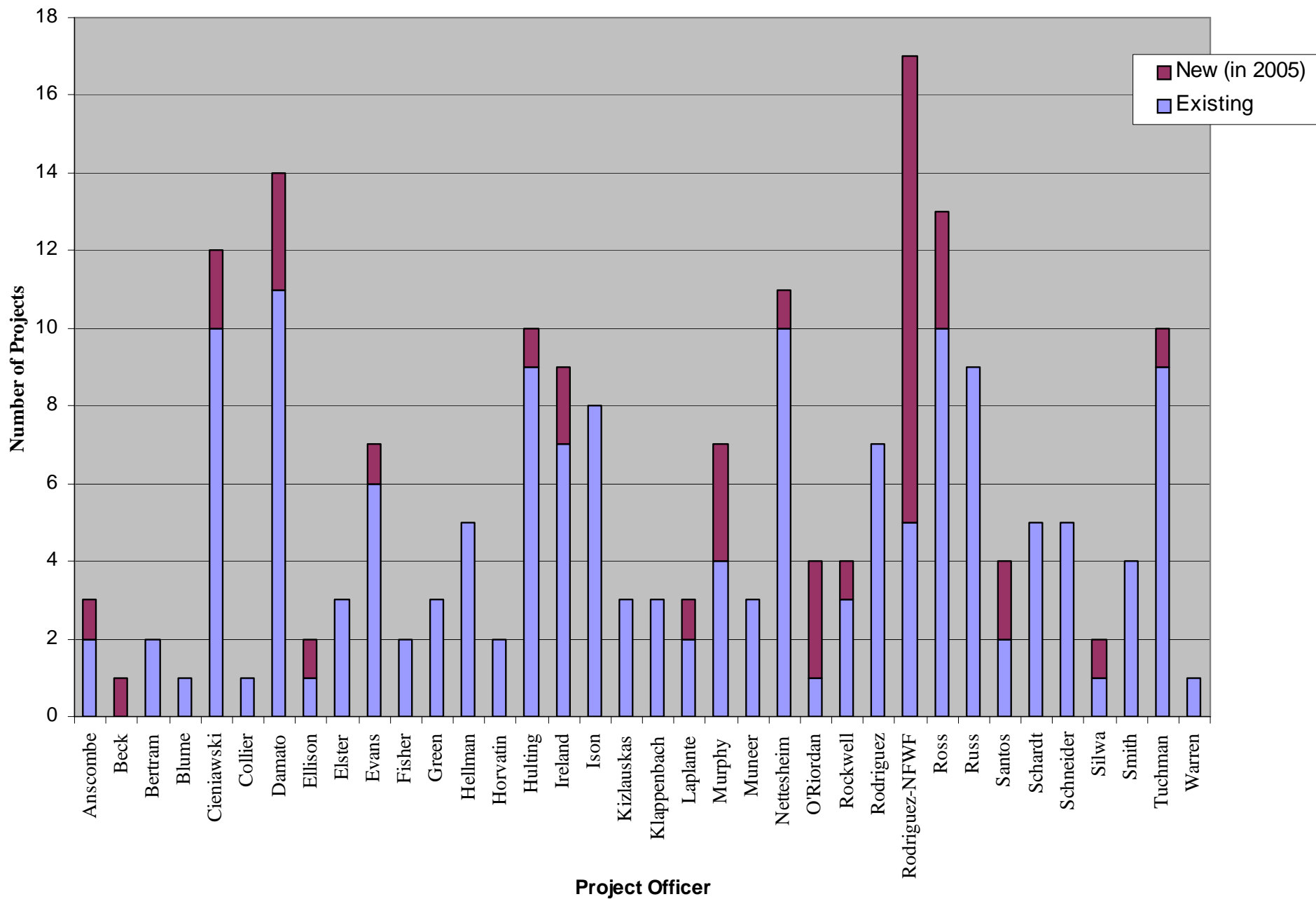
Evaluation of GLNPO

Stage 3 Questions

How many projects have been assessed to evaluate key quality concerns and quality implementation?

- Complete data review of our base monitoring program: limnology, biology, fish, air toxics, and all Legacy Act projects, Site/lab assessments for all over the 5 years.

- Several large programs underwent peer/program reviews including the Great Lakes Fish Monitoring Program (GLFMP), Biology program, Air Toxics Monitoring and Coastal Wetlands.

Evaluation of GLNPO

Stage 3 Questions

Are we focusing quality resources on the most important office decisions?
Are we prioritizing resources to areas of greatest uncertainty?
Is this uncertainty relevant to the decision to be made?
Are we focusing quality resources on the most important office decisions?

