FLORIDA DEPARTMENT OF CORRECTIONS

Research Report

Bureau of Planning, Research & Statistics

ANLAYSIS OF SLAM-PHASE II

INMATE POPULATION PROJECTIONS
(EXCLUDING JAIL BACKLOG)
-JULY 31, 1973 THRU JANUARY 31, 1979-

79-R-16

FEBRUARY 8, 1979

ANALYSIS OF SLAM-PHASE II

INMATE POPULATION PROJECTIONS
(EXCLUDING JAIL BACKLOG)
-JULY 31, 1973 THRU JANUARY 31, 1979-

- The inmate population projections developed using SLAM-Phase II have been 98.7% accurate over a 67 month period from July, 1973 thru January, 1979. These same projections over the most recent 31 months have been 99.5% accurate when compared to actual head-counts taken on the last day of each month.

- The date that the current inmate population projections were developed using the SLAM-Phase II model was June, 1978.

- The period of simulation validation is July 31, 1973, to June 30, 1978. The model was applied to a base population in custody for July 31, 1973 and each year's admissions were input through FY 1977-78. Future admission totals were developed using a multiple regression of population at risk (males; aged 18-29) and unemployment.

- Driven by the known and projected admissions, the model computed the probability of each inmate being in prison at the end of each month and aggregated these probabilities to determine the end-of-month population. The attached graph and table values reflect the number of inmates predicted by the model to be in prison for each month shown.

- During the period from July, 1973 through January, 1979, the projected end-of-month population was compared to the head counts reported for the same day. For this period, the model overestimated the actual population in 60 of the 67 months.

- The greatest magnitude or error was 676, for December, 1974.

- The smallest magnitude of error was 3, for February, 1978.

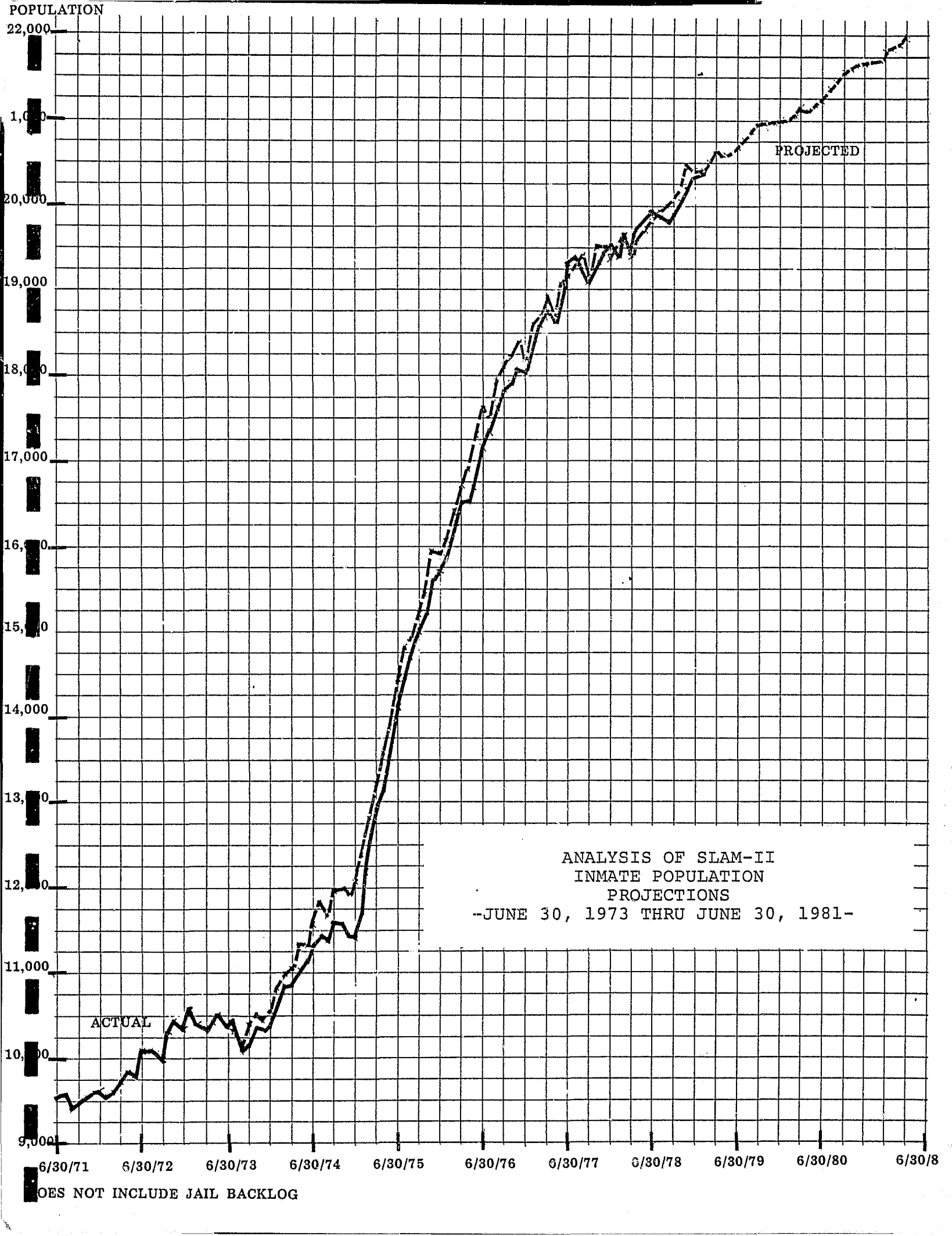
- The rate of error for each of the Fiscal Years is as follows:

