Department of Pesticide Regulation
Environmental Monitoring Branch
Surface Water Protection Program

David Duncan
Nan Singhasemanon

Department of Pesticide Regulation

Environmental Monitoring Branch

- Has lead role in implementing the Department's environmental protection programs
- Monitors the environment to
  - Determine the fate of pesticides, protect the public & environment
  - Informs the pesticide registration and reevaluation process
  - Analyzes hazards and develops mitigation strategies

Environmental Monitoring Branch

- **Air**
- **Ground Water**
- **Surface Water**

Registration Evaluations
Ground Water, Surface Water, Air

- Each EM unit receives data packages from Registration
- May be new AI, change in registration, or new data submittal for evaluation
- What is the potential for future problems with the new AI, registration or change?

Registration Evaluations
Ground Water, Surface Water, Air

- Each unit evaluates new products or changes to registrations for
  - Impacts to aquatic or sediment-dwelling organisms,
  - Impacts to ground water that may pose a health concern
  - Impacts to air quality that may pose a health concern
- Persistence, mobility and toxicity are key factors
- Computer modeling is tool to estimate impacts
- Models use combination of variables and constants

Registration Evaluations
Ground Water, Surface Water, Air

Important indicators for use in modeling:

- AI persistence, mobility, toxicity or risk factor
- Use patterns
- Developing for degradates in SW approach

Evaluation Results

- Recommendations to Registration Branch
  - Support with or without condition, or do not support
- Request additional data
- Flag for further evaluation if registration changes are proposed
- Focus additional monitoring

Surface Water Program (SWP)

Surface Water Program (SWP)

- Routing Criteria (last updated in 2012):
  - All new active ingredients (a.i.)
    - With some exceptions
  - Direct application to water
  - Use on rice
  - Antifouling paints
  - Products designated by Registration Branch Chief as needing evaluation by SWP

Routing Order & Procedure

- SWP – end of the review queue
- Historically packets routed to SWP early during registration process
  - However SWP policy requires approved Chemistry and Fish & Wildlife evaluations
- Recent changes
  - Packet does not get routed to SWP until both stations have completed evaluations
  - Now proposed labels and draft evaluations may be provided to SWP earlier

Evaluation Overview

- Regulatory specialist routes packet to SWP
  - Logged in for tracking & assigned
  - Assignment based on expertise & workload
- Two routes for evaluations in SWP:
  - Model assisted
  - Not model assisted
- Prior to 2012 – all latter category
- Still get mix of both