Fish Program: From program review with stakeholders: quicker turnaround, better handle on representation

Phytoplankton part of biology program has too much measurement variability thus can not use for trends (methods study to address) No new analyses

Air Toxics program need data comparability with Canadians

Legacy Act full Quality oversight, need to address data management issues and quality at state level

Lakewide Management Plans: Need to figure out process to de-list Areas of Concerns and complete 2 by FYO7, per EPA's Strategic Plan

Evaluation of GLNPO

Stage 4 Questions

Have true environmental outcomes been addressed?

Yes but some programs lack a comprehensive report, other than SOLEC and GPRA.

Have we discussed how these quality issues affect the decision?

Difficult without a comprehensive reporting process. Do report quality concerns through the GPRA annual updates.

Is the final product disseminated, consistent with IQG and Peer Review (reproducible)?

Marginal job of dissemination, a few missing pieces, a few secondary data reports were lacking proper citation and traceability but progress is obvious.

Have we discussed recommendations for improvement?

Yes, but progress is slow, and driven by resource limitations, to many new initiatives, and fear of change.

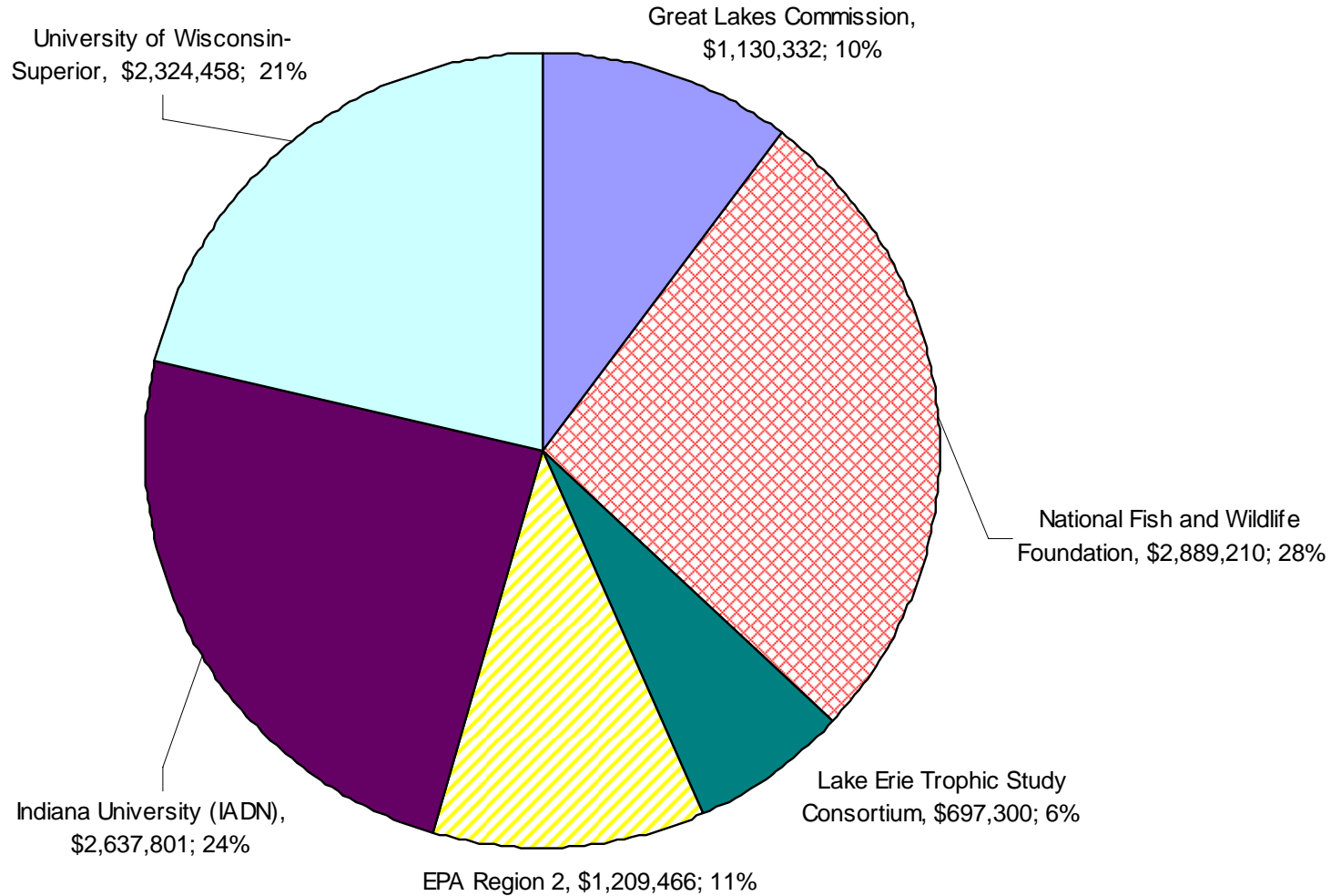# How does this relate to Quality Metrics?