	AVERAGE ERROR IN OVERESTIMATION		AVERAGE ERROR IN UNDERESTIMATION		AVERAGE ABSOLUTE ERROR	
	#	%	#	%	#	%
FY 1973-74	180	1.7	164	1.6	151	1.4
FY 1974-75	455	3.6	0	0	455	3.6*
FY 1975-76	257	1.6	0	0	257	1.6*
FY 1976-77	176	1.0	88	.5	152	.8
FY 1977-78	81	.4	44	.2	29	.1
FY 1978-79 (to date)	139	.7	0	0	139	.7

* This error may be viewed, in part, as the result of unusual and unpredictable activities in the parole sector (exceptional monthly releases of 525 in August, 1974, and 461 in December, 1975, of inmates who were scheduled for release in the next fiscal year).

- The overall average rate of error for the entire period was 202 out of an average 15,508 inmate population. This represents an average rate of error of 1.3%.

- The average rate of error for the most recent 31 months (July, 1976 thru January, 1979) has been 101 out of an average inmate population of 19,135. This represents an average rate of error of .53%.


POPULATION
22,000
20,000
19,000
17,000
14,000
11,000
9,000
PROJECTED
ACTUAL
6/30/71
6/30/72
6/30/73
6/30/74
6/30/75
6/30/76
6/30/77
6/30/78
6/30/79
6/30/80
ANALYSIS OF SLAM-II
INMATE POPULATION
PROJECTIONS
-JUNE 30, 1973 THRU JUNE 30, 1981-
OES NOT INCLUDE JAIL BACKLOG

SLAM-PHASE II

MONTHLY INMATE POPULATION

(EXCLUDING JAIL BACKLOG)