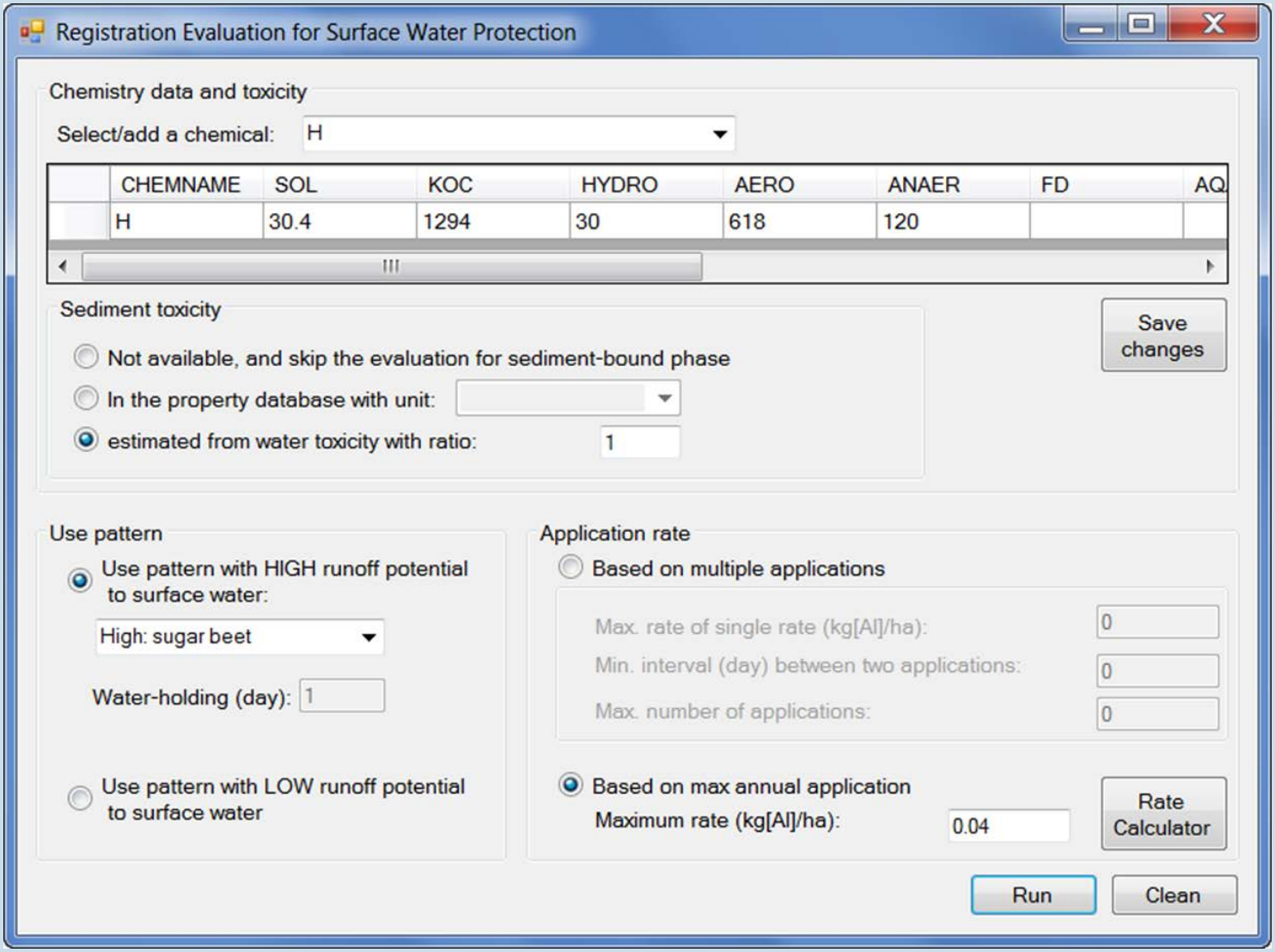
SWP Model

- Risk quotient based
  - “Compact risk assessment” geared toward CA conditions
- Modules I & II (posted)
- Staff have “user manual”
- Emphasize importance of identification & verification of data
- Can run dissolved & absorbed phases

SWP Model (continued)

- Based on U.S. EPA PRZM
- No EXAMS component
- Edge-of-field prediction w/ degradation built-in
- Urban component relied on landscape designs from U.S. EPA CA red-legged frog effects determinations
- Also has aquatic application scenario
  - Not PRZM based but screening level, but can calculate risk quotient in some cases

User Interface (Modules I & II)



Model Use

- Scientist evaluate proposed labels
  - How many model scenarios to run? (15 total)
  - How much applied? Focus on maximum rates, frequencies, intervals (accurate determination critical)
  - Calculate “Effective Application Rate?”
- For label amendments – only added use evaluated
- When label is unclear, conservative interpretation is made