- Is it possible to use this type of approach (Stages and Management Questions) in our annual reporting process? At least, start with simple inventory questions and phase in Stage 3 & 4 questions over time.

- What about oversight of delegated programs? They offer challenges in oversight and tracking yet the empowerment frees up time.
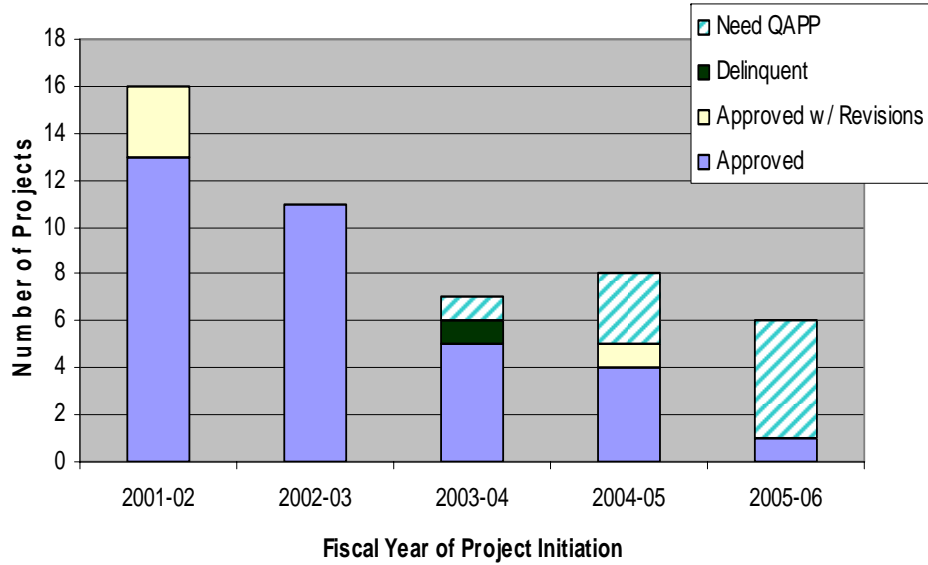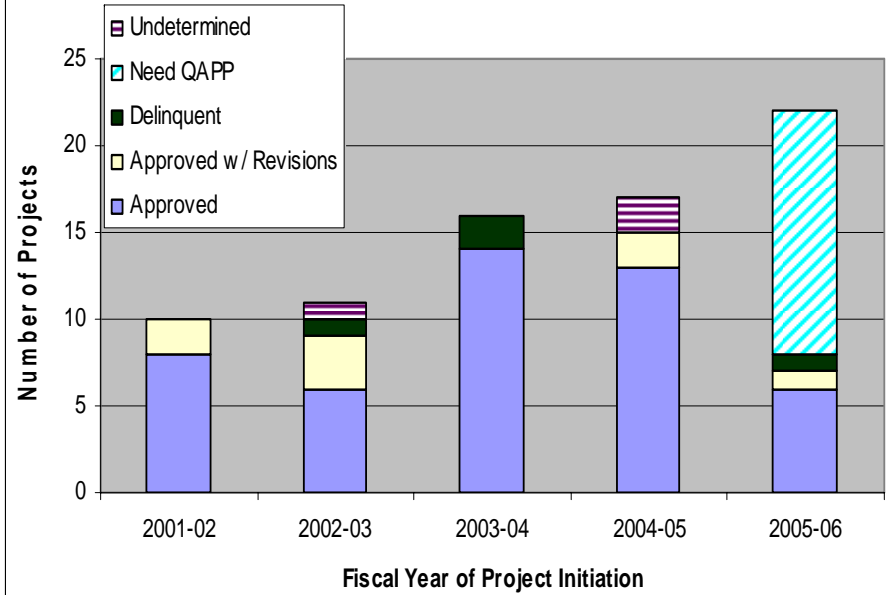
Evaluation of GLNPO

Funding of GLNPO's Delegated QA Programs, FY2001-2005
(including projects not requiring QA)