JULY 31, 1973 THRU JANUARY 31, 1979

	PRO-JECTED	ACTUAL	NUMBER OVER-ESTIMATED	NUMBER UNDER-ESTIMATED
7/1973	10,273	10,437		164
8/1973	10,189	10,103	86	
9/1973	10,396	10,219	177	
10/1973	10,518	10,394	124	
11/1973	10,479	10,374	105	
12/1973	10,560	10,392	168	
1/1974	10,846	10,641	205	
2/1974	10,999	10,811	188	
3/1974	11,066	10,825	241	
4/1974	11,313	11,067	246	
5/1974	11,326	11,141	185	
6/1974	11,587	11,335	252	
7/1974	11,767	11,441	326	
8/1974	11,686	11,373	313	
9/1974	11,952	11,599	353	
10/1974	11,984	11,574	410	
11/1974	11,955	11,466	489	
12/1974	12,096	11,420	676	
1/1975	12,368	11,713	655	
2/1975	12,771	12,184	587	
3/1975	13,241	12,748	493	
4/1975	13,584	13,165	419	
5/1975	13,897	13,504	393	
6/1975	14,481	14,130	351	
7/1975	14,769	14,466	303	
8/1975	14,855	14,688	167	
9/1975	15,241	15,004	237	
10/1975	15,429	15,246	183	
11/1975	15,906	15,648	258	
12/1975	15,899	15,714	185	
1/1976	16,078	15,890	188	
2/1976	16,476	16,336	140	
3/1976	16,773	16,588	185	
4/1976	16,813	16,519	294	
5/1976	17,263	16,735	528	
6/1976	17,593	17,172	421	
7/1976	17,543	17,293	250	
8/1976	17,909	17,639	270	
9/1976	18,125	17,817	308	
10/1976	18,231	17,990	241	
11/1976	18,389	18,085	304	
12/1976	18,230	18,054	176	
1/1977	18,602	18,476	126	
2/1977	18,716	18,637	79	
3/1977	18,886	18,827	59	
4/1977	18,721	18,674	47	
5/1977	19,083	19,028	55	
6/1977	19,181	19,269		88
7/1977	19,288	19,317		29
8/1977	19,361	19,287	74	
9/1977	19,218	19,072	146	
10/1977	19,508	19,282	226	
11/1977	19,507	19,473	34	
12/1977	19,335	19,347		12
1/1978	19,550	19,479	71	
2/1978	19,641	19,638	3	
3/1978	19,412	19,402	10	
4/1978	19,671	19,717		46
5/1978	19,734	19,785		51
6/1978	19,797	19,881		84
7/1978	19,934	19,855	79	
8/1978	20,000	19,784	216	
9/1978	20,072	19,873	199	
10/1978	20,237	20,074	163	
11/1978	20,490	20,223	267	
12/1978	20,483	20,437	46	
1/1979	20,489	20,483	6	

Florida
Department of Corrections

POPULATION PROJECTIONS

JUNE 30, 1979 - 20,685
JUNE 30, 1980 - 21,236
JUNE 30, 1981 - 21,943

PREPARED BY:

BUREAU OF PLANNING,
RESEARCH & STATISTICS

SEPTEMBER 19, 1978

DEPARTMENT OF CORRECTIONS
SUMMARY ANALYSIS
SIMULATED LOSSES/ADMISSIONS MODEL
POPULATION PROJECTIONS

A new computer based methodology known as Simulated Losses/Admissions Model (SLAM) has been developed which predicts the probability of release for each offender currently in custody and those to be admitted to D.C. institutions.

In the current stage of development, the model:

1) Considers the distribution of the actual time served by those incarcerated or released within 14 length-of-sentence categories; and

2) Computes the probability that each inmate will remain incarcerated at the end of each month.

In order to operate the model, it was necessary to predict admissions based upon a multiple regression of factors considered appropriate. These factors are:

1) The population at risk, specifically males aged 18 - 29.

2) The unemployment rate in Florida: 6.0% - 1978; 5.9% - 1979; 5.9% - 1980

This approach was adopted after a survey was conducted in 49 states and the District of Columbia to identify methods and variables used by other departments to predict inmate population.

Consideration has been given in the design of the model to account for recent changes in criminal law penalties (i.e., 3-year and 25-year minimum mandatory sentences) and administratively controlled variables such as the varying number of release days in a given month.

Once the concept of the model was developed and implemented, a rigorous testing was conducted. The results of this testing indicated an average error or overestimation in 50 of the last 60 months (ending June 30, 1978) of 135 inmates and an average underestimation in the remaining 10 months of 68 inmates.

In summary, the new Simulated Losses/Admissions model permits us to predict changes in prison population based on population at risk, unemployment rates and release rates as opposed to simply projecting historical prison population figures.