Exposure Determination

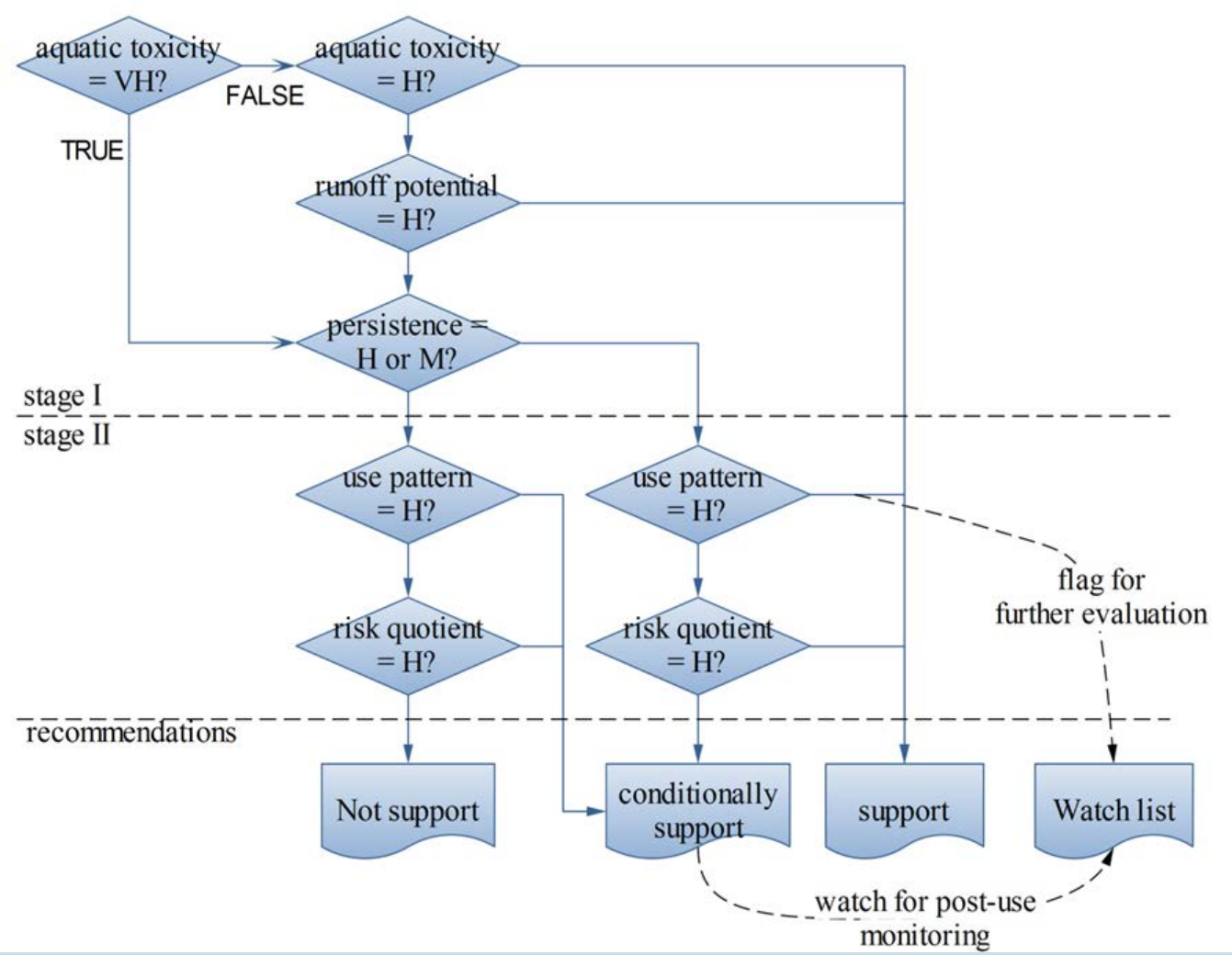
- Completed Chemistry evaluation relied upon
  - Only use physico-chemical & e-fate values from approved registrant submissions
  - Input data worksheet is recommended
  - Not all model input is required for runs
  - Use mean values, unless there are CA-specific data
  - In some cases, staff must go back to earliest product evaluated for data
  - No longer rely on outside data (e.g., EU Footprint)

Hazard Determination (Toxicity)

- Completed Fish & Wildlife evaluation relied upon
  - Must be approved tests & results

- Scientist evaluates toxicity endpoint
  - Lowest aquatic fauna EC50/LC50
  - Do not use NOECs from mesocosm studies
  - When Koc > 1,000: lowest benthic fauna EC50/LC50 used

Model Flow Chart



Model Recommendations

- Support, Support + Flag, Conditional or Deny
- Model recommendation strongly considered but SW recommendation could differ…
  - Example: degradate concerns
- Methodology allows registrants to submit full PRZM/EXAMS runs
- Conditional usually involved analytical method request, but sometimes more
  - Additional toxicity tests, e-fate studies

Monitoring for Conditional A.I.'s

- Recall methods are minimum requirements for conditional a.i.'s
- These a.i.'s go on SW Watch List
- SW has monitoring prioritization model
  - Based on evaluation of use amounts, toxicity, physico-chemical properties & product use patterns
- Provides a "safety net" to catch potentially problematic conditional a.i.'s
- If approved, a.i. added to SW urban or ag monitoring

Closing Considerations

- Steep learning curve for non-modelers
  - Periodic training sessions for staff
- Module III – urban scenario improvements recently posted (now w/ EXAMS!)
- Overall model continually evolving
  - Striving for more realistic & CA-centric predictions
- Eventually registrants could run model prior to submission to DPR
  - Could help shape the development of future product labels

Closing Considerations (continued)

- SW evaluations & recommendations:

  1) Protect SW quality while allowing pest management

     ✓ Will identify products with the highest potential to cause SW problems

  2) Avoid costly, involved & protracted efforts to develop & implement mitigation or regulations

  3) Successful resolution between DPR & registrants reinforces the usefulness & importance of SW registration evaluations

  4) Highlights registrant stewardship efforts & improves public perception of registration process

Thank you for your interest

Questions…?