University of Wisconsin-Superior, $2,324,458; 21%

Great Lakes Commission, $1,130,332; 10%

National Fish and Wildlife Foundation, $2,889,210; 28%

Lake Erie Trophic Study Consortium, $697,300; 6%

EPA Region 2, $1,209,466; 11%

Indiana University (IADN), $2,637,801; 24%

MIRB Quality Documentation Status, December 2005

Legend: Need QAPP, Delinquent, Approved w/ Revisions, Approved

Y-axis: Number of Projects
X-axis: Fiscal Year of Project Initiation

TAAB Quality Documentation Status, December 2005

Legend: Undetermined, Need QAPP, Delinquent, Approved w/ Revisions, Approved

Y-axis: Number of Projects
X-axis: Fiscal Year of Project Initiation

PCCB Quality Documentation Status, December 2005

Legend: Undetermined, Need QAPP, Delinquent, Approved w/ Revisions, Approved

Y-axis: Number of Projects
X-axis: Fiscal Year of Project Initiation

Lake Teams Quality Documentation Status, December 2005

Legend: Need QAPP, Approved w/ Revisions, Approved

Y-axis: Number of Projects
X-axis: Fiscal Year of Project Initiation
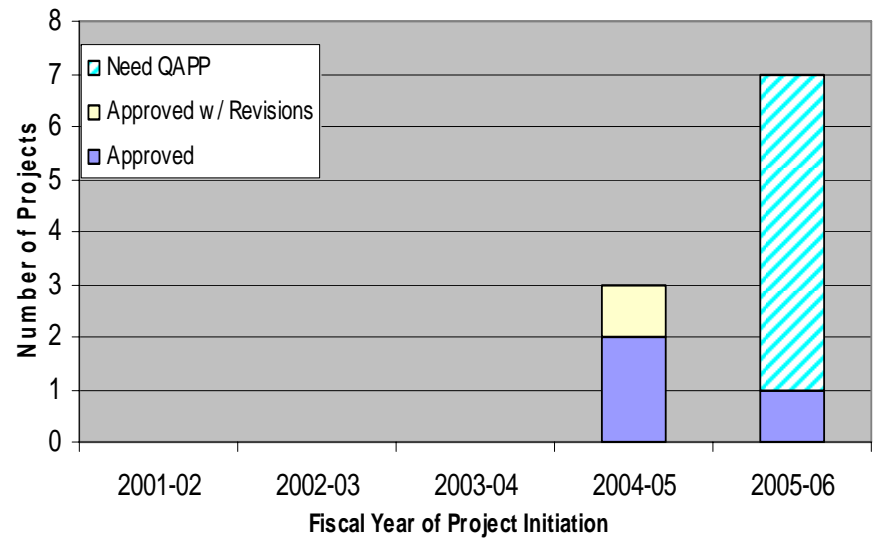
Policy Coordination & Communications Branch

- Management still in latter stages of denial, need MSR help to Acceptance Stage.

- Repetitive delinquencies by some, QA seen as bureaucratic hoop to get through

- Non-traditional applications of quality

  – heavy influence on secondary data and policy issues, (e.g., P2, environmental ed., policy documents)

Need to take ownership on IQG process

Stage 1

Technical Assistance & Analysis Branch

- Best track record of QAPP delivery, cooperation, and resolution of delinquencies
- Lack of data review, data quality assessment, and considerations of quality in reporting
- PO heavily involved in State-implemented projects and QAPPs
- Need to integrate IM with technical decision-making

