A relational database for California salmon data

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Abstract

Two persistent problems facing California salmon researches are difficulty sharing study data, and data with little documentation. A centralized relational database (RDB) can help solve these problems. A relational database (RDB) can help solve these problems. I describe an RDB tailored to anadromous species projects such as hatchery releases, stream trapping, mark and recapture surveys, and Coded Wire Tag recoveries. An RDB is a set of relations among a set of tables. These intertwining relationships make it possible to store extensive documentation along with detailed, interactive, and visual data presentation.

Methods

What was achieved:

- Developed an RDB tailored to anadromous species projects.
- Implemented an RDB with detailed documentation.
- Developed an RDB with data from various sources.

Data compiled:

- Developed an RDB with data from various sources.
- Developed an RDB with data from various sources.

Results

- Data compiled and documented.
- Data compiled and documented.

Discussion

What is proposed:

- Implement an RDB with detailed documentation.
- Implement an RDB with detailed documentation.

Necessary resources:

- Implement an RDB with detailed documentation.
- Implement an RDB with detailed documentation.

References


The following play an important part in developing the salmon data systems presented here: Dr. Robert Titus, Melodie Palmer-Zwahlen, Joseph Duran, Brenda Erwin, Don Pearson, Alice Low, Stan Allen, Douglas Killam, Connie Shannon, Robert Kano. The following dedicated scientists and hatchery personnel provided the data to populate the database: Bob Anderson, Steve Boyd, Matt Brown, Mike Brown, Kari Chr(13) & "2009 River Count = " & intRivCount & ")

DBMS software: Microsoft Access, California Fish and Game's standard database application.

SQL is easier to learn, faster to write, easier to debug, faster to run than conventional implementations such as Matlab, Visual Basic.

"PREPARE COUNT(*) AS Dim intResult As Integer
For I=1 To m good=good+1 intHatCount = intHatCount + 1
For I=1 To n bad=bad+1 intRivCount = intRivCount + 1
End If
Ans=load(str)
Dim ans As Variant
result(i,2)=length(ans)
result(i,3)=good
result(i,4)=bad
End Sub
Dim str As String
str=Path+"_2009.csv"
Dim ans As Variant
Dim good As Integer
Dim bad As Integer
Dim intHatCount As Integer
Dim intRivCount As Integer

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"SELECT year, location, COUNT(*) FROM Surveys
GROUP BY location"

"SELECT count(*) FROM Surveys
WHERE year=2009 and location="hatchery"
SELECT count(*) FROM Surveys
WHERE year=2009 and location="river"
SELECT COUNT(*) FROM Surveys
WHERE year=2009 and location="hatchery"