DEPARTMENT OF CORRECTIONS

LOUIE L. WAINWRIGHT, SECRETARY

STATISTICAL FACTS

DATE AUGUST 7, 1978 REPORT # SF-78-006

INMATE POPULATION PROJECTIONS
(INCLUDES CONTRACT JAIL BEDS, EXCLUDES ESTIMATED JAIL BACKLOG)
1978 TO 1983

FISCAL YEAR	ANNUAL ADMISSIONS	ANNUAL LOSSES	JUNE 30 POPULATION	ANNUAL NET GAIN
1977-78	8001	7389	19,881	612
1978-79	7799	6995	20,685	804
1979-80	8092	7541	21,236	551
1980-81	8430	7723	21,943	707
1981-82	9039	7975	23,007	1064
1982-83	9244	8331	23,920	913

METHODOLOGY

Admissions were projected using multiple regression based on the Florida unemployment rate and the Population at Risk (Florida males, 18-29). They include new admissions from court and parole and MCR violations. Losses include releases and net losses from temporary absences. The population projections were based on 14 length-of-sentence probability functions. The probability functions were based on all inmates in prison during a three year period, not just on those released. No adjustment factors as in Phase 1 were needed for these probability functions.

ASSUMPTIONS

* The major releases will occur on the first working day of the month.
* End of Sentence lump sum gain time will be phased out by December accounting for an increase of about 400 inmates.
* Contract jail beds will be reduced to about 45 by December.
* The gain time law passed by the last legislature will effect no significant change in current release rates.
* The unemployment rate will be about 6.0% in 1978, 5.9% in 1979 and 1980 as projected by DOA. After 1980, it is estimated that the average unemployment rate will be 7% based upon average unemployment rate from 1972-1977.
* The criminal code currently on the books will not change significantly.
* The general public, prosecutors and judges will react to crime and criminals as they have in the past.
* The parole rate will not change significantly.
* Population-at-risk estimates published by DOA were revised from 804,000 to 799,000 for 1978, from 830,000 to 826,000 for 1979, from 857,000 to 854,000 for 1980, from 877,000 to 874,000 for 1981, from 893,000 to 891,000 for 1982, and from 906,000 to 905,000 for 1983.

PREPARED BY: BUREAU OF PLANNING, RESEARCH AND STATISTICS

(OVER)

MONTHLY INMATE POPULATION PROJECTIONS
(INCLUDES CONTRACT JAIL BEDS, EXCLUDES ESTIMATED JAIL BACKLOG)
1978 TO 1983

MONTH	1978-79	1979-80	1980-81	1981-82	1982-83
July	19,934	20,756	21,322	22,064	23,120
August	20,000	20,842	21,423	22,201	23,248
September	20,072	20,933	21,530	22,344	23,380
October	20,237	20,951	21,559	22,404	23,426
November	20,490	20,982	21,604	22,479	23,486
December	20,483	20,991	21,623	22,526	23,518
January	20,489	21,001	21,645	22,575	23,553
February	20,509	21,029	21,686	22,643	23,606
March	20,612	21,141	21,813	22,802	23,755
April	20,599	21,132	21,816	22,827	23,766
May	20,619	21,161	21,855	22,891	23,817
June	20,685	21,236	21,943	23,007	23,920

LONG-RANGE ANNUAL PROJECTIONS:
ADMISSIONS/LOSSES, POPULATION (WITH CONTRACT JAIL BEDS,
EXCLUDING ESTIMATED JAIL BACKLOG)

DATE	ADMISSIONS	LOSSES	POPULATION
6/79	7,799	6,995	20,685
6/80	8,092	7,541	21,236
6/81	8,430	7,723	21,943
6/82	9,039	7,975	23,007
6/83	9,244	8,331	23,920
6/84	9,431	8,658	24,675
6/85	9,558	8,915	25,318
6/86	9,679	9,111	25,886
6/87	9,787	9,279	26,394
6/88	9,884	9,415	26,863
6/89	9,992	9,543	27,312
6/90	10,077	9,667	27,722
6/91	10,149	9,783	28,088
6/92	10,184	9,872	23,400
6/93	10,198	9,933	28,665
6/94	10,184	9,978	28,871
6/95	10,174	10,003	29,042
6/96	10,174	10,016	29,200
6/97	10,184	10,023	29,361
6/98	10,209	10,038	29,532
6/99	10,247	10,057	29,722
6/2000	10,282	10,082	29,922

END