Stage 2.5

Current TAAB QA Workload Distribution by Project Officer
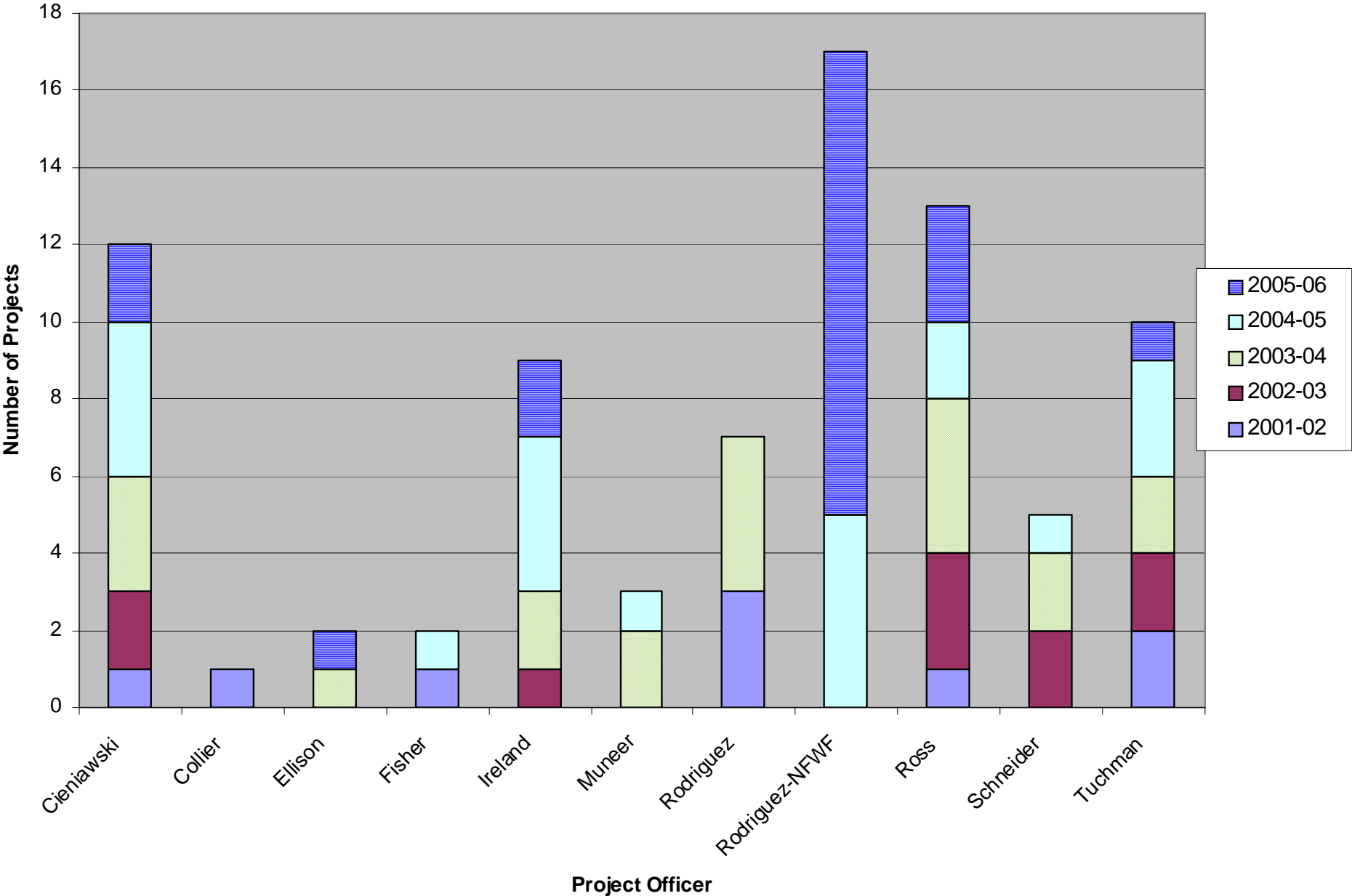
Monitoring, Indicators, and Reporting Branch

- Branch chief is highly supportive and a great help in driving peer review.

- Lack of systematic reporting leads to limited data quality assessment and corrective action.

- Several shining stars but some staff still pay lip service: "We never worried about errors before, why worry now?"

Stage 2.5

Lake Team Managers

- Focus on three in-house managers
  - One has eagerly accepted Quality process and setting a good example
- Heavy emphasis on secondary data
- More training and ownership needed
- Challenging to implement process because they report to Office Director

Stage 1

Evaluation of GLNPO

	Characteristics	Actions	Attitudes
PCCB	1	2	1
MIRB	2-3	3	2-3
TAAB	2-3	2-3	3
Lake Teams	1	1	2
GLNPO	2.6	2.8	2.8

PCCB = Policy Coordination & Communications Branch
MIRB = Monitoring, Indicators & Reporting Branch
TAAB = Technical Assistance & Analysis Branch

Evaluation of GLNPO

GLNPO's Overall Quality Stage Score (QSS)

QSS = 2.75

Conclusion

- Stages of quality allow comparisons across programs

- Management questions provide relevance and linkage to Enterprise Assurance

- This process could provide enhanced usability to the QA Annual Report

Raise
yourself up
on quality's
wings!

Please send all comments and questions to: Louis Blume, GLNPO QM 312-353-2317; Blume.Louis@epa. gov

Great Lakes National Program Office's QMP: http://www.epa.gov/glnpo/qmp/